

## **Embedded SBCs & HMIs**

2018/2019



SOLUTIONS THAT COMPLETE!



## **Full Featured Embedded Systems**



Size of RAM and Flash memory



CPU architecture class and clockrate



2D/3D graphics acceleration



Support for video en-/decoding



Display size



Wide viewing angle



High brightness



TTL display interface



LVDS display interface



Dual channel LVDS



HDMI interface (Full HD)



Resistive touch technology



PCAP touch technology



Ambient light sensor



Ideal for Outdoor



PCle



WIFI Bluetooth



LTE 4G



GPS



Various audio interfaces



SD card



Micro SD card



USB host and OTG



Serial RS-232, debug



Multi Drop Bus



SPI and/or I<sup>2</sup>C



Digital and/or analogue inputs and outputs



RS-485



Ethernet



CAN bus



Windows Embedded Compact



Linux Yocto



Android

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### About Garz & Fricke

### Our offer and our history



A good product must be fun for both sides: the manufacturer and the customer

Manfred Garz, founder

We are organized as two business units which jointly share our resources:



#### **Embedded Systems**

Our range extends from typical single components and modules to ARM-based microcomputer systems and seamlessly integrated HMI systems. We develop our complete solutions with electronics, software and enclosures, either cost-effectively by adapting and modifying a standard solution or from scratch in line with a customer request.

At Garz & Fricke all our R&D resources, technical staff and customer service personnel are located on site in our modern facilities in Hamburg. We support our customers from the design stage of the specification, via prototyping and mass production, through customer service. This is how we can achieve short processing times without compromising the highest quality standards.

#### Garz & Fricke

We are a medium-sized company established in 1992. We design, develop and manufacture microelectronics exclusively at our home base in Hamburg. Our customers are OEMs and system integrators, mainly from the medical, automation, professional kitchen equipment, mobile computing, security, measurement and control, transport and naval industries, all of whom appreciate our high level of vertical integration. To us "Made in Germany" does not only mean a local integration of end products, but our own design and production of the entire electronics solution on one site - from the first concept through to the final mass production.

#### **Cloud-based Smart Vending**

How can you deliver your products in a cost-effective manner to your customers?

Smart Vending machines are nothing new. But what really is new is a user-friendly and engaging experience with touchscreens up to 32", which are intelligent enough to optimize all logistics processes and thus cut operational costs. Smart energy management, unified interfaces for service technician and user together with highly sophisticated software all help to further reduce costs, especially for larger machine installations. A wide range of banknote readers and coin changers is available to meet almost all the payment needs of your smart vending solution. cloud-based telemetry platform - e.g. for predictive maintenance or filling level information - created this IoT application even before the term IoT was first coined.



#### Our VISION

 We aim to become the European market leader for ARM-based HMI systems by 2020.

#### Our MISSION

- We make our customers happy and satisfy their current and future needs by using our extensive know-how and experience to offer complete solutions from a single source: products of the highest quality at competitive prices, which we design, develop and manufacture ourselves.
- This is what makes us an innovative and reliable partner for our customers.

#### Our RESPONSIBILITY

- We see ourselves as a company committed to our employees, customers, and shareholders but also to our environment and society. We are a multicultural, equal-opportunity and non-discriminatory company.
- Our principles are transparency and honesty, as well as a respectful interaction with each other both inside and outside the company.

### The founders: Engineers driven by passion

In 1992 Manfred Garz and Matthias Fricke, who were Electrical Engineering students at Braunschweig in Germany, founded the company Garz & Fricke. Their first office was exactly 86 m² and included a production room at the hit-Technopark in Hamburg. Today, Garz & Fricke GmbH employ more than 130 people in a modern facility over an area of more than 3,000 m².



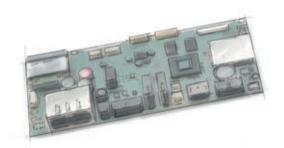


### **Our Product Form Factors**

## Select the product that fits perfectly

#### **Single Board Computers**

Focus on your application and core know-how! The use of our turnkey pre-integrated embedded computer systems minimizes development risks and saves time, money and headaches.



Avoid unnecessary stress and take advantage of our experience and highly scalable platform concept with our unified software distribution concept. We integrate the standard operating systems Linux, Android or Windows Embedded Compact for you so that they are "application-ready". This saves you having to worry about operating systems, drivers or libraries. Instead, you can focus your resources entirely on your application. Our systems are reliable as well as durable, and we proudly manufacture them in Germany ourselves to meet the highest quality standards.

#### **Rear Mount HMIs**

To enable a simple installation into your device, we offer our single board computers for HMI applications as matched turnkey systems including touch display and housing. The Rear Mount HMI is installed from the inside of the front panel and easily fastened with screws. We will be glad to advise you on the selection of suitable sealings or scratch-resistant cover foils.



#### Panel Mount HMIs

To enable easy panel mount integration into your device, we offer our HMI applications as matched turnkey systems in this design too.



The Panel Mount HMI is installed from the front into a cutout in the front of your housing. The system as a whole can then be fixed with screws from the inside or with clamping screws against the front panel. This design type features extreme robustness and is particularly suitable for quick installation into control panels or consoles. It is also easy to mount as it can stand larger cut tolerances. Pre-assembled seals allow high IP protection classes without any great effort. On request, cover glass or foil can be individually printed to the customer's needs.





#### Wall Mount HMIs

The Garz & Fricke HMI systems of the Wall Mount family are the perfect base for all centralized operating or visualization requirements of different kinds of building automation and management applications. In contrast to our other HMI families, these wall mount HMIs typically are installed separately from a central unit that runs the application and can even be easily integrated retrospectively. Various wired and wireless communication standards can be integrated for communication with these central units.

#### Flush Mount HMIs

When an HMI with a homogeneous glass and/or plastic front and many décor options is required, our systems in Flush Mount design are the perfect solution. They allow completely seamless or even flush integration into the housing of your application. The assembly is carried out from the front into a cutout of the surface. The fastening can be performed individually, according to the overall concept of the device inside.





#### DIN-Rail

Some of our turnkey pre-integrated single board computers can also be purchased "boxed" in a rugged housing for DIN Rail mounting. This saves you time and money and avoids development risks and unnecessary stress.

Take advantage of our experience and our highly scalable platform concept with uniform software distribution! We integrate the standard operating systems Linux, Android or Windows for you so that they are "application-ready". This saves you having to worry about operating systems, drivers or libraries and you can focus your resources entirely on the applications.

### The New Wall Mount Series

## Central wall-mounted control systems for your application

By virtue of their very elegant front and rear design, the Garz & Fricke Wall Mount HMIs blend perfectly and seamlessly with the overall architecture of every room. Energy-efficient components help to keep power consumption very low and minimize heat dissipation issues. This allows a slim HMI design with no moving parts, such as cooler fans, and contributes to a pleasant and efficient working atmosphere!

The Wall Mount series HMIs are packed with technological features:

Power over Ethernet (PoE)

More details on page 126/127.

- Proximity and ambient light sensor for energy-saving operation
- Microphone and speaker (e.g. for intercom application)
- Expansion slot (with mPCIe and USB interface, e.g. for WIFI, Blutooth, KNX etc.)
- The optical bonded touch display offers excellent readability even in surroundings with bright sunlight

Our HMI systems are able to operate applications perfectly. Some examples are provided below.

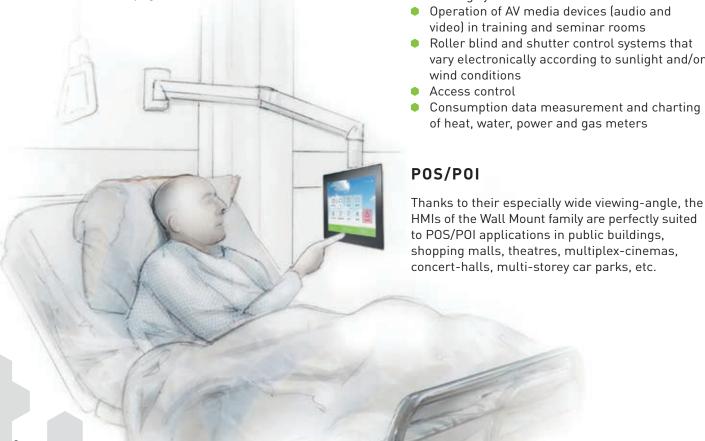
#### **Building automation**

The SANVITO Wall Mount HMIs are a perfect fit for typical building automation applications such as HVAC (Heating, Ventilation and Air Conditioning), conference room and meeting space management as well as light regulation.

Self-explanatory icons on high-brightness touch-displays with personalized user guidance or process-orientated menus are just a few of the requirements that can be solved easily by this state-of-the-art and highly flexible HMI platform. The following are examples of building automation systems that can be controlled efficiently:

- Time-controlled and/ or motion-triggered light switching and dimming, as well as complete light presets or scenarios
- Operation of central air conditioning and heating systems
- Operation of AV media devices (audio and video) in training and seminar rooms
- Roller blind and shutter control systems that vary electronically according to sunlight and/or
- Consumption data measurement and charting of heat, water, power and gas meters

HMIs of the Wall Mount family are perfectly suited to POS/POI applications in public buildings, shopping malls, theatres, multiplex-cinemas, concert-halls, multi-storey car parks, etc.

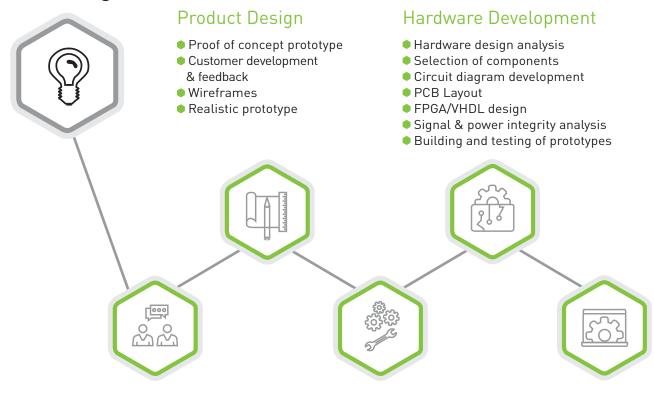




### **Our Services**

## What you can expect from us

## Your Design



## Consulting

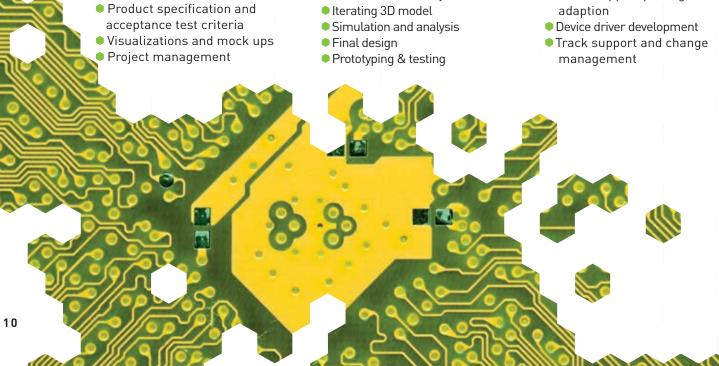
- Research
- System level design
- Key technology research

## Mechanical Design

- CAD drafting
- 3D modelling
- Simulation and analysis

## Software Development

- System analysis
- Bootload development
- Board support package





## **Garz & Fricke Product Longevity**

## Our Embedded Lifecycle Management

In contrast to consumer-orientated IT hardware, we guarantee our customers long-term availability for our embedded products (typically 10 years and more) in terms of mechanical, electrical and functional compatibility. This is accompanied by appropriate lifecycle management.

If a component change is inevitable, e.g. due to the announcement of discontinuation by a supplier at short notice, we will inform you by a Product Change Notification (PCN). This includes information as to whether your application might be affected in any way by the usage of the selected replacement component.

#### Prototype programme

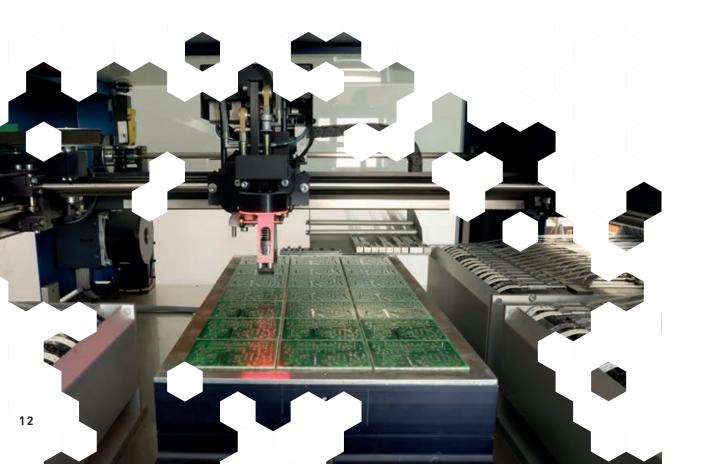
This means that, shortly after the announcement of a new product or system, we start the prototype programme to allow you the earliest possible design-in with full technical support from our side.

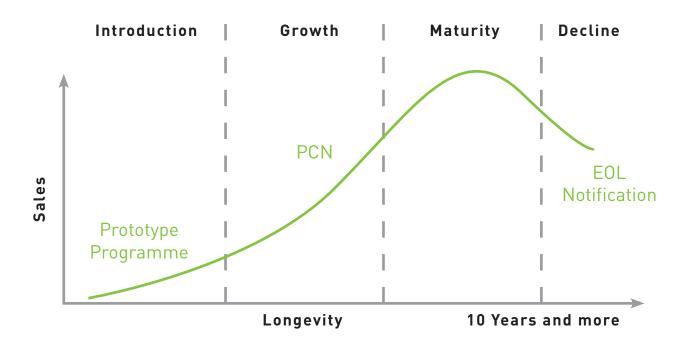
### **Product Change Notification (PCN)**

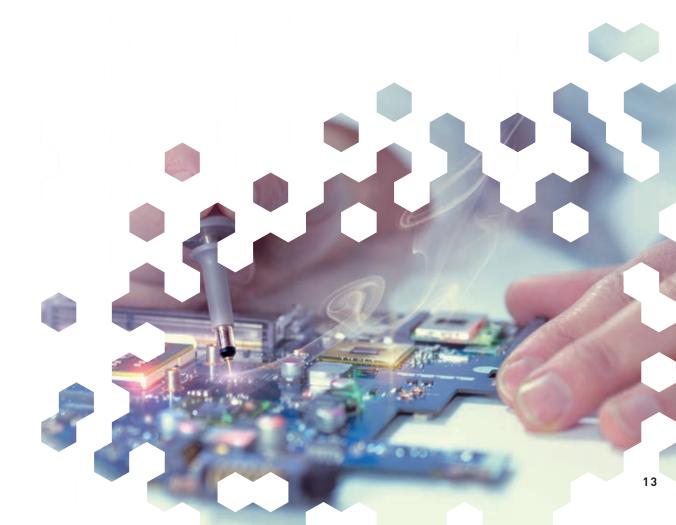
Garz & Fricke products have been manufactured reliably and in consistently high quality for many years. During the development process of new products, we set a risk class for each relevant component and define appropriate measures to ensure the long-term procurement without any changes to the components over the full lifetime of a product.

#### End of Life Notification (EOL)

When a standard product has reached the end of its lifecycle and the production is to be stopped, we inform the affected customers by e-mail six months in advance to give them the chance of a definite Last Time Buy (LTB) placement and to start the design-in of the recommended replacement product. Garz & Fricke collect the incoming orders and produce the final batches. Another twelve months later, the Last Time Delivery (LTD) period ends. Special extended lifetime agreements for customized systems can be negotiated.











#### Transportation

Highest demands for robustness ,reliability and availabilty. Must withstand toughest environments



#### Catering Equipment

User-friendly and robust to fulfil highest demands.



## Vending Machines

Rugged and flexible for use with all kinds of items.



Long-lasting and robust with scalable performance.



At Garz & Fricke we combine creativity with experience. We are capable of designing and manufacturing almost everything ourselves. This enables us to always find the perfect solution for you – no matter what business you are in or what challenge you face. This solution can be cost-efficient and based on standards or individually tailored to your specific demands.



## Tobacco Vending Machines

Proven and innovative featuring latest technology.



#### Kiosk POS

User-friendly and robust; flexibly configurable to meet individual demands.

#### Building Security

Highest standards of availability, safety and security under all working conditions.



## Digital Signage

User-friendly and robust with random scalability.



## Industrial Automation

Long-lasting and reliable with widely scalable performance.



#### Med/Lab Equipment

User-friendly with wide scalability and certified safety.



# Integrated electronics and software development: Illustrated by BSN medical GmbH's "Curasul®" Therapeutic Unit

Modern high-tech-based wound care expedites the recovery from illnesses and injuries which had complicated and lengthy healing processes until very recently. At the same time, this places special demands on the technology employed. Tailored solutions based on standard components from display and microcontroller specialists Garz & Fricke assist implementation – as can be seen in the example of the Curasul® therapeutic unit for negative pressure wound therapy (NPWT) by BSN medical.

BSN Curasul® is a system to heal wounds, a joint device development from CogniMed GmbH and BSN medical GmbH, following the specifications of BSN medical GmbH's client. The device was developed for clinical use as well as domestic care and nursing

One of the key demands was that the HMI should be capable of displaying state-of-the-art graphics and also supply a modern user interface. It was also required to offer fast response times and uncomplicated programming.



#### Customer Quote:

"The constructive collaboration at the beginning proved to be very fruitful, offering great benefits. Garz & Fricke pointed out potential difficulties to us, which could in turn be overcome right away."

Holger Panier, CogniMed

#### Key factors for success

- Special technology offers mobility
- Selecting the right "touch" for the right display
- Specially modified LINUX
- Saving energy by deep-sleep implementation
- Extensive documentation for an easy approval
- Reliable hardware development, also in EMC



## **Embedded Systems Navigator**

## Variety of Garz & Fricke Form Factors



#### **Performance**

In the last ten years the performance of ARM-based CPUs has improved significantly. In 2008, a clock rate of 400 MHz was standard and today, we use Cortex-A9 CPUs with up to four cores of 1 GHz each. The bandwidth ranges from single and dual core up to quad core versions of the i.MX6.

In direct correlation with the CPU performance, graphics features such as 3D acceleration, video playback and full HD support have to be considered as well as the memory size of RAM and flash.

As a result of today's design orientation, sliding and rotating GUI elements, shades and transparency effects have become standard and require a matching graphical computing power. An absence of this could easily make your application look very outdated.

But this is only half the story: sophisticated databases, security features and IoT functionality are demanded as well as the GUI. Last but not least, the selected operating system has a strong influence on the required performance

For all your needs, we offer reasonable embedded systems scaled from ARM9 with 400 MHz up to 1 GHz Quadcore Cortex-A9 CPU.

#### Display size

The selection process of the matching display is driven by several key factors. At the top of the wish list, there are requirements regarding the size, temperature range, brightness, wide viewing angle and resolution. On the other hand, there are limitations on the mechanical dimensions and the available budget. In our standard product range, we always achieve a good compromise between the most popular requirements.

Garz & Fricke offer HMIs starting with 4.3" displays and a resolution of 480 x 272 pixels up to 19.0" with 1280 x 1024 pixels. However, full HD resolution on a 32" display with 1920 x 1080 pixels can also be handled easily by the i.MX6 based platforms.

#### Current portfolio by display size

	4.3"	5.0"	7.0"	10.1"	10.4"	≽12.1"
SANTINO LT	X	X				
SANTINO			Х			
SANTARO			Х	Х	Х	Х
SANTOKA			Х	X	Х	Х
SANTVEND			Х			Х

#### SANTINO and SANTINO LT

#### Perfect Price-Performance Ratio

In other words, we offer high-quality Single Board Computers (SBCs) that provide excellent value for money. An optimized PCB layout based on the NXP i.MX6 CPU series combined with predefined touch-display-combinations means high performance "Made in Germany" at a very competitive price level.



Small sized form factor with high performance and TTL interface



The i.MX6 economy solution with industrial features and TTL interface

#### SANTARO and SANTOKA

#### High Performance - Made in Germany

The SANTARO und SANTOKA Single Board Computers are significantly more adaptable to the individual requirements of your application: whether for an individual placement, a display selected by you or the design of a complete HMI to your specifications – almost everything is possible.



The Garz & Fricke business class: flexible, powerful all-rounder for demanding applications with 2 Ch-LVDS Interface



Our IoT solution: PCIe interface for wireless connectivity with two Ethernet ports and 2 Ch-LVDS Interface

#### **SANTVEND**

#### IoT Smart Vending Machine Controller

SANTVEND is a modern Linux-based vending machine control system. The powerful graphics unit allows the operation of high-resolution touch displays up to 32". The proven vending machine controllers of the Garz & Fricke family can be regarded as state-of-the-art replacements for conventional vending machine controllers.



#### SANTVEND

Our smart vending and IoT solution: MDB interface, 2G/3G/4G mobile network connectivity. Display focus up to 32" (with 2-Ch-LVDS Interface)

## Integration of Customized Glass Panels

## Examples to integrate our product in your design

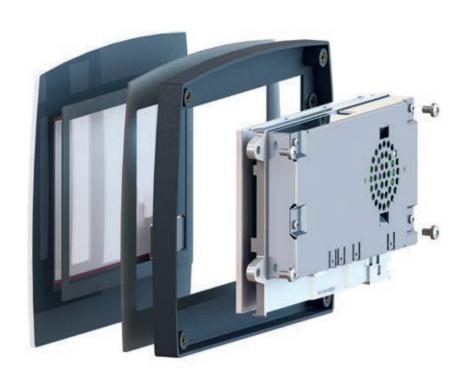
#### **Customized integration**

In addition to the standard installation options called rear mount, panel mount and flush mount, Garz & Fricke offer different options for system integration. The images on these pages show examples of integration options for our 7.0" HMI systems for different versions of existing or planned housing fronts.

The type of integration depends on whether the customers' own housing front is to be completed by Garz & Fricke or whether they are to have a system delivered that is already fitted with a customized glass front. In the latter case, they can insert the glass front into their front panel themselves and fasten the glass with our adhesive pad.

We will help you to select the solution that best suits you.







## Design option 1 - Front surface flush with chassis front

Sample fields of application:

- The housing front is bigger than the customized glass
- The housing front contains additional features such as speaker, encoder wheels or buttons, etc.



## Design option 2 - Glass side flush with chassis front

Sample fields of application:

- Glass ends exactly flush with the sides
- Glass remains free-standing due to special design aspects
- Limited space conditions at the sides, no space for peripheral frame



## Design option 3 - Protection/ design framework all around

Sample fields of application:

- The glass needs to be protected (peripheral edge protection)
- HMI system is detached from the housing front
- Stand-alone solution

## **Customized Solutions**

## We make it yours



#### **Flexibility**

The high flexibility of our products makes them ideally suitable for the development of customized solutions.

In the best case, no major adjustments are necessary when we are helping our OEM customers to achieve a successful launch.

We have proven more than once that our customers can rely on us, especially in apparently difficult situations.

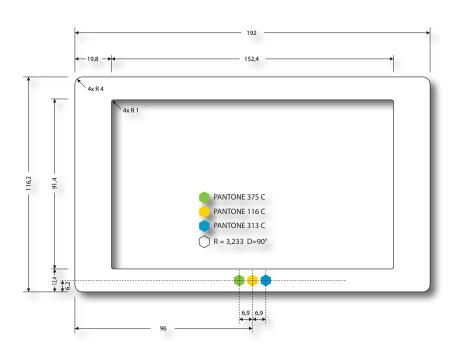


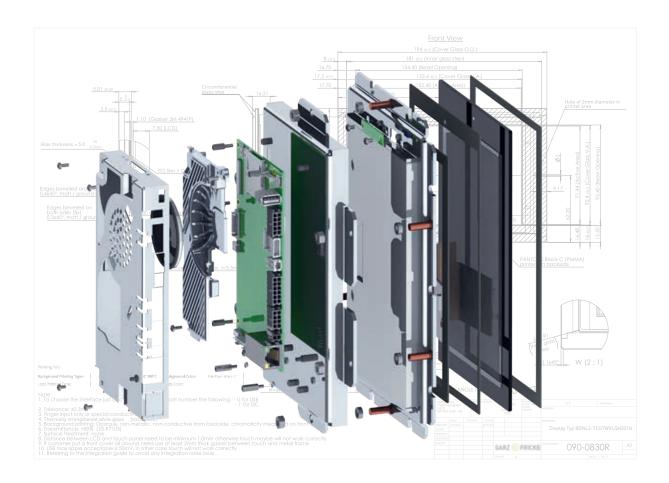
#### Modification

After selecting the correct standard product that best matches the customer's needs, we are able to adapt it to the specific requirements within the shortest time. These may be an alternative display, additional interfaces or very reduced systems for low-cost production.

Our Panel Mount systems with silk printed décor film are especially designed for quick integration into the customer's product portfolio. We provide all the necessary data, such as DXF or CAD files.

If required, we assist our customers to comply with their CI guidelines.





#### Mechanics and electronics

We support our customer's project all the way from construction drawing through to market maturity.

This includes not only the electronic components, but also the procurement of mechanical parts.



#### Consulting

An embedded system that meets all requirements off the shelf is difficult to find. Such systems contain components related to software, hardware and mechanics that have to be adjusted to interact with each other.

At Garz & Fricke, the entire development procedure is transparent and reproducible, from the technological concept through to the approved and certified end-product.

Moreover, embedded systems require expert consultancy, before and - as is often forgotten - during their lifecycle.

## **Embedded System as MDB Master**

## MDB-based solutions

#### Experience in electronics for Smart Vending

Garz & Fricke have many years of experience in providing electronics and components for vending machines.

Many of the Garz & Fricke HMI systems are therefore suitable for applications in vending and professional gastronomy machines thanks to their special distinguishing features.

Besides the well-known industrial interfaces such as RS-485, RS-232 and CAN bus, we offer our products with optional MDB interface and stack.

Using these optional features permits solutions that are completely based on MDB. Implementing the MDB stack on the HMI system means that it takes on the role of the MDB master. All connected components will then be controlled by the HMI via the stack.





#### Sample design

This sample design shows a solution that is completely based on MDB. It consists exclusively of Garz & Fricke MDB payment components. The system is based on Linux.

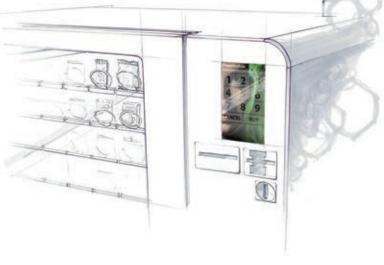


### Connected components

KarL³ payment terminal: supports cashless payment via GeldKarte and all necessary standards for contactless payment by card. Currently applicable to girogo and GeldKarte.

Bill validator: for indoor and outdoor applications. Tailor-made with 4-way cognition and very low power consumption that works at low voltages. High acceptance rate of 98%.

Coin changer: features 6-tube coin cassette and MFT high-securtity validation technology. Well suited for indoor and outdoor use. Works with all MDB-based vending machine controllers.



## **TFT - Displays**

## A selection of proven components

Garz & Fricke are not just your professional partners for single board computers and complete HMI systems solutions, but also offer you a wide range of products such as industrial TFT displays and touch screens as single and individual components or as a complete preconfigured set including cables, adapter and backlight driver boards.

We support you from the first choice of the right TFT display up to the integration into your application. Furthermore, our starter-kits give you the chance to set up your display ready-to-run quickly.

The Garz & Fricke product portfolio is therefore rounded off by the wide range of single TFT displays up to complete HMI systems and offers our customer a target-oriented range, custom-fitted to each industrial application.

Our TFT displays score with high optical performance, superior quality and long product lifetimes. The following list offers an overview of some of the available sizes and features that have proven their worth in our HMI products.











### RGB displays from 4.3" up to 7.0"

also available as a starter-kit with PCAP or Resistive Touch and adapter boards for our budget lines SANTINO LT

	Resolution	Manufacturer	Available features
4.3"	480 x 272	Ampire, Data Image, Giantplus, EDT	
5.0"	800 x 480	Data Image, OLT, Solomon Goldentek	
5.7"	640 x 480	Ampire, Data Image, Kyocera, JDI	
7.0"	800 x 480	Ampire, Data Image, JDI, DLC	

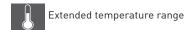
## LVDS displays from 5.7" up to 21.5"

for our new single board computers SANTARO and SANTOKA, available as a starter-kit with PCAP or Resistive Touch, cable assembly and adapter boards.

	Resolution	Manufacturer	Available features
5.7"	640 x 480	Ampire	
7.0"	800 x 480	Ampire, Data Image, LG, KOE, Mitsubishi, Kyocera, AUO, NLT	
7.0"	1024 x 600	Ampire, Data Image, Onation	
8.0"	800 x 480	Ampire, JDI, NLT	
8.4"	800 x 600	Ampire, Data Image, AUO, NLT, Solomon Goldentek	
9.0"	800 x 480	Ampire, JDI, AUO	
10.1"	1280 x 800	Ampire, Data Image, AUO, Onation	
10.4"	800 x 600	Ampire, AUO, Solomon Goldentek, Chimei Innolux, Kyocera	
10.4"	1024 x 768	Chimei Innolux, Kyocera	
12.1"	800 x 600	LG, Chimei Innolux	
12.1"	1024 x 768	Ampire, AUO, Chimei Innolux, Kyocera	
13.3"	1280 x 800	AUO, Chimei Innolux	
15.0"	1024 x 768	Data Image, LG, AUO, Chimei Innolux	
15.4"	1280 x 800	Chimei Innolux	
15.6"	1366 x 768	AUO	
18.5"	1366 x 768	AUO, Chimei Innolux	
19.0"	1280 x 1024	LG, Chimei Innolux, AUO	
21.5"	1920 x 1080	LG, Chimei Innolux	







Still looking for a display that works for you? Please tell us the manufacturer and the model or your requirements and we will provide the perfect solution. For the Garz & Fricke single board computer, please refer to the previous pages.

### **PCAP Touch Screens**

## A wide range of touch components

Capacitive touches have become integral parts of the modern communication between humans and machines. "PCT" = "Projected Capacative Touch" became very popular due to its use in smartphones and tablets. In certain areas of industry, the features of PCAP touches are indispensable, as this technology enables design-oriented, modern, elegant and plain surfaces for various indoor and outdoor applications.

PCAP touch offers a lot of advantages: it works under up to 6 mm cover glasses, or with thick gloves, and has the latest multi-touch functionalities, excellent optical features and perfect performance even in harsh environments

#### **Key features**

- Highly noise-resistant
- Excellent sensitivity and fast detection
- High transparency >88%
- Lifetime >500.000.000 touches
- Driver support for many operating systems
- High resolution (2048 x 2048)
- Space-saving design with Chip-On-Flex technology



In order to take advantage of these benefits, Garz & Fricke developed their own line of PCAP touches - the Garz & Fricke touches, shown on the following page. The fully customized touches are produced to our own high standards and use our many years of experience in the industrial HMI environment.

Our customers thus benefit from the latest technologies as well as special coatings and various optical bonding processes to achieve the best performance in their specific applications. Thanks the their long-term cooperation with professional partners, Garz & Fricke provide both a wide selection of standard touches up to 32" as Glass-Glass or Glass-Film Sensors and fully customized touches to meet your requirements and specifications. All touches are delivered with the necessary operating system driver (Windows Embedded Compact, Windows CE, Linux, Android). Furthermore, Garz & Fricke customize the firmware of the touch according to customer requirements.

TAKE ADVANTAGE OF THE BENEFITS AND LEARN MORE ABOUT COVER GLASS, PCAP TOUCH CONTROLLERS AND OUR DESIGN-IN SERVICE ON THE NEXT PAGES

#### **FEATURED GARZ & FRICKE TOUCHES**

	Controller	Supply Voltage	Dimensions	Viewing Area	Temperature
7.0"	EETI EXC7200	3.3V	160.0 x 99.5 mm	154.6 x 92.4 mm	-20 to +70 °C
7.0"	EETI EXC3132 + EXC5440	3.3V	160.0 x 99.5 mm	154.6 x 92.4 mm	-30 to +85 °C
8.4"	EETI EXC3000	3.3V/5V	184.3 x 144.9 mm	174.2 x 131.2 mm	-30 to +85 °C
10.1"	EETI EXC3132 + EXC5440	5V	226.5 x 147.5 mm	218.6 x 137.2 mm	-30 to +85 °C
10.4"	EETI EXC3000	3.3V/5V	225.0 x 175.0 mm	214.8 x 162.7 mm	-30 to +85 °C
12.1"	EETI EXC3146 + EXC5440	3.3V	272.9 x 208.4 mm	247.87 x 186.4 mm	-30 to +85 °C













## **Touch Controller Optimization**

## We meet your requirements perfectly

Garz & Fricke offer customized PCAP touch screens for industrial applications with highest requirements.

Thanks to our years of experience, we have the capability and know-how necessary for the integration and fine-tuning of PCAP controllers.

Compliance with EMC standards is always a particular challenge and unique to each project.

For our customers, we offer in-house tests as well as all the necessary external laboratory tests to support you from the design stage through to the mass production of your product.

As a long term partner of the PCAP IC manufacturer eGalax\_eMPIA Technology Inc. (EETI) in Taiwan, we can fine-tune the controllers on your system according to your requirements and offer a wide range of features such as water protection or glove touch to optimize each application within it is environment.

#### The following tests are offered:

- Immunity to conducted disturbances, induced by radio-frequency fields (IEC 61000-4-6:2013)
- Electrical fast transient/burst immunity test (IEC 61000-4-4:2012)
- Immunity standard for industrial environments (DIN EN 61000-6-2:2016)
- Immunity standard for residential, commercial and light-industrial environments (DIN EN 61000-6-1:2016)



#### Features of EETI Touch Controllers

	EXC7200	EXC3000	EXC31xx
Accuracy	+	+ +	+ +
Water resistance	+ +	+	+ + +
Passive Pen support	-	+	+ +
Active Pen support	-	-	+
Thick glass	+ +	+	+ +
Thin glass	-	+ +	+ +
Air-gap solution	-	+	+ +
Immunity to conducted emissions	-	+	+ +
Immunity to radiated emissions	-	+ +	+ +
Immunity to LCD noise	+	+	+ +



#### Features of ILITEK Touch Controllers

	ILI2117A	ILI2118A	ILI2511	ILI2510	ILI2510PB	ILI2312	ILI2312PB	ILI2315	ILI2315PB/C
Support Size (Non Win 10)	≤ 7	≤ 10.1	≤ 15.6	≤ 21.5	≤ 21.5	≤ 27	≤ 27	≤ 32	≤ 32
Win 10 Logo	No	No	Yes						
CS Capability (conductive Susceptibility)	10Vrms (Highest Level)								
RS Capability (Radiated Susceptibility)	30V/m (Highest Level)								
Cover Glass thickness	Max: 3mm	Max: 3mm	Max: 10mm	Max: 10mm	Max: 10mm	Max: 8mm	Max: 8mm	Max: 8mm	Max: 8mm
Palm Rejection	0	0	0	0	0	0	0	0	0
Waterproof	0	0	0	0	0	0	0	0	0
Glove Thickness	Max: 3mm	Max: 3mm	Max: 5mm						





### Cover Glasses

## The perfect surface for your application

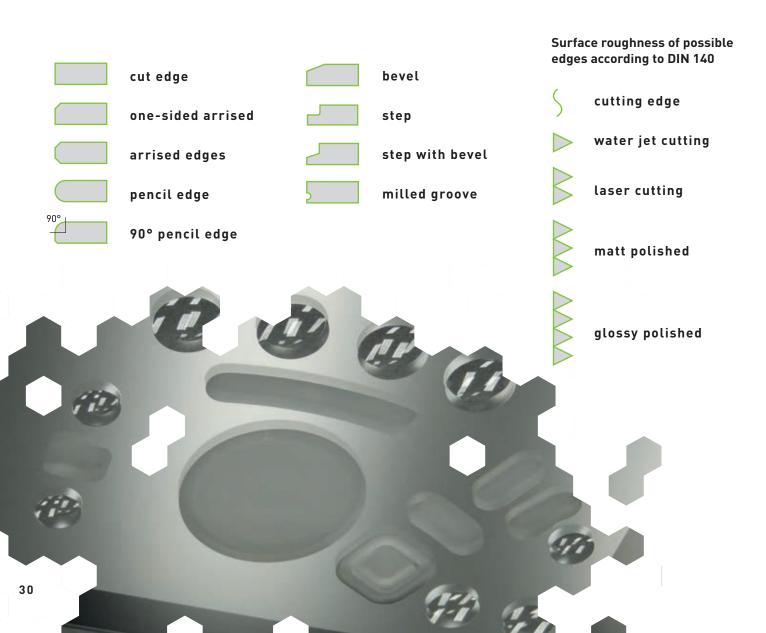
A wide selection of different raw materials can be used for the production of cover glass. They include aluminosilicate glasses and soda lime glass. The glass is also available as colour-neutral, white glass, transparent green float glass or coloured versions.

Cover glass offers a range of features, such as the edge processing, surface treatment as well as chemical and thermal strengthening processes. Together with our long term partner company Irlbacher, we would like to introduce and further explain these features a little bit more.

#### Edge processing

Multiple shapes and edges are available for cover glass, as shown in the graphic below, which can be supplied with a matt or polished finish. Some special edges reequire a minimum glass

thickness, which means than not all edges and shapes shown below are available for aluminosilicate glass

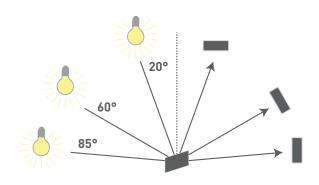


#### Surface treatment

The right choice of surface treatment is absolutely vital for the optical and haptic characteristics, especially for PCAP cover glass. While non-treated surfaces are requested for several kinds of glass applications, we have different requirements for PCAP cover glass. This anti-reflective or anti-glare glass has to protect a TFT display and thus needs specific optical characteristics.

However, as you touch it or rather slide your finger on it for multitouch gestures, the glass surface often needs a smooth surface. A significant factor in achieving the best performance of an anti-glare coating is the gloss-value, which is dependent on a combination of the customer's requirements, as well as the TFT display and its resolution to avoid sparkling effects. The gloss value represents the proportion of the light reflected depending on the irradiation angle.

#### **GLOSS LEVEL**



20° geometry – for high gloss 60° geometry – for medium gloss 85° geometry – for dull gloss

#### Strengthening processes

The mechanical stress resistance of a cover glass is achieved by chemical or thermal strengthening processes. During thermal strengthening, the glass, including its ceramic print, first undergoes a high-temperature process and is then cooled down immediately. In this process the ceramic print is sintered and the glass becomes either a semi-tempered or a safety glass, depending on temperature and glass thickness.

This process offers high-stress-resistant soda-lime glass, which has crumb-structured glass breakage with less risk of injury.

As this high-temperature process cannot be used for aluminosilicate glass, chemical strengthening is necessary, which involves ion exchange on the surface leading to a higher resistance. This strengthening process can be performed on soda lime glass as well; however, this only applies when ceramic print is not required, as there is no temperature process.

Here we offer different kinds of organic prints such as 2-component varnish. Their many years of experience in PCAP technology ensure that Garz & Fricke and Irlbacher are reliable partners for your project.

## Overview of the main finishing variants including combination options for cover glasses.

	Sodalime glass	Aluminosilicate glass
Available thicknesses	2 – 25mm	0,5 – 1,8mm
Edge processing	+ + +	+
E tching	+ + +	+
Organic printing	+ + +	+ + +
Ceramic printing	+ + +	-
Semi-toughening (TVG) and toughening (ESG)	+ + +	-
Chemical toughening	+	+ + +
Optical bonding	+ + +	+ + +
Glueing on printed areas	+ + +	+
Mechanical stability	+ + +	+ + +
UV resistance (printing)	+ + +	-
Thermal stability (printing)	+ + +	+





# **SBC Feature Comparison** i.MX6 Series Single Board Computer

Product	SANT	INO LT	SAN	TIN0	SA	SANTARO		
Series	x1	x2L	x1	x2L	x1	x2		
CPU Type	i.MX6Solo	i.MX6Duallite	i.MX6Solo	i.MX6Duallite	i.MX6Solo	i.MX6Dual		
Core Class	ARM Coi	rtex-A9™	ARM Cortex-A9™		ARM C	ortex-A9™		
Core Clock	1 0	GHz	1 0	1 GHz		GHz		
Vector Floating Point Unit	NEC	N™	NEC	N™	N	EON™		
3D GPU	Vivante GC880 (1 shader) 35 Mtri/s 266 Mpxl/s OpenGL ES 1.1/2.0/3.0		35 Mtri/s 2	80 (1 shader) 266 Mpxl/s 5 1.1/2.0/3.0	Vivante GC880 (1 shader) 35 Mtri/s 266 Mpxl/s OpenGL ES 1.1/2.0/3.0	Vivante GC2000 (4 shaders 594 MH 200 Mtri/s 1000 Mpxl/s OpenGL ES 1.1/2.0/3.0 & Halti OpenCL EP		
2D GPU (Vector Graphics)	Emulated	on GPU 3D	Emulated	on GPU 3D	Emulated on GPU 3D	Vivante GC355 300 Mpxl/s, OpenVG 1.1		
2D GPU (Composition)		e GC320 /s, 2DBLT	Vivante 600Mpxl/	e GC320 /s, 2DBLT		ite GC320 xl/s, 2DBLT		
Video decode	HD 10	080p30	HD 10	080p30	HD 1080p30	HD 1080p 60 H.264		
Video encode		H.264 BP/ 720p	· ·	H.264 BP/ 720p	1080p30 H.264 BP/ Dual 720p			
Memory / External Storage								
RAM Standard (DDR3) default RAM Standard (DDR3) max.	512 MB 1 GB	1 GB 2 GB	512 MB 1 GB	1 GB 2 GB	1 GB 2 GB	1 GB 4 GB		
Flash (eMMC)	4	GB	4 (	4 GB		4 GB		
Storage Card Slot	micr	−o SD	SD			SD		
Operating System								
Windows Embedded Compact	(	)	(	)	0	•		
Linux		•	•			•		
Android	● / (min. <sup>-</sup>	1 GB RAM)	● / (min. <sup>-</sup>	1 GB RAM)		•		
Interfaces								
Ethernet / PoE / PoE+	•/	-/-	•/	-/-	•.	1010		
RS-232		•	•	(2x)		● (2x)		
RS-485 *ngi / **gi	•/-	•/-	•/0	○/●	•/-	•/-		
USB Host		•	•	•		•		
USB OTG						•		
CAN *ngi / **gi	•/-	0/-	•/0	○/●	•/-	-/•		
MDB	○ (instead of	f 2nd RS-232)	○ (instead of	2nd RS-232)		of 2nd RS-232)		
Keypad / SPI / I <sup>2</sup> C	-/-/-	•/-/•	•/-/•	•/-/•	-/-/-	●/●/●		
Digital I/O	-		-		• (2/2)			
Wireless		-	○ (Blu	○ (Bluetooth) -		-		
Audio								
Speaker 1.5 W (RMS) 8 Ω		•		•		•		
Display / Touch								
Interface Type	T	TL	T	TL	LVDS	LVDS / HDMI		
Analogue Resistive Touch	(	)		-		•		
Projected Capacitive Touch	•	•				•		

Product	SAN	TOKA	SANTVEND	SANTVEND BATTERY
Series	x1	x2	x2	x1
CPU Type	i.MX6Solo	i.MX6Dual	i.MX6Dual	i.MX6Solo
Core Class	ARM Co	rtex-A9™	ARM Cortex-A9™	ARM Cortex-A9™
Core Clock	10	GHz	1 GHz	1 GHz
Vector Floating Point Unit	NEON™		NEON™	NEON™
3D GPU	O GPU Vivante GC880 (1 shader) (4 shaders 594 MHz) 35 Mtri/s 266Mpxl/s OpenGL ES 1.1/2.0/3.0 OpenGL ES 1.1/2.0/3.0 & Halti, OpenCL EP		Vivante GC2000 (4 shaders 594 MHz) 200 Mtri/s 1000 Mpxl/s OpenGL ES 1.1/2.0/3.0 & Halti, OpenCL EP	Vivante GC880 (1 shader) 35 Mtri/s 266Mpxl/s OpenGL ES 1.1/2.0/3.0
2D GPU (Vector Graphics)	Emulated on GPU 3D	Vivante GC355 300 Mpxl/s, OpenVG 1.1	Vivante GC355 300 Mpxl/s, OpenVG 1.1	Emulated on GPU 3D
2D GPU (Composition)		GC320 /s, 2DBLT	Vivante GC320 600 Mpxl/s, 2DBLT	Vivante GC320 600 Mpxl/s, 2DBLT
Video decode	HD 1080p30	HD 1080p 60 H.264	HD 1080p30 / H.264	HD 1080p30
Video encode		H.264 BP/ 720p	1080p30 H.264 BP/ Dual 720p	1080p30 H.264 BP/ Dual 720p
Memory / External Storage				
RAM Standard (DDR3) default RAM Standard (DDR3) max.	1 GB 2 GB	1 GB 4 GB	2 GB 2 GB	1 GB 1 GB LP-DDR2
Flash (eMMC)	4	GB	4 GB	4 GB
Storage Card Slot	SD		micro SD	micro SD
Operating System				
Windows Embedded Compact		-	-	-
Linux		•	•	•
Android		•	-	-
Interfaces				
Ethernet / PoE / PoE+	● (2x	/ - / -	•/-/-	•/-/-
RS-232		● (2x)	● (1x RX, TX, RTS, CTS; 1x RX, TX)	● (1x RX, TX, RTS, CTS; 1x RX, TX
RS-485 ngi / gi	•/0	○/●	- / -	-/-
USB Host		● (2x)	•	-
USB OTG		•	-	•
CAN ngi / gi	•/-	- / <b>•</b>	•/-	•/-
MDB	○ (instead of	2nd RS-232)	● (Master + Slave)	• (Master + Slave + Power)
Keypad / SPI / I <sup>2</sup> C	•/•	•/•	-/●/●	-/●/●
Digital I/O		-	-	-
Wireless	• (PCIe: Wit	fi, Bluetooth)	● (LTE) / ○ (UMTS), BLE / GPS	● (LTE) / ○ (UMTS), BLE / GPS
Audio				
Speaker 1.5 W (RMS) 8 Ω			• (connector)	• (connector)
Display / Touch				
Interface Type	LVDS	LVDS / HDMI	LVDS / HDMI	LVDS / HDMI
Analogue Resistive Touch		•	-	-
Projected Capacitive Touch		•	•	•

## **SANTINO LT core**

## ARM Cortex-A9 Single Board Computer



Small sized form factor with high performance for displays up to 5.0".

























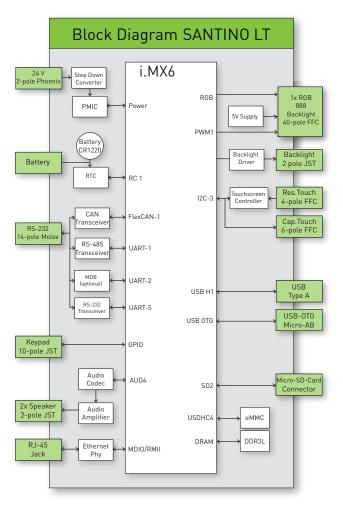






#### **TECHNICAL SPECIFICATION**

## **SANTINO LT Single Board Computer**





CPU	x1	x2L		
CPU Type	i.MX6Solo	i.MX6DualLite		
Core Class	ARM Cortex - A9			
Core Clock	1 GHz			
Features	NEON for SIMD medi	a acceleration and VFP		
		mat HD 1080p video de-		
		deo encoder hardware		
		KB for instruction and		
	data caches; Unified 512 KB L2 cache			
HW Accelerators	<del></del>	1.1 (Emulated on 3D GPU)		
RTC	Accuracy: +/- 30 ppm	at 25°C		
Memory				
eMMC Flash	4 GB eMMC	T		
RAM Standard	512 MB 32 bit DDR3L			
Micro SD Card Slot	4 bit MMC/SDIO/SD/S	DHC		
Operating Systems	T.A.()			
Supported OS	Windows EC on reque	est,		
	Linux Yocto, Android			
Communication Interfac		(= , , = )		
Network	1x 10/100 Mbit/s Ethernet (RJ-45)			
RS-485	1x RS-485 (Half duplex)			
RS-232	1x RS-232 (RX/TX/CT			
Synchronous Serial Interfaces	I <sup>2</sup> C, Matrix keypad up to 4 x 4			
High-Speed USB 2.0	1x 480 Mbit/s Host (T 1x 480 Mbit/s OTG (T)			
CAN Fieldbus	1x CAN (ISO/DIS 1189	78)		
Audio				
Speaker Output	1x speaker (connecto	r), 1.5 W RMS (8Ω)		
Audio Internal	1x speaker connector output	parallel to external		
Display and Touch				
Display Interface	TTL, 24 bit (RGB)			
Touch Interface	4-wire analogue resis	stive; PCAP I <sup>2</sup> C		
Backlight	111 mA Backlight dri	ves		
Device Dimensions				
WxHxD	113.8 x 18.0 x 47.3 m	m		
Weight	55 g			
Power Supply				
Supply Voltage	Nom. 9 to 32 V DC			
Consumption	Typ. 1.9 W; max. 15.0 W			
Typical Environmental C	Conditions			
Storage Temp.	-20 to +70 °C			
Operating Temp.	0 to +60 °C			
Humidity	5 to 95 % RH			

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

## **SANTINO** core

## ARM Cortex-A9 Single Board Computer



The i.MX6 economy solution for 7.0" TTL displays with industrial features.

























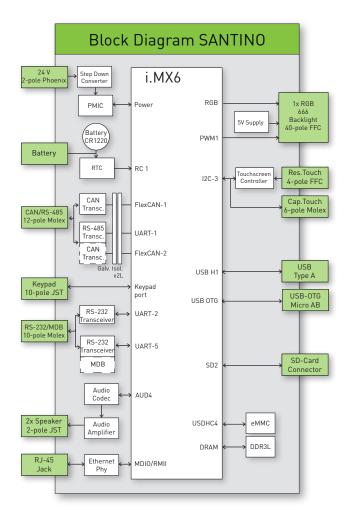






#### **TECHNICAL SPECIFICATION**

### **SANTINO Single Board Computer**







CPU	<b>x</b> 1	x2L
CPU Type	i.MX6Solo	i.MX6DualLite
Core Class	ARM Cortex - A9	
Core Clock	1 GHz	
Features	NEON for SIMD media acceleration and VFP operations; Multi-format HD 1080p video decoder and HD 720p video encoder hardware engine; L1 cache, 32 KB for instruction, 32 KB for data; 512 KB L2 cache	
HW Accelerators		3 1.1 (Emulated on 3D GPU)
RTC	Accuracy: +/- 30 ppm	at 25°C
Memory		
eMMC Flash	4 GB MLC eMMC	
RAM Standard	512 MB 32 bit DDR3L	1 GB 32 bit DDR3L
SD Card Slot	4 bit MMC/SDIO/SD/S	DHC
Operating Systems		
Supported OS	Windows EC on reque Linux Yocto, Android	est,
Communication Interfac		(
Network	1x 10/100 Mbit/s Ethe	
USB 2.0	1x 480 Mbit/s Host (Type A) 1x 480 Mbit/s OTG (Type Micro-AB)	
CAN Fieldbus/ RS-485	1x CAN (ISO/DIS 11898) + 1x RS-485	1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated
RS-232	2x RS-232 (RX/TX/CT	S/RTS)
Synchronous Serial Interfaces	I <sup>2</sup> C, Matrix keypad up to 4 x 4	
Audio		
Speaker Output	1x speaker (connector), 1.5 W RMS (8Ω)	
Audio Internal	1x speaker connector parallel to external output	
Display and Touch		
Display Interface	TTL, 18 bit (RGB)	
Touch Interface	4-wire analogue resis	stive; PCAP I <sup>2</sup> C
Device Dimensions		
WxHxD	138.0 x 18.0 x 80.0 mr	n
Weight	97g	
Power Supply		
Supply Voltage	Nom. 9 to 32V DC	
Consumption	Typ. 2.0; max. 19.6 W	
Typical Environmental C	onditions	
Storage Temp.	-20 to +70 °C	
Operating Temp.	0 to +60 °C	
Humidity	5 to 95 % RH	

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTARO** core

### ARM Cortex-A9 Single Board Computer



The Garz & Fricke business class: Flexible, powerful all-rounder for any demanding applications.





























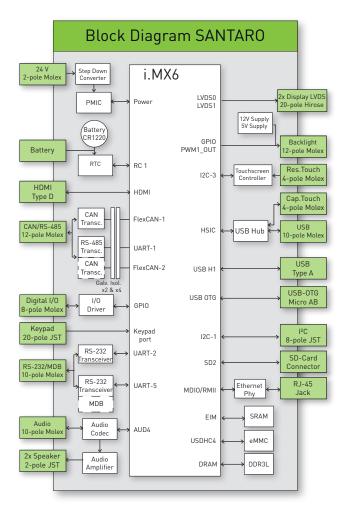


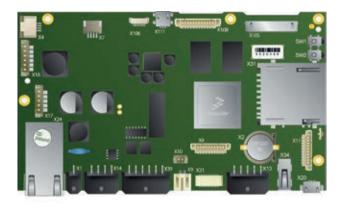




#### **TECHNICAL SPECIFICATION**

#### **SANTARO Single Board Computer**







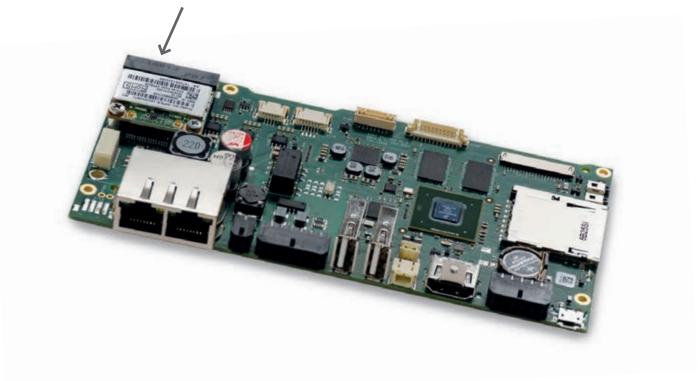
CPU	x1	x2
CPU Type	i.MX6Solo	i.MX6Dual
Core Class	ARM Cortex - A9	
Core Clock	800 MHz 1 GHz	
Features	NEON for SIMD media acceleration and VFP	
	operations; Multi-format HD 1080p video de- coder and HD 720p video encoder hardware	
	engine; L1 cache, 32 k	
	KB for data	ND for mistraction, 52
	512 KB L2 cache	1 MB L2 cache
HW Accelerators	OpenGL ES 2.0, OpenVG 1.1	
	(Emulated on 3D GPU)	
RTC	Accuracy: +/- 30 ppm	
Memory	, , , , , , , , , , , , , , , , , , , ,	
eMMC Flash	4 GB eMMC Flash	
RAM Standard	1 GB 32 bit DDR3L	1 GB 64 bit DDR3L
SD Card Slot	4 bit MMC/SDIO/SD/S	DHC
Operating Systems		
Supported OS	Windows EC on reque	st.
	Linux Yocto, Android	,
Communication Interfac		
Digital I/O	2x In, 2x Out (0.7 A)	
Network	1x 10/100 Mbit/s Ethe	rnet (R J-45)
USB 2.0	1x 480 Mbit/s Host (Ty	
	1x 480 Mbit/s OTG (Ty	
CAN Fieldbus / RS-485	1x CAN (ISO/DIS	T
	11898) + 1x RS-485	
		galvanic isolated
RS-232	2x RS-232 (RX/TX/CTS/RTS)	
Synchronous	SPI up to 12 chip selects; I <sup>2</sup> C;	
Serial Interfaces	Matrix keypad up to 8 x 8	
Video		
Video Output		Full HD micro HDMI
Audio		
Speaker Output	1x speaker (connector	
Audio Internal	1x speaker connector	
	output, Line In, Line Out, MIC In	
Display and Touch		
Display Interface	Dual Channel 24bpp LVDS	
Touch Interface	4-wire analogue resistive; PCAP I <sup>2</sup> C	
Backlight Interface	+12 V, +5V, on/off, PW	M
Device Dimensions		
WxHxD	138.0 x 18.0 x 80.0 mr	n
Weight	97g	
Power Supply		
Supply Voltage	Nom. 13 to 32 V DC, n	
Consumption	Typ. 2.6 W; max. 19.6	W
Typical Environmental C		
Storage Temp.	-20 to +70 °C	
Operating Temp.	0 to +60 °C	
Humidity	5 to 90 % RH	
Expansion Connector		
Interfaces	USB / RS-232 (TTL) In	ternal

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTOKA** core

### ARM Cortex-A9 Single Board Computer





Our IOT solution: PCIe interface for wireless connectivity and two Ethernet ports.





























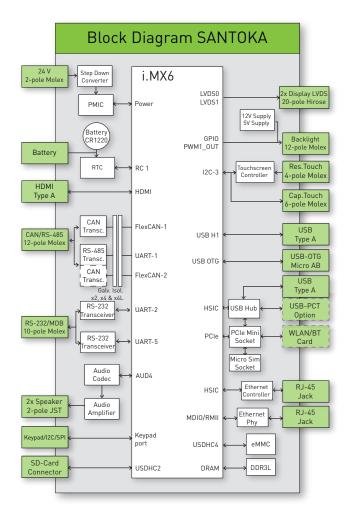






#### **TECHNICAL SPECIFICATION**

#### **SANTOKA Single Board Computer**





CPU	x1	x2
CPU Type	i.MX6Solo	i.MX6Dual
Core Class	ARM Cortex - A9	
Core Class	1 GHz	
COTE CLUCK		a acceleration and VFP
Features	operations; Multi-forr coder and HD 720p vi- engine; L1 cache, 32 KB for data 512 KB L2 cache	mat HD 1080p video dedeo encoder hardware KB for instruction, 32
HW Accelerators	OpenGL ES 2.0, OpenVG 1.1 [Emulated on 3D GPU] OpenGL ES 2.0, OpenVG 1.1	
RTC	Accuracy: +/- 30 ppm	at 25°C
Memory		
eMMC Flash	4 GB MLC eMMC	
RAM Standard	1 GB 32 bit DDR3L	1 GB 64 bit DDR3L
SD Card Slot	4 bit MMC/SDIO/SD/S	
Operating Systems	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Supported OS	Linux Yocto, Android	
Communcation Interface		
Network	2x 10/100 Mbit/s Ethe	ernet (RJ-45)
	2x 480 Mbit/s Host (Ty	
USB 2.0	1x 480 Mbit/s OTG (Ty	
CAN Fieldbus / RS-485	1x CAN (ISO/DIS 11898) + 1x RS-485	1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated
RS-232	2x RS-232 (RX/TX/CTS	
Synchronous Serial Interfaces	SPI up to 12 chip selects; I <sup>2</sup> C; Matrix keypad up to 8 x 8	
Wireless Communication	n	
Wireless	WLAN 802.11 b/g/n; Bluetooth 4.0 LE For available mPCIe modules see page 129	
Video		
Video Output		Full HD HDMI
Audio		
Speaker Output	1x speaker (connecto	r), 1.5W RMS (8Ω)
Audio Internal	1x speaker connector	
	output	
Display and Touch		
Display Interface	Dual Channel 24bpp LVDS	
Touch Interface	4-wire analogue resis	
Backlight Interface	+12 V, +5V, on/off, PW	M
Device Dimensions		
WxHxD	159.0 x 18.0 x 80.0 mr	n
Weight	102g	
Power Supply		
Supply Voltage	Nom. 13 to 32 V DC /	max. 9 to 32 V DC
Consumption	Typ. 2.2 W; max. 25.1	W
Typical Environmental C	onditions	
Storage Temp.	-20 to +70 °C	
Operating Temp.	0 to +60 °C	
Humidity	5 to 95 % RH	
Expansion Slot	1	
mPCle	mPCle connector (for	half size card)
IIII OIG	I III OIE COIIIIECTOI (IUI	nati size caluj

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTVEND** core

## ARM Cortex-A9 IOT Single Board Computer



Vending / IOT platform with 3G / 4G modem and MDB interfaces.































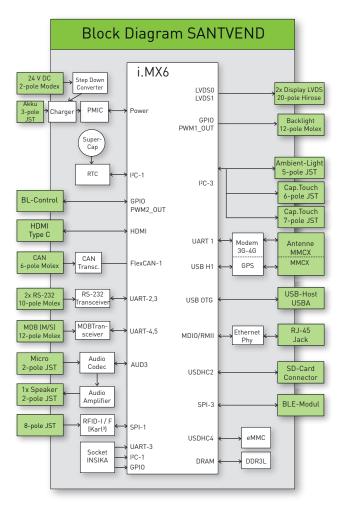






#### **TECHNICAL SPECIFICATION**

### **SANTVEND Single Board Computer**





CPU	x2
CPU Type	i.MX6Dual
Core Class	ARM Cortex - A9
Core Clock	1 GHz
Features	NEON for SIMD media acceleration and VFP operations; Multi-format HD 1080p video decoder and HD 720p video encoder hardware engine; L1 cache, 32 KB for instruction, 32 KB for data; 1 MB L2 cache
HW Accelerators	Open VG 1.1
RTC	Accuracy: +/- 30 ppm at 25°C
Super Cap	Buffer for 24h
Memory	24.101.101.2111
eMMC Flash	4 GB MLC eMMC
RAM Standard	2 GB 32 bit DDR3L
Micro SD Card Slot	4 bit MMC/SDIO/SD/SDHC
	4 bit MMC/3bio/3b/3biic
Operating Systems	I in Va aka
Supported OS	Linux Yocto
Communcation Interfa	
Network	1x 10/100 Mbit/s Ethernet (RJ-45)
USB 2.0	1x 480 Mbit/s Type A (Host)
CAN Fieldbus	1x CAN (ISO/DIS 11898)
MDB	1x Master, 1x Slave
Modem	3G / 4G, GPS (optional); Micro Sim Socket
RS-232	1x RS-232 (RX/TX/CTS/RTS) and 1x RX, TX
Synchronous	SPI up to 2 chip selects; Pinning for RFID-I /
Serial Interfaces	F (Karl³)
BLE Module	Single Mode BLE V 4.0 Slave
INSIKA	Socket for optional Smart-Card Interface (Plug In)
Misc.	2x Service Button
Video	
Video Output	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.
Audio	
Speaker Output	1x speaker (connector), 1 W RMS (8Ω)
Micro IN	1x microphone connector
Display and Touch	
Display Interface	Dual Channel 24bpp LVDS
Sensor	Ambient-Light-Sensor (external via I <sup>2</sup> C)
Touch Interface	PCAP I <sup>2</sup> C
Backlight Interface	+12 V, 5 V, on/off, PWM
Device Dimensions	,,,
WxHxD	160 x 18 x 95 mm; PCB 160 x 95 mm
Weight	115 q
Power Supply	110 g
Supply Voltage	Nom. 24 V DC / max. 10 to 42 V DC
Consumption	Typ. 3.0 W; max. tbd.
Li-lon-Akku	3.7 V / 2.0 to 4.0 Ah for Modem and Backup-
lilan Charrer	Power
Li-lon-Charger	Internal
Typical Environmental	
Storage Temp.	-20 to +70 °C without Li-Ion-Akku
Operating Temp.	0 to +40 °C (normal operation) -20 to +60 °C without charge Li-lon-Akku
Humidity	5 to 90 % RH

#### **SANTVEND BATTERY core**

ARM Cortex-A9 IOT Single Board Computer

coming soon subject to change



Outdoor Vending / IOT board for 12 V operation with optimized power management.































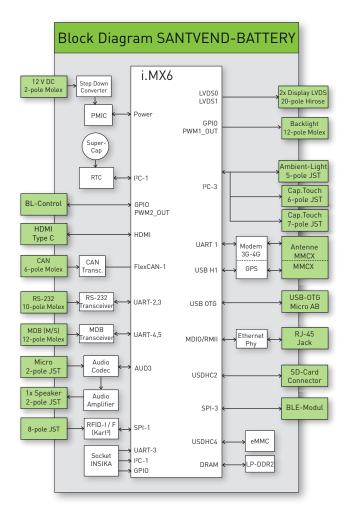


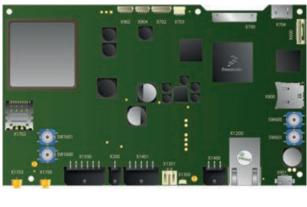




#### **TECHNICAL SPECIFICATION**

### **SANTVEND BATTERY Single Board Computer**







СРИ	x1
CPU Type	i.MX6Solo
Core Class	ARM Cortex - A9
Core Clock	1 GHz
Features	NEON for SIMD media acceleration and VFP operations; Multi-format HD 1080p video decoder and HD 720p video encoder hardware engine; L1 cache, 32 KB for instruction, 32 KB for data; 512 KB L2 cache
HW Accelerators	Open VG 1.1 (Emulated on 3D GPU)
RTC	Accuracy: +/- 30 ppm at 25°C
Super Cap	Buffer for 24h
Memory	
eMMC Flash	4 GB MLC eMMC
RAM Standard	1 GB 32 bit LP-DDR2
Micro SD Card Slot	4 bit MMC/SDIO/SD/SDHC
Operating Systems	
Supported OS	Linux Yocto
Communcation Interfac	
Network	1x 10/100 Mbit/s Ethernet (RJ-45)
USB 2.0	1x 480 Mbit/s OTG (Type Micro-AB)
CAN Fieldbus	1x CAN (ISO/DIS 11898); WakeUp IN
MDB	1x Master, 1x Slave
Modem	3G / 4G, GPS (optional); Micro Sim Socket
RS-232	WakeUp IN @ RS-232 Con.  1x RS-232 (RX/TX/CTS/RTS) and 1x RX, TX
Synchronous	SPI up to 2 chip selects; Pinning for RFID-I /
Serial Interfaces	F (Karl <sup>3</sup> )
BLE Module	Single Mode BLE V 4.0 Slave
INSIKA	Socket for optional Smart-Card Interface (Plug In)
Misc.	2x Service Button
Video	
Video Output	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.
Audio	· · · · · · · · · · · · · · · · · · ·
Speaker Output	1x speaker (connector), 1 W RMS (8Ω)
Micro IN	1x microphone connector
Display and Touch	The state of the s
Display Interface	Dual Channel 24bpp LVDS
Sensor	Ambient-Light-Sensor (external via I <sup>2</sup> C)
Touch Interface	PCAP I <sup>2</sup> C
Backlight Interface	+12 V, 3.3 V, on/off, PWM
Device Dimensions	
WxHxD	160 x 19 x 95 mm; PCB 160 x 95 mm
Weight	115 g
Power Supply	1 - 3
Supply Voltage	Nom. 12 V DC / max. 9 to 17 V DC
Consumption	Typ. 3.0 W; max. tbd.
Powermanagement	Sleep Mode; I sleep < 3 mA @ 12 V
Typical Environmental	
Storage Temp.	-20 to +70 °C
Operating Temp.	-20 to +60 °C
Humidity	5 to 90 % RH
aiiiiait,	1 0 10 70 1011

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

#### **SANTARO 7.0 OF**

































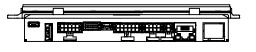




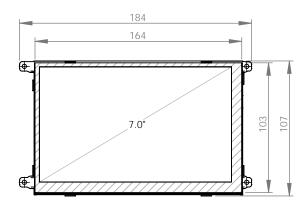




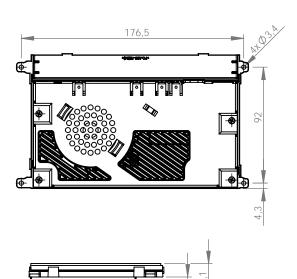
## TECHNICAL SPECIFICATION SANTARO 7.0 OF

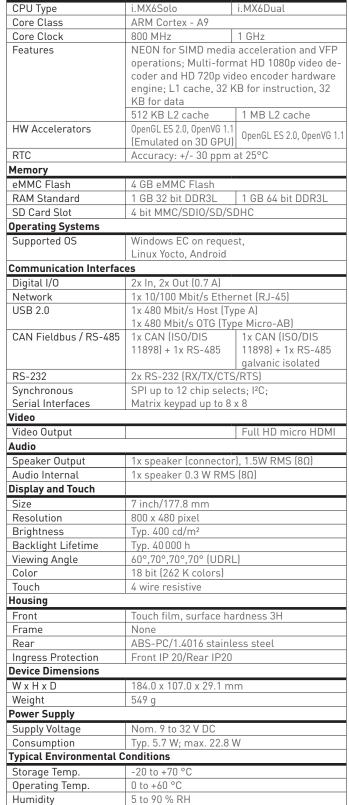


CPU









<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

#### **SANTARO 10.4 OF**





































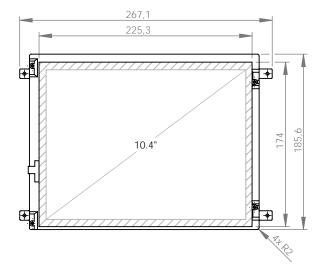


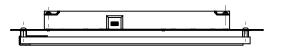


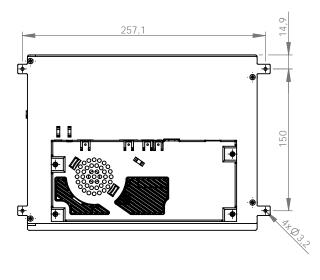


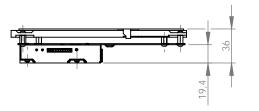
# TECHNICAL SPECIFICATION SANTARO 10.4 OF











CPU	x1	x2
CPU Type	i.MX6Solo	i.MX6Dual
Core Class	ARM Cortex - A9	1.MV0Duat
Core Clock	800 MHz	1 GHz
Features		
reatures	NEON for SIMD media acceleration and VFF operations; Multi-format HD 1080p video de	
	coder and HD 720p video encoder hardware	
	engine; L1 cache, 32	
	KB for data	ND 101 IIISti uction, 32
	512 KB L2 cache	1 MB L2 cache
HW Accelerators	OpenGL ES 2.0, OpenVG 1.	
TIVV Accelerators	(Emulated on 3D GPU) OpenGL ES 2.0, OpenVG 1.	
RTC	Accuracy: +/- 30 ppm	
Memory	Accuracy. 17 30 ppin	dt 25 0
eMMC Flash	/ CD aMMC Flack	
	4 GB eMMC Flash	1.00 // 54.00001
RAM Standard	1 GB 32 bit DDR3L	1 GB 64 bit DDR3L
SD Card Slot	4 bit MMC/SDIO/SD/S	DHC
Operating Systems	14/2 1 50	
Supported OS	Windows EC on reque	SI,
	Linux Yocto, Android	
Communication Interfac		
Digital I/O	2x In, 2x Out (0.7 A)	
Network	1x 10/100 Mbit/s Ethe	
USB 2.0	1x 480 Mbit/s Host (Ty	
	1x 480 Mbit/s OTG (Ty	
CAN Fieldbus / RS-485	1x CAN (ISO/DIS	1x CAN (ISO/DIS
	11898) + 1x RS-485	11898) + 1x RS-485
		galvanic isolated
RS-232	2x RS-232 (RX/TX/CTS	
Synchronous	SPI up to 12 chip selects; I <sup>2</sup> C;	
Serial Interfaces	Matrix keypad up to 8	x 8
Video		
Video Output		Full HD micro HDMI
Audio		
Speaker Output	1x speaker (connecto	r), 1.5W RMS (8Ω)
Audio Internal	1x speaker 0.3 W RMS	5 (8Ω)
Display and Touch		
Size	10.4 inch/264.0 mm	
Resolution	800 x 600 pixel	
Brightness	Typ. 400 cd/m <sup>2</sup>	
Backlight Lifetime	Typ. 30 000 h	
Viewing Angle	50°,60°,70°,70° (UDR	LÌ
Color	18 bit (262 K colors)	<u></u>
	4 wire resistive	
louch		
Touch Housing		
Housing		ardness 3H
<b>Housing</b> Front	Touch film, surface ha	ardness 3H.
<b>Housing</b> Front Frame	Touch film, surface ha	
Housing Front Frame Rear	Touch film, surface has None 1.4016 stainless steel	
Housing Front Frame Rear Ingress Protection	Touch film, surface ha	
Housing Front Frame Rear Ingress Protection Device Dimensions	Touch film, surface ha None 1.4016 stainless steel Front IP 20/Rear IP20	
Front Frame Rear Ingress Protection Device Dimensions W x H x D	Touch film, surface has None 1.4016 stainless steel Front IP 20/Rear IP20 267.1 x 185.6 x 36.0 m	
Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight	Touch film, surface ha None 1.4016 stainless steel Front IP 20/Rear IP20	
Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply	Touch film, surface has None 1.4016 stainless steel Front IP 20/Rear IP20 267.1 x 185.6 x 36.0 m 1186 g	
Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight	Touch film, surface has None 1.4016 stainless steel Front IP 20/Rear IP20 267.1 x 185.6 x 36.0 m	
Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption	Touch film, surface has None 1.4016 stainless steel Front IP 20/Rear IP20 267.1 x 185.6 x 36.0 m 1186 g  Nom. 13 to 32 V DC Typ. 8.5 W; max. 26.4	nm
Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage	Touch film, surface has None 1.4016 stainless steel Front IP 20/Rear IP20 267.1 x 185.6 x 36.0 m 1186 g  Nom. 13 to 32 V DC Typ. 8.5 W; max. 26.4	nm
Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption Typical Environmental C	Touch film, surface has None 1.4016 stainless steel Front IP 20/Rear IP20 267.1 x 185.6 x 36.0 m 1186 g  Nom. 13 to 32 V DC Typ. 8.5 W; max. 26.4	nm
Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption	Touch film, surface has None 1.4016 stainless steel Front IP 20/Rear IP20 267.1 x 185.6 x 36.0 m 1186 g  Nom. 13 to 32 V DC Typ. 8.5 W; max. 26.4	nm

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

#### **SANTARO 12.1 OF**

































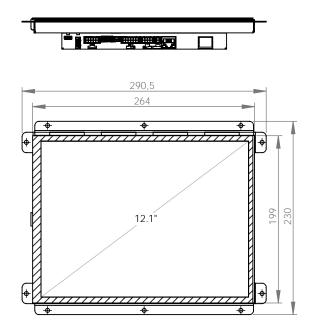


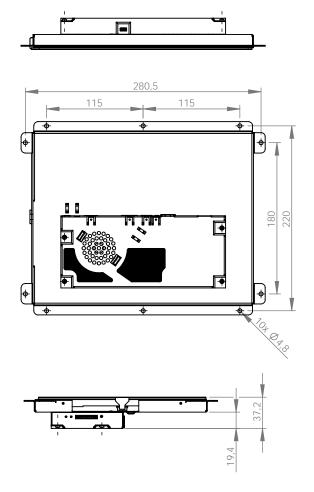






# TECHNICAL SPECIFICATION SANTARO 12.1 OF





CPU	x1	x2
CPU Type	i.MX6Solo	i.MX6Dual
Core Class	ARM Cortex - A9	-
Core Clock	800 MHz	1 GHz
Features	NEON for SIMD media acceleration and VFP	
	operations; Multi-format HD 1080p video de	
	coder and HD 720p vio	deo encoder hardware
	engine; L1 cache, 32 KB for instruction, 32	
	KB for data	
	512 KB L2 cache	1 MB L2 cache
HW Accelerators	OpenGL ES 2.0, OpenVG 1.1	I OpenCI LC 2 0 OpenVC 1 1
	(Emulated on 3D GPU)	
RTC	Accuracy: +/- 30 ppm	at 25°C
Memory	,	
eMMC Flash	4 GB eMMC Flash	1
RAM Standard	1 GB 32 bit DDR3L	1 GB 64 bit DDR3L
SD Card Slot	4 bit MMC/SDIO/SD/S	DHC
Operating Systems	1	
Supported OS	Windows EC on reque	st,
	Linux Yocto, Android	
Communication Interfac		
Digital I/O	2x In, 2x Out (0.7 A)	
Network	1x 10/100 Mbit/s Ethe	
USB 2.0	1x 480 Mbit/s Host (Ty	
	1x 480 Mbit/s OTG (Ty	pe Micro-ABJ
CAN Fieldbus / RS-485		1x CAN (ISO/DIS
	11898) + 1x RS-485	·
DC 000	0 DC 000 (DV/TV/070	galvanic isolated
RS-232	2x RS-232 (RX/TX/CTS	
Synchronous Serial Interfaces	SPI up to 12 chip selects; I <sup>2</sup> C; Matrix keypad up to 8 x 8	
Video	Мантх кеурай ир то о	X 0
		Full HD micro HDMI
Video Output Audio		רעננ חט ווווכוס חטואוו
	1v angalan (aanna atau	1 EW DMC (00)
Speaker Output	1x speaker (connector	
Audio Internal	1x speaker 0.3 W RMS	0 (8(1)
Display and Touch	101: 1/0075	
Size	12.1 inch/307.5 mm	
Resolution	800 x 600 pixel	
Brightness  Packlight Lifetime	Typ. 360 cd/m <sup>2</sup>	
Backlight Lifetime Viewing Angle	Min. 50 000 h	1
<del></del>	89°,89°,89°,89° (UDRI 24 bit (16.7 Mio. colors	
Color		
Touch	4-wire resistive touch	
Housing	Touch films as for 1	and no so OLL
Front	Touch film, surface ha	raness 3H.
Frame	None	
Rear	1.4016 stainless steel	
Ingress Protection	Front IP 20/Rear IP20	
Device Dimensions	I 000 F 000 T T T	
WxHxD	290.5 x 230.0 x 37.2 m	m
Weight	tbd.	
Power Supply	1	
Supply Voltage	Nom. 13 to 32 V DC	
Consumption	Typ. 12.5 W; max. 30.2	? W
Typical Environmental (		
Storage Temp.	-20 to +70 °C	
Storage remp.		
Operating Temp.	0 to +60 °C	

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTINO LT 4.3 OF PCT**





























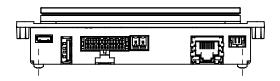


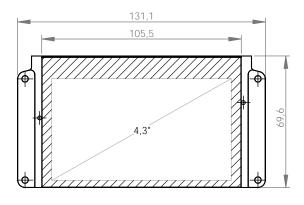


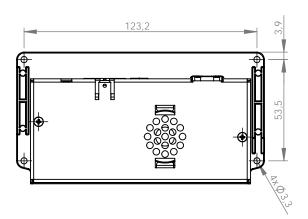


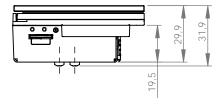


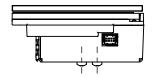
# **SANTINO LT 4.3 OF PCT**











CPU	x1	x2L	
CPU Type	i.MX6Solo	i.MX6DualLite	
Core Class	ARM Cortex - A9		
Core Clock	1 GHz		
Features	NEON for SIMD med	dia acceleration and VFP	
	operations; Multi-format HD 1080p video de-		
		video encoder hardware	
		KB for instruction and	
	data caches; Unified		
HW Accelerators		(G 1.1 (Emulated on 3D GPU)	
RTC	Accuracy: +/- 30 ppi	m at 25°C	
Memory			
eMMC Flash	4 GB eMMC		
RAM Standard		L 1 GB 32 bit DDR3L	
Micro SD Card Slot	4 bit MMC/SDIO/SD	/SDHC	
Operating Systems			
Supported OS	Windows EC on requ		
	Linux Yocto, Android	d	
Communication Interfa			
Network	1x 10/100 Mbit/s Eth		
RS-485	1x RS-485 (Half dup		
RS-232	1x RS-232 (RX/TX/C		
Synchronous	I <sup>2</sup> C, Matrix keypad u	p to 4 x 4	
Serial Interfaces			
High-Speed USB 2.0	1x 480 Mbit/s Host (		
	1x 480 Mbit/s OTG (		
CAN Fieldbus	1x CAN (ISO/DIS 118	1x CAN (ISO/DIS 11898)	
Audio		1 1 5 11 5 11 (00)	
Speaker Output		tor), 1.5 W RMS (8Ω)	
Audio Internal	1x speaker 1 W RMS	5 (8[])	
Display and Touch	1,01,1,400,0		
Size	4.3 inch/109.3 mm		
Resolution	480 x 272 pixel		
Brightness	Typ. 576 cd/m <sup>2</sup>		
Backlight Lifetime	min. 30 000 h		
Viewing Angle		50°,70°,70°,70° (UDRL)	
Color	24 bit (16.7 Mio. colors) projected capacitive multi touch		
Touch	projected capacitive	e multi touch	
Housing	20	I DAL 000F	
Front	3.0 mm toughened	glass, , RAL 9000	
Frame Rear		4-1-1	
11001	Aluminum/1.4016 s		
Ingress Protection	Front IP 20/Rear IP2	20	
Device Dimensions	120.0 /0 / 22.0		
WxHxD	130.9 x 69.6 x 32.0 n	nm	
Weight Power Supply	tbd.		
Power Supply	Name 0 to 20 V DO		
Supply Voltage	Nom. 9 to 32 V DC		
Consumption	Typ. tbd.		
Typical Environmental			
Storage Temp.	-20 to +70 °C		
Operating Temp.	0 to +50 °C		
Humidity	5 to 90 % RH		

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTINO LT 5.0 OF PCT**





























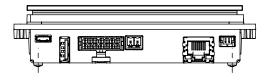


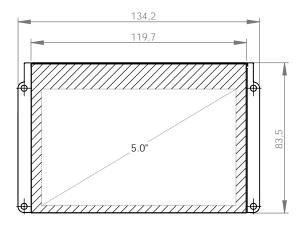


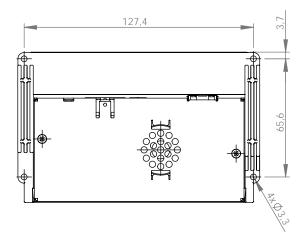


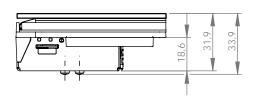


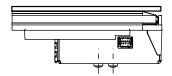
# **SANTINO LT 5.0 OF PCT**











CPU	x1	x2L	
CPU Type	i.MX6Solo	i.MX6DualLite	
Core Class	ARM Cortex - A9		
Core Clock	1 GHz	1 GHz	
Features	NEON for SIMD media acceleration and VFP		
		mat HD 1080p video de-	
	coder and HD 720p v	ideo encoder hardware	
	engine; L1 cache,32	KB for instruction and	
		data caches; Unified 512 KB L2 cache	
HW Accelerators		3 1.1 (Emulated on 3D GPU)	
RTC	Accuracy: +/- 30 ppm	n at 25°C	
Memory			
eMMC Flash	4 GB eMMC		
RAM Standard	512 MB 32 bit DDR3L	1 GB 32 bit DDR3L	
Micro SD Card Slot	4 bit MMC/SDIO/SD/S	SDHC	
Operating Systems	'		
Supported OS	Windows EC on requ	est,	
	Linux Yocto, Android	,	
Communication Interfa	ces		
Network	1x 10/100 Mbit/s Eth	ernet (RJ-45)	
RS-485	1x RS-485 (Half dupl		
RS-232	1x RS-232 (RX/TX/CT		
Synchronous	I <sup>2</sup> C, Matrix keypad up		
Serial Interfaces	-, -, -, -, -, -, -, -, -, -, -, -, -,		
Hint Constitution 2.0	1x 480 Mbit/s Host (7	ype A),	
High-Speed USB 2.0	1x 480 Mbit/s OTG (T		
CAN Fieldbus	1x CAN (ISO/DIS 118	1x CAN (ISO/DIS 11898)	
Audio			
Speaker Output	1x speaker (connecto	or), 1.5 W RMS (8Ω)	
Audio Internal	1x speaker 1 W RMS	(8D)	
Display and Touch			
Size	5 inch/125.95 mm		
Resolution	800 x 480 pixel		
Brightness	up to 1120 cd/m <sup>2</sup> ; sof	tware default: 400 cd/m²	
Backlight Lifetime	min. 50 000 h		
Viewing Angle	60°,70°,75°,75° (UDF	RL)	
Color	24 bit (16.7 Mio. colors)		
Touch	projected capacitive	multi touch	
Housing			
Front	2.8 mm toughened g	lass, RAL 9005	
Frame	None		
Rear	Aluminum/1.4016 sta	Aluminum/1.4016 stainless steel	
Ingress Protection	Front IP 20/Rear IP20		
Device Dimensions	'		
WxHxD	134,2 x 83.5 x 33.9 m	m	
Weight	360 g		
Power Supply			
Supply Voltage	Nom. 9 to 32 V DC		
Consumption	Typ. 7.1 W; max. 20.4	. W	
Typical Environmental			
Storage Temp.	-20 to +70 °C		
Operating Temp.	0 to +50 °C		
Humidity	5 to 90 % RH		
Training	1 0 10 70 70 1011	J 10 70 % KH	

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

#### **SANTINO 7.0 OF PCT**































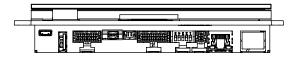


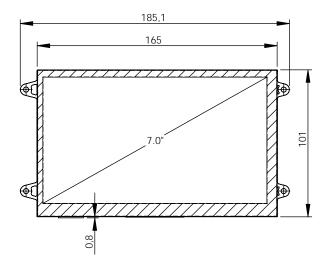


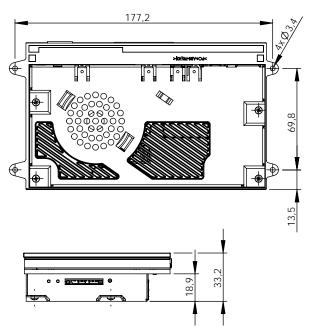




# SANTINO 7.0 OF PCT







CPU	x1	x2L	
CPU Type	i.MX6Solo	i.MX6DualLite	
Core Class	ARM Cortex - A9		
Core Clock	1 GHz		
33.6 010011		a acceleration and VFP	
		mat HD 1080p video de-	
Features	coder and HD 720p video encoder hardwar		
	engine; L1 cache, 32 l		
	KB for data; 512 KB L	2 cache	
HW Accelerators	OpenGL ES 2.0, Open VG	1.1 (Emulated on 3D GPU	
RTC	Accuracy: +/- 30 ppm		
Memory			
eMMC Flash	4 GB MLC eMMC		
RAM Standard	512 MB 32 bit DDR3L	1 GB 32 bit DDR3L	
SD Card Slot	4 bit MMC/SDIO/SD/S		
Operating Systems			
	Windows EC on reque	st	
Supported OS	Linux Yocto, Android		
Communication Interfac			
Network	1x 10/100 Mbit/s Ethe	rnet (R I-45)	
	1x 480 Mbit/s Host (Ty		
USB 2.0	1x 480 Mbit/s OTG (Ty		
	1x CAN (ISO/DIS	1x CAN (ISO/DIS	
CAN Fieldbus/ RS-485	11898) + 1x RS-485	11898) + 1x RS-485	
Of the feedbasy from 400	11070, 11010 400	galvanic isolated	
RS-232	2x RS-232 (RX/TX/CTS		
Synchronous			
Serial Interfaces	I <sup>2</sup> C, Matrix keypad up to 4 x 4		
Audio			
Speaker Output	1x speaker (connector	r) 15 W RMS [80]	
Audio Internal		1x speaker 0.3 W RMS (8Ω)	
Display and Touch		- \/	
Size	7 inch/177.8 mm		
Resolution	800 x 480 pixel		
Brightness	Typ 400 cd/m <sup>2</sup>		
Backlight Lifetime	Typ. 50 000 h		
Viewing Angle	50°,70°,70°,70° (UDRI	1)	
Color	18 bit (262 K colors)	L)	
Touch	projected capacitive n	nulti touch	
Housing	projected capacitive ii	Tata touch	
Front	2 0 mm toughanad al	acc DAI ONNE	
	3.0 mm toughened glass, RAL 9005		
Frame	None	acc stool	
Rear Doots of an	ABS-PC/1.4016 stainless steel		
Ingress Protection	Front IP 20/Rear IP20	Front IP 20/Rear IP20	
Device Dimensions	1.05.4 40.1		
WxHxD	185.1 x 101.6 x 35.2 m	ım	
Weight	498 g.		
Power Supply			
Supply Voltage	Nom. 9 to 32 V DC	·	
	Typ. 5.3 W; max. 22.8	W	
Consumption			
Consumption  Typical Environmental C	Conditions		
	-20 to +70 °C		
Typical Environmental (			

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTARO 7.0 OF PCT**

































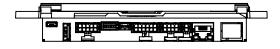


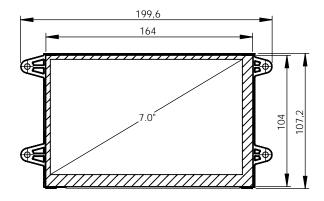




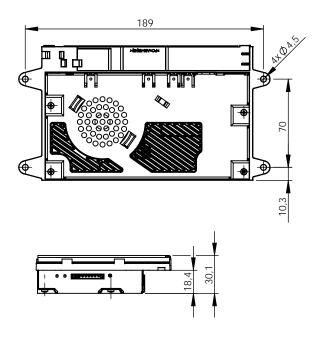


# **SANTARO 7.0 OF PCT**









CPU	x1	x2
CPU Type	i.MX6Solo	i.MX6Dual
Core Class	ARM Cortex - A9	1.MXODUat
Core Clock	800 MHz	1 GHz
Features	NEON for SIMD media acceleration and VFP	
reatures	operations; Multi-format HD 1080p video de-	
	coder and HD 720p vid	
	engine; L1 cache, 32 k	
	KB for data	to for motification, 62
	512 KB L2 cache	1 MB L2 cache
HW Accelerators	OpenGL ES 2.0, OpenVG 1.1	
	(Emulated on 3D GPU)	OpenGL ES 2.0, OpenVG 1.
RTC	Accuracy: +/- 30 ppm	at 25°C
Memory	,	
eMMC Flash	4 GB eMMC Flash	
RAM Standard	1 GB 32 bit DDR3L	1 GB 64 bit DDR3L
SD Card Slot	4 bit MMC/SDIO/SD/SI	
Operating Systems	+ 51C 1-11-10/5510/55/51	5110
Supported OS	Windows EC on reque	st
Supported 03	Linux Yocto, Android	σι,
Communication Interfac		
Digital I/O	2x In, 2x Out (0.7 A)	
Network	1x 10/100 Mbit/s Ether	sp.a.t (D.1. /E)
USB 2.0	1x 480 Mbit/s Host (Ty	
USB 2.0	1x 480 Mbit/s Host (Ty	
CAN Fieldbus / RS-485	1x CAN (ISO/DIS	1x CAN (ISO/DIS
CAN Fletabus / R5-460	11898) + 1x RS-485	1 1 1
	11070) + 17173-403	galvanic isolated
RS-232	2x RS-232 (RX/TX/CTS	
Synchronous	SPI up to 12 chip selec	
Serial Interfaces	Matrix keypad up to 8	
Video	indin Reypud up to o	X 0
Video Output		Full HD micro HDMI
Audio		T dtt 115 milere 115 mil
Speaker Output	1x speaker (copposter	) 1 5W/ DMC (90)
Audio Internal	1x speaker (connector), 1.5W RMS (8Ω) 1x speaker 0.3 W RMS (8Ω)	
	TX Speaker 0.5 W KM3	(012)
Display and Touch	7 inch/177.8 mm	
Size	. ,	
Resolution	800 x 480 pixel	
Brightness	Typ. 400 cd/m <sup>2</sup>	
Backlight Lifetime	Typ. 40 000 h	1
Viewing Angle	60°,70°,70°,70° (UDRL	_J
Color	18 bit (262 K colors)	
Touch	projected capacitive m	iuiti touch
Housing		
Front	3.0 mm toughened glass, RAL 9005	
Frame	Aluminum, colorless a	
Rear	1.4016 stainless steel,	foam seal
Ingress Protection	Front IP 66/Rear IP20	
Device Dimensions		
WxHxD	199.6 x 107.2 x 30.1 m	m
Weight	563 g	
Power Supply		
Supply Voltage	Nom. 9 to 32 V DC	
Consumption	Typ. 5.7 W; max. 22.8 \	V
Typical Environmental C	Ullulululis	
Typical Environmental C		
Storage Temp.	-20 to +70 °C	

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

#### **SANTARO 10.4 OF PCT**

































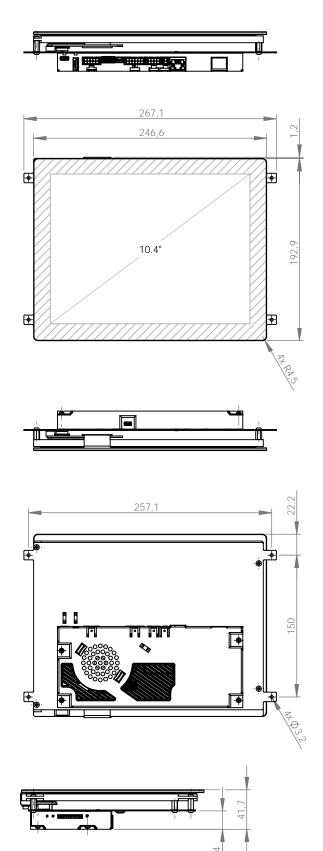








# **SANTARO 10.4 OF PCT**



CPU	x1	x2
CPU Type	i.MX6Solo	i.MX6Dual
Core Class	ARM Cortex - A9	1.MADDaat
Core Clock	800 MHz	1 GHz
Features	NEON for SIMD media acceleration and VFP	
reatures	operations; Multi-format HD 1080p video de-	
	coder and HD 720p vid	
	engine; L1 cache, 32 k	
	KB for data	
	512 KB L2 cache	1 MB L2 cache
HW Accelerators	OpenGL ES 2.0, OpenVG 1.1	
TIV Accelerators	(Emulated on 3D GPU)	OpenGL ES 2.0, OpenVG 1.
RTC	Accuracy: +/- 30 ppm	nt 25°C
Memory	receively. If to print	at 20 0
eMMC Flash	4 GB eMMC Flash	
RAM Standard		1 GB 64 bit DDR3L
	1 GB 32 bit DDR3L	
SD Card Slot	4 bit MMC/SDIO/SD/SI	JHC
Operating Systems	14"   50	
Supported OS	Windows EC on reques	st,
	Linux Yocto, Android	
Communication Interfac		
Digital I/O	2x In, 2x Out (0.7 A)	
Network	1x 10/100 Mbit/s Ether	
USB 2.0	1x 480 Mbit/s Host (Ty	
	1x 480 Mbit/s OTG (Typ	
CAN Fieldbus / RS-485	1x CAN (ISO/DIS	
	11898) + 1x RS-485	11898) + 1x RS-485
		galvanic isolated
RS-232	2x RS-232 (RX/TX/CTS	
Synchronous	SPI up to 12 chip seled	
Serial Interfaces	Matrix keypad up to 8	x 8
Video		
Video Output		Full HD micro HDMI
Audio		
Speaker Output	1x speaker (connector	), 1.5W RMS (8Ω)
Audio Internal	1x speaker 0.3 W RMS (8Ω)	
Display and Touch		
Size	10.4 inch/264.0 mm	
Resolution	800 x 600 pixel	
Brightness	Typ. 400 cd/m <sup>2</sup>	
Backlight Lifetime	Typ. 30 000 h	
Viewing Angle	50°,60°,70°,70° (UDRL	]
Color	18 bit (262 K colors)	-)
Touch	projected capacitive m	ulti touch
Housing	Projected capacitive II	iditi todeli
	2 0 mm +==h	sc. coloriscs
Front	3.0 mm toughened gla	iss, colorless
Frame	None	
Rear	1.4016 stainless steel	
Ingress Protection	Front IP 20/Rear IP20	
Device Dimensions		
	267.1 x 194.1 x 41.7 mm	
WxHxD		
Weight	1476 g	
Weight Power Supply		
Weight Power Supply Supply Voltage	1476 g Nom. 13 to 32 V DC	V
Weight Power Supply Supply Voltage Consumption	Nom. 13 to 32 V DC Typ. 8.5 W; max. 26.4 V	V
Weight Power Supply Supply Voltage Consumption Typical Environmental C	Nom. 13 to 32 V DC Typ. 8.5 W; max. 26.4 V	V
Weight Power Supply Supply Voltage Consumption Typical Environmental C Storage Temp.	Nom. 13 to 32 V DC Typ. 8.5 W; max. 26.4 V conditions -20 to +70 °C	V
Weight Power Supply Supply Voltage Consumption Typical Environmental C	Nom. 13 to 32 V DC Typ. 8.5 W; max. 26.4 V	V

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

#### **SANTARO 7.0 OF PCT IPS outdoor**









































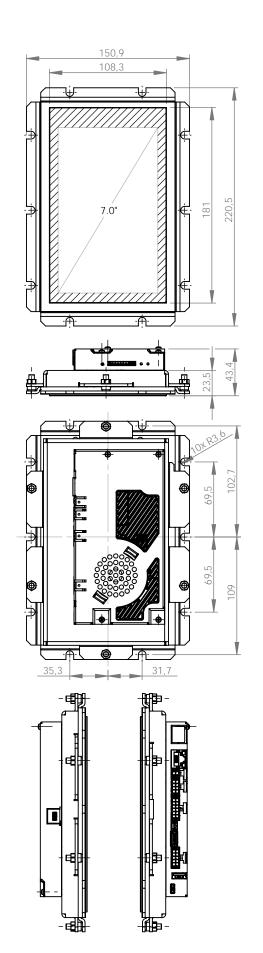








## TECHNICAL SPECIFICATION SANTARO 7.0 OF PCT IPS outdoor



CPU	x1	x2
CPU Type	i.MX6Solo	i.MX6Dual
Core Class	ARM Cortex - A9	1.MADDaat
Core Clock	800 MHz	1 GHz
Features	NEON for SIMD media acceleration and VFP	
i catales	operations; Multi-format HD 1080p video d	
	coder and HD 720p vid	
	engine; L1 cache, 32 KB for instruction, 32 KB for data	
	512 KB L2 cache	1 MB L2 cache
HW Accelerators	OpenGL ES 2.0, OpenVG 1.1	0 01 50 0 0 0 1/0 4 4
	(Emulated on 3D GPU)	OpenGL ES 2.0, OpenVG 1.1
RTC	Accuracy: +/- 30 ppm	at 25°C
Memory		
eMMC Flash	4 GB eMMC Flash	
RAM Standard	1 GB 32 bit DDR3L	
SD Card Slot	4 bit MMC/SDIO/SD/SI	
Operating Systems		
Supported OS	Windows EC on reques	st.
P P	Linux Yocto, Android	,
Communication Interfac	· · · · · · · · · · · · · · · · · · ·	
Digital I/O	2x In, 2x Out (0.7 A)	
Network	1x 10/100 Mbit/s Ether	net (R I-//5)
USB 2.0	1x 480 Mbit/s Host (Ty	
03B 2.0	1x 480 Mbit/s OTG (Typ	
CAN Fieldbus / RS-485	1x CAN (ISO/DIS	1x CAN (ISO/DIS
57.11.11.10.10.Du5/11.0 100	11898) + 1x RS-485	11898) + 1x RS-485
		galvanic isolated
RS-232	2x RS-232 (RX/TX/CTS	
Synchronous	SPI up to 12 chip selec	
Serial Interfaces	Matrix keypad up to 8	
Video		
Video Output		Full HD micro HDMI
Audio	-	
Speaker Output	1x speaker (connector	), 1.5W RMS (8Ω)
Audio Internal	1x speaker 0.3 W RMS	
Display and Touch		
Size	7 inch/177.8 mm	
Resolution	800 x 480 pixel	
Brightness	Typ. 1000 cd/m <sup>2</sup>	
Backlight Control	Ambient Light Sensor	
Backlight Lifetime	Typ. 70 000 h	
Viewing Angle	85°,85°,85°,85° (UDRL)	
	24 bit (16.7 Mio. colors)	
Color		
Color		
Touch	projected capacitive m	
Touch <b>Housing</b>	projected capacitive m	ulti touch
Touch <b>Housing</b> Front	projected capacitive m 5.0 mm toughened gla	ulti touch
Touch <b>Housing</b> Front Frame	projected capacitive m 5.0 mm toughened gla None	ulti touch ss, Pantone black C
Touch Housing Front Frame Rear	5.0 mm toughened gla None 2.5 mm 1.4016 stainle	ulti touch ss, Pantone black C
Touch Housing Front Frame Rear Ingress Protection	projected capacitive m 5.0 mm toughened gla None	ulti touch ss, Pantone black C
Touch Housing Front Frame Rear Ingress Protection Device Dimensions	5.0 mm toughened gla None 2.5 mm 1.4016 stainle Front IP 20/Rear IP20	ulti touch iss, Pantone black C ss steel, foam seal
Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D	5.0 mm toughened gla None 2.5 mm 1.4016 stainle Front IP 20/Rear IP20	ulti touch iss, Pantone black C ss steel, foam seal
Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight	5.0 mm toughened gla None 2.5 mm 1.4016 stainle Front IP 20/Rear IP20	ulti touch iss, Pantone black C ss steel, foam seal
Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply	5.0 mm toughened gla None 2.5 mm 1.4016 stainle Front IP 20/Rear IP20 220.5 x 150.9 x 43.4 m tbd.	ulti touch iss, Pantone black C ss steel, foam seal
Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage	5.0 mm toughened gla None 2.5 mm 1.4016 stainle Front IP 20/Rear IP20 220.5 x 150.9 x 43.4 m tbd.	ss, Pantone black C ss steel, foam seal
Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption	5.0 mm toughened gla None 2.5 mm 1.4016 stainle Front IP 20/Rear IP20 220.5 x 150.9 x 43.4 mm tbd.	ss, Pantone black C ss steel, foam seal
Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption Typical Environmental C	5.0 mm toughened gla None 2.5 mm 1.4016 stainle Front IP 20/Rear IP20 220.5 x 150.9 x 43.4 m tbd. Nom. 13 to 32 V DC Typ. 9.1 W; max. 26.8 V	ss, Pantone black C ss steel, foam seal
Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption Typical Environmental C Storage Temp.	5.0 mm toughened gla None 2.5 mm 1.4016 stainle Front IP 20/Rear IP20 220.5 x 150.9 x 43.4 mm tbd.	ss, Pantone black C ss steel, foam seal
Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption Typical Environmental C	5.0 mm toughened gla None 2.5 mm 1.4016 stainle Front IP 20/Rear IP20 220.5 x 150.9 x 43.4 m tbd. Nom. 13 to 32 V DC Typ. 9.1 W; max. 26.8 V	ss, Pantone black C ss steel, foam seal

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

#### **SANTVEND 7.0 OF PCT IPS outdoor**











































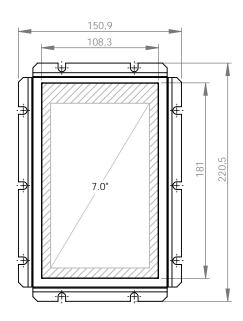


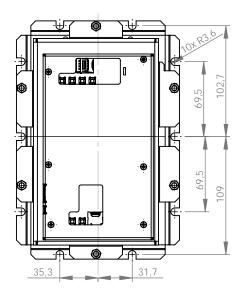


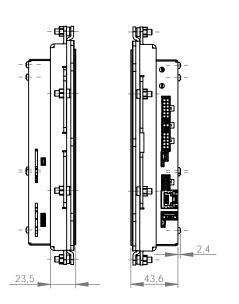


#### TECHNICAL SPECIFICATION

#### **SANTVEND 7.0 OF PCT IPS outdoor**







CPU	x1	
CPU Type	i.MX6Solo	
Core Class	ARM Cortex - A9	
Core Clock	1 GHz	
	NEON for SIMD media acceleration and VFP	
	operations; Multi-format HD 1080p video de-	
Features	coder and HD 720p video encoder hardware	
	engine; L1 cache, 32 KB for instruction, 32	
	KB for data; 512 KB L2 cache	
HW Accelerators	Open VG 1.1	
	(Emulated on 3D GPU)	
RTC	Accuracy: +/- 30 ppm at 25°C	
Super Cap	Buffer for 24h	
Memory		
eMMC Flash	4 GB MLC eMMC	
RAM Standard	1 GB 32 bit LP-DDR2	
Micro SD Card Slot	4 bit MMC/SDIO/SD/SDHC	
Operating Systems		
Supported OS	Linux Yocto	
Communcation Interfa	ices	
Network	1x 10/100 Mbit/s Ethernet (RJ-45)	
USB 2.0	1x 480 Mbit/s OTG (Type Micro-AB)	
CAN Fieldbus	1x CAN (ISO/DIS 11898); WakeUp IN	
MDB	1x Master, 1x Slave	
Modem	3G / 4G, GPS (optional); Micro Sim Socket	
DO 000	WakeUp IN @ RS-232 Con.	
RS-232	1x RS-232 (RX/TX/CTS/RTS) and 1x RX, TX	
Synchronous	SPI up to 2 chip selects; Pinning for RFID-I /	
Serial Interfaces	F (Karl <sup>3</sup> )	
BLE Module	Single Mode BLE V 4.0 Slave	
	Socket for optional Smart-Card Interface	
INSIKA	(Plug In)	
Misc.	2x Service Button	
Video		
	HDMI 1.4 Type C Connector; + On / Off,	
Video Output	PWM 2nd Backlight control con.	
Audio		
Speaker Output	1x speaker (connector), 1 W RMS (8Ω)	
Audio Internal	1x speaker 0.3 W RMS (8Ω)	
Display and Touch	1X 3 CCARCT C.O 17 TRIAG (CL)	
Size	7 inch/177.8 mm	
Resolution	800 x 480 pixel	
	Typ. 1000 cd/m <sup>2</sup>	
Brightness Backlight Control	<del></del>	
Backlight Lifetime	Ambient Light Sensor	
Backlight Lifetime	Typ. 70 000 h	
Viewing Angle	85°,85°,85°,85° (UDRL)	
Color	24 bit (16.7 Mio. colors)	
Touch	projected capacitive multi touch	
Housing		
Front	5.0 mm toughened glass, Pantone black C	
Frame	None	
Rear	2.5 mm 1.4016 stainless steel, foam seal	
Ingress Protection	Front IP 20/Rear IP20	
Device Dimensions		
WxHxD	220.5 x 150.9 x 46.0 mm	
Weight	1680 g	
Power Supply		
Supply Voltage	Nom. 12 V DC / max. 9 to 17 V DC	
Consumption	Typ. 9.5 W; max. 22.8 W	
Powermanagement	Sleep Mode; I sleep < 3 mA @ 12 V	
Typical Environmenta	l Conditions	
Storage Temp.	-20 to +70 °C	
Operating Temp.	-20 to +60 °C	
Humidity	5 to 90 % RH	
riurriurty	0 (0 /0 /0 (())	

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

## SANTVEND 7.0 OF PCT Touch/Display/Head







































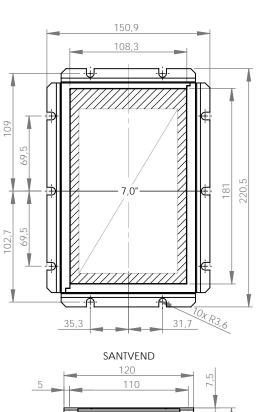


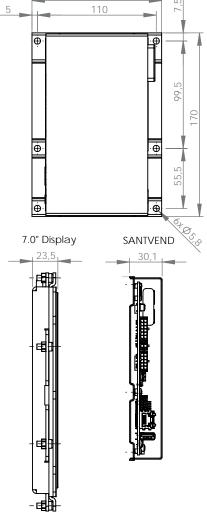




#### **TECHNICAL SPECIFICATION**

### SANTVEND 7.0 OF PCT Touch/Display/Head





CPU	x2
CPU Type	i.MX6Dual
Core Class	ARM Cortex - A9
Core Clock	1 GHz
OUT C CLOCK	NEON for SIMD media acceleration and VFP
	operations; Multi-format HD 1080p video de-
Features	coder and HD 720p video encoder hardware
	engine; L1 cache, 32 KB for instruction, 32
	KB for data; 1 MB L2 cache
HW Accelerators	Open VG 1.1
RTC	Accuracy: +/- 30 ppm at 25°C
Super Cap	Buffer for 24h
Memory	
eMMC Flash	4 GB MLC eMMC
RAM Standard	2 GB 32 bit DDR3L
Micro SD Card Slot	4 bit MMC/SDIO/SD/SDHC
Operating Systems	
Supported OS	Linux Yocto
Communcation Interfa	ces
Network	1x 10/100 Mbit/s Ethernet (RJ-45)
USB 2.0	1x 480 Mbit/s Type A (Host)
CAN Fieldbus	1x CAN (ISO/DIS 11898)
MDB	1x Master, 1x Slave
Modem	3G / 4G, GPS (optional); Micro Sim Socket
RS-232	1x RS-232 (RX/TX/CTS/RTS) and 1x RX, TX
Synchronous	SPI up to 2 chip selects; Pinning for RFID-I/
Serial Interfaces	F (Karl <sup>3</sup> )
BLE Module	Single Mode BLE V 4.0 Slave
INICIIA	Socket for optional Smart-Card Interface
INSIKA	(Plug In)
Misc.	2x Service Button
Misc. Video	2x Service Button
Video	2x Service Button  HDMI 1.4 Type C Connector; + On / Off,
Video	HDMI 1.4 Type C Connector; + On / Off,
<b>Video</b> Video Output	HDMI 1.4 Type C Connector; + On / Off,
Video Video Output Audio	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.
Video Video Output Audio Speaker Output	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.  1x speaker (connector), 1 W RMS (8Ω)
Video Video Output Audio Speaker Output Audio Internal	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.  1x speaker (connector), 1 W RMS (8Ω)
Video Video Output  Audio Speaker Output Audio Internal Display and Touch	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.  1x speaker (connector), 1 W RMS (8Ω) 1x speaker 0.3 W RMS (8Ω)
Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.  1x speaker (connector), 1 W RMS (8Ω) 1x speaker 0.3 W RMS (8Ω)  7 inch/177.8 mm
Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.  1x speaker (connector), 1 W RMS (8Ω) 1x speaker 0.3 W RMS (8Ω)  7 inch/177.8 mm 800 x 480 pixel
Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.  1x speaker (connector), 1 W RMS (8Ω) 1x speaker 0.3 W RMS (8Ω)  7 inch/177.8 mm 800 x 480 pixel Typ. 1000 cd/m²
Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Control	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.  1x speaker (connector), 1 W RMS (8Ω) 1x speaker 0.3 W RMS (8Ω)  7 inch/177.8 mm 800 x 480 pixel Typ. 1000 cd/m² Ambient Light Sensor
Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Control Backlight Lifetime	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.  1x speaker (connector), 1 W RMS (8Ω) 1x speaker 0.3 W RMS (8Ω)  7 inch/177.8 mm 800 x 480 pixel Typ. 1000 cd/m² Ambient Light Sensor Typ. 70000 h
Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Control Backlight Lifetime Viewing Angle	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.  1x speaker (connector), 1 W RMS (8Ω) 1x speaker 0.3 W RMS (8Ω)  7 inch/177.8 mm 800 x 480 pixel Typ. 1000 cd/m² Ambient Light Sensor Typ. 70000 h 85°,85°,85°,85° (UDRL)
Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Control Backlight Lifetime Viewing Angle Color	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.  1x speaker (connector), 1 W RMS (8Ω) 1x speaker 0.3 W RMS (8Ω)  7 inch/177.8 mm 800 x 480 pixel Typ. 1000 cd/m² Ambient Light Sensor Typ. 70000 h 85°,85°,85°,85° (UDRL) 24 bit (16.7 Mio. colors)
Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Control Backlight Lifetime Viewing Angle Color Touch	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.  1x speaker (connector), 1 W RMS (8Ω) 1x speaker 0.3 W RMS (8Ω)  7 inch/177.8 mm 800 x 480 pixel Typ. 1000 cd/m² Ambient Light Sensor Typ. 70000 h 85°,85°,85°,85° (UDRL) 24 bit (16.7 Mio. colors)
Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Control Backlight Lifetime Viewing Angle Color Touch Housing	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.  1x speaker (connector), 1 W RMS (8Ω) 1x speaker 0.3 W RMS (8Ω)  7 inch/177.8 mm 800 x 480 pixel Typ. 1000 cd/m² Ambient Light Sensor Typ. 70 000 h 85°,85°,85°,85° (UDRL) 24 bit (16.7 Mio. colors) projected capacitive multi touch
Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Control Backlight Lifetime Viewing Angle Color Touch Housing Front	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.  1x speaker (connector), 1 W RMS (8Ω) 1x speaker 0.3 W RMS (8Ω)  7 inch/177.8 mm 800 x 480 pixel Typ. 1000 cd/m² Ambient Light Sensor Typ. 70000 h 85°,85°,85°,85° (UDRL) 24 bit [16.7 Mio. colors] projected capacitive multi touch  5.0 mm thoughened glass, Pantone black C None
Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Control Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.  1x speaker (connector), 1 W RMS (8Ω) 1x speaker 0.3 W RMS (8Ω)  7 inch/177.8 mm 800 x 480 pixel Typ. 1000 cd/m² Ambient Light Sensor Typ. 70000 h 85°,85°,85°,85° (UDRL) 24 bit (16.7 Mio. colors) projected capacitive multi touch
Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Control Backlight Lifetime Viewing Angle Color Touch Housing Front Frame	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.  1x speaker (connector), 1 W RMS (8Ω) 1x speaker 0.3 W RMS (8Ω)  7 inch/177.8 mm 800 x 480 pixel Typ. 1000 cd/m² Ambient Light Sensor Typ. 70000 h 85°,85°,85°,85° (UDRL) 24 bit (16.7 Mio. colors) projected capacitive multi touch  5.0 mm thoughened glass, Pantone black C None 2.5 mm 1.4016 stainless steel, foam seal
Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Control Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.  1x speaker (connector), 1 W RMS (8Ω)  1x speaker 0.3 W RMS (8Ω)  7 inch/177.8 mm  800 x 480 pixel  Typ. 1000 cd/m²  Ambient Light Sensor  Typ. 70000 h  85°,85°,85°,85° (UDRL)  24 bit (16.7 Mio. colors) projected capacitive multi touch  5.0 mm thoughened glass, Pantone black C None  2.5 mm 1.4016 stainless steel, foam seal Front IP 65/Rear IP 20
Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Control Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.  1x speaker (connector), 1 W RMS (8Ω)  1x speaker 0.3 W RMS (8Ω)  7 inch/177.8 mm  800 x 480 pixel  Typ. 1000 cd/m²  Ambient Light Sensor  Typ. 70000 h  85°,85°,85°,85° (UDRL)  24 bit (16.7 Mio. colors) projected capacitive multi touch  5.0 mm thoughened glass, Pantone black C  None  2.5 mm 1.4016 stainless steel, foam seal Front IP 65/Rear IP 20
Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Control Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.  1x speaker (connector), 1 W RMS (8Ω)  1x speaker 0.3 W RMS (8Ω)  7 inch/177.8 mm  800 x 480 pixel  Typ. 1000 cd/m²  Ambient Light Sensor  Typ. 70000 h  85°,85°,85°,85° (UDRL)  24 bit (16.7 Mio. colors) projected capacitive multi touch  5.0 mm thoughened glass, Pantone black C None  2.5 mm 1.4016 stainless steel, foam seal Front IP 65/Rear IP 20
Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Control Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.  1x speaker (connector), 1 W RMS (8Ω)  1x speaker 0.3 W RMS (8Ω)  7 inch/177.8 mm  800 x 480 pixel  Typ. 1000 cd/m²  Ambient Light Sensor  Typ. 70000 h  85°,85°,85°,85° (UDRL)  24 bit (16.7 Mio. colors) projected capacitive multi touch  5.0 mm thoughened glass, Pantone black C  None  2.5 mm 1.4016 stainless steel, foam seal Front IP 65/Rear IP 20  see Drawing 1920 g.
Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Control Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.  1x speaker (connector), 1 W RMS (8Ω)  1x speaker 0.3 W RMS (8Ω)  7 inch/177.8 mm  800 x 480 pixel  Typ. 1000 cd/m²  Ambient Light Sensor  Typ. 70000 h  85°,85°,85°,85° (UDRL)  24 bit (16.7 Mio. colors) projected capacitive multi touch  5.0 mm thoughened glass, Pantone black C  None  2.5 mm 1.4016 stainless steel, foam seal Front IP 65/Rear IP 20  see Drawing 1920 g.
Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Control Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.  1x speaker (connector), 1 W RMS (8Ω)  1x speaker 0.3 W RMS (8Ω)  7 inch/177.8 mm  800 x 480 pixel  Typ. 1000 cd/m²  Ambient Light Sensor  Typ. 70000 h  85°,85°,85°,85° (UDRL)  24 bit (16.7 Mio. colors) projected capacitive multi touch  5.0 mm thoughened glass, Pantone black C  None  2.5 mm 1.4016 stainless steel, foam seal Front IP 65/Rear IP 20  see Drawing 1920 g.  Nom. 24 V DC / max. 10 to 42 V DC  Typ. 3.0 W; max. tbd.
Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Control Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption Li-lon-Battery	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.  1x speaker (connector), 1 W RMS (8Ω)  1x speaker 0.3 W RMS (8Ω)  7 inch/177.8 mm  800 x 480 pixel  Typ. 1000 cd/m²  Ambient Light Sensor  Typ. 70000 h  85°,85°,85°,85° (UDRL)  24 bit (16.7 Mio. colors) projected capacitive multi touch  5.0 mm thoughened glass, Pantone black C None 2.5 mm 1.4016 stainless steel, foam seal Front IP 65/Rear IP 20  see Drawing 1920 g.  Nom. 24 V DC / max. 10 to 42 V DC  Typ. 3.0 W; max. tbd. 3.7 V / 2.0 to 4.0 Ah for Modem and Backup-Powe
Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Control Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption Li-Ion-Battery Li-Ion-Charger	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.  1x speaker (connector), 1 W RMS (8Ω)  1x speaker 0.3 W RMS (8Ω)  7 inch/177.8 mm  800 x 480 pixel  Typ. 1000 cd/m²  Ambient Light Sensor  Typ. 70000 h  85°,85°,85°,85° (UDRL)  24 bit (16.7 Mio. colors) projected capacitive multi touch  5.0 mm thoughened glass, Pantone black C  None  2.5 mm 1.4016 stainless steel, foam seal Front IP 65/Rear IP 20  see Drawing  1920 g.  Nom. 24 V DC / max. 10 to 42 V DC  Typ. 3.0 W; max. tbd.  3.7 V / 2.0 to 4.0 Ah for Modem and Backup-Powe Internal
Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Control Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption Li-lon-Battery Li-lon-Charger Typical Environmental	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.  1x speaker (connector), 1 W RMS (8Ω)  1x speaker 0.3 W RMS (8Ω)  7 inch/177.8 mm  800 x 480 pixel  Typ. 1000 cd/m²  Ambient Light Sensor  Typ. 70000 h  85°,85°,85°,85° (UDRL)  24 bit (16.7 Mio. colors)  projected capacitive multi touch  5.0 mm thoughened glass, Pantone black C  None  2.5 mm 1.4016 stainless steel, foam seal  Front IP 65/Rear IP 20  see Drawing  1920 g.  Nom. 24 V DC / max. 10 to 42 V DC  Typ. 3.0 W; max. tbd.  3.7 V / 2.0 to 4.0 Ah for Modem and Backup-Powe Internal  Conditions
Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Control Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption Li-Ion-Battery Li-Ion-Charger	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.  1x speaker (connector), 1 W RMS (8Ω)  1x speaker 0.3 W RMS (8Ω)  7 inch/177.8 mm  800 x 480 pixel  Typ. 1000 cd/m²  Ambient Light Sensor  Typ. 70000 h  85°,85°,85°,85° (UDRL)  24 bit (16.7 Mio. colors) projected capacitive multi touch  5.0 mm thoughened glass, Pantone black C None 2.5 mm 1.4016 stainless steel, foam seal Front IP 65/Rear IP 20  see Drawing 1920 g.  Nom. 24 V DC / max. 10 to 42 V DC  Typ. 3.0 W; max. tbd. 3.7 V / 2.0 to 4.0 Ah for Modem and Backup-Powe Internal  Conditions  -20 to +70 °C without Li-Ion-Akku
Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Control Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption Li-lon-Battery Li-lon-Charger Typical Environmental	HDMI 1.4 Type C Connector; + On / Off, PWM 2nd Backlight control con.  1x speaker (connector), 1 W RMS (8Ω)  1x speaker 0.3 W RMS (8Ω)  7 inch/177.8 mm  800 x 480 pixel  Typ. 1000 cd/m²  Ambient Light Sensor  Typ. 70000 h  85°,85°,85°,85° (UDRL)  24 bit (16.7 Mio. colors)  projected capacitive multi touch  5.0 mm thoughened glass, Pantone black C  None  2.5 mm 1.4016 stainless steel, foam seal  Front IP 65/Rear IP 20  see Drawing  1920 g.  Nom. 24 V DC / max. 10 to 42 V DC  Typ. 3.0 W; max. tbd.  3.7 V / 2.0 to 4.0 Ah for Modem and Backup-Powe Internal  Conditions

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

#### **SANTARO 7.0 BX**

#### ARM Cortex-A9 Panel Mount



































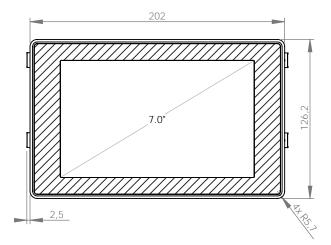




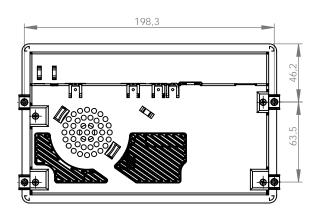


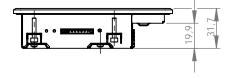
# TECHNICAL SPECIFICATION SANTARO 7.0 BX











CPU	x1	x2	
	i.MX6Solo	i.MX6Dual	
CPU Type		I.MXoDuat	
Core Class	ARM Cortex - A9	1.011	
Core Clock	800 MHz 1 GHz		
Features	NEON for SIMD media acceleration and V		
	operations; Multi-format HD 1080p video de-		
	coder and HD 720p video encoder hardware		
	engine; L1 cache, 32 KB for instruction, 32 KB for data		
	512 KB L2 cache	1 MB L2 cache	
HW Accelerators	OpenGL ES 2.0, OpenVG 1.	1	
TIVY Accelerators	(Emulated on 3D GPU		
RTC	Accuracy: +/- 30 ppm		
Memory	7.000.00y. 17 00 pp	4,50	
eMMC Flash	4 GB eMMC Flash		
RAM Standard	1 GB 32 bit DDR3L	1 GB 64 bit DDR3L	
SD Card Slot	4 bit MMC/SDIO/SD/S		
	4 bit MMC/3D10/3D/3	DITO	
Operating Systems Supported OS	Windows FC on resus	oct.	
20hhoi rea 02	Windows EC on request, Linux Yocto, Android		
Communication Interfac			
Digital I/O	2x In, 2x Out (0.7 A)	- (D   (E)	
Network	1x 10/100 Mbit/s Ethe		
USB 2.0	1x 480 Mbit/s Host (Ty		
CAN Fieldbur / DC /OF	1x 480 Mbit/s OTG (Ty 1x CAN (ISO/DIS	1x CAN (ISO/DIS	
CAN Fieldbus / RS-485	11898) + 1x RS-485	11898) + 1x RS-485	
	11070] + 1X K5-400	1	
RS-232	2x RS-232 (RX/TX/CT:	galvanic isolated	
Synchronous	SPI up to 12 chip sele		
Serial Interfaces	Matrix keypad up to 8		
Video	Matrix Keypad up to o	X 0	
Video Output		Full HD micro HDMI	
Audio		T dtt 110 IIIICTO IIDMI	
	1	) 1 FW DMC (00)	
Speaker Output	1x speaker (connector), 1.5W RMS (8Ω)		
Audio Internal	1x speaker 0.3 W RMS	5 (811)	
Display and Touch	/455.0		
Size	7 inch/177.8 mm		
Resolution	800 x 480 pixel		
Brightness	Typ. 400 cd/m <sup>2</sup>		
Backlight Lifetime	Typ. 40 000 h		
Viewing Angle	60°,70°,70°,70° (UDRL)		
Color	18 bit (262 K colors)		
Touch	4 wire resistive		
Housing			
Front	180 µm foil, RAL 9005, antiglare		
Frame	Aluminum, colorless anodized		
Rear	1.4016 stainless steel, foam seal		
Ingress Protection	Front IP 66/Rear IP20	1	
Device Dimensions			
WxHxD	207.0 x 126.2 x 31.7 mm		
Weight	730 g		
Power Supply			
Supply Voltage	Nom. 9 to 32 V DC		
Consumption	Typ. 5.7 W; max. 22.8	W	
Typical Environmental C			
.,p.oat = omnontat o			
Storago Tomp	-20 to +70 °C		
Storage Temp.			
Storage Temp. Operating Temp. Humidity	0 to +60 °C 5 to 90 % RH		

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTARO 10.1 BX IPS**

#### ARM Cortex-A9 Panel Mount



































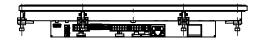


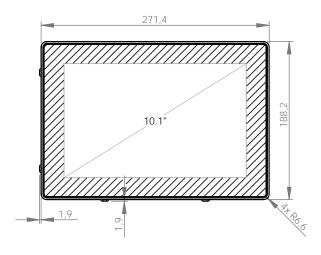


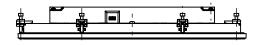


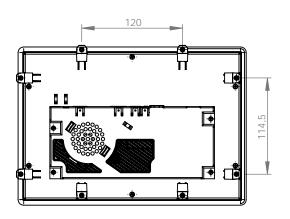


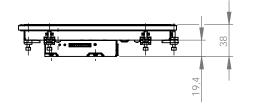
## **SANTARO 10.1 BX IPS**











СРИ	x1	x2	
СРИ Туре	i.MX6Solo	i.MX6Dual	
Core Class	ARM Cortex - A9	I.MV0Dngr	
Core Class		1 GHz	
Features	800 MHz		
reatures			
	operations; Multi-format HD 1080p video de- coder and HD 720p video encoder hardware		
	engine; L1 cache, 32 KB for instruction, 32		
	KB for data		
	512 KB L2 cache	1 MB L2 cache	
HW Accelerators	OpenGL ES 2.0, OpenVG 1.1	001 FC 2.0 01/0.1.1	
	(Emulated on 3D GPU) OpenGL ES 2.0, OpenVG 1.		
RTC	Accuracy: +/- 30 ppm	at 25°C	
Memory			
eMMC Flash	4 GB eMMC Flash		
RAM Standard	1 GB 32 bit DDR3L	1 GB 64 bit DDR3L	
SD Card Slot	4 bit MMC/SDIO/SD/S	DHC	
Operating Systems			
Supported OS	Windows EC on reque	st,	
	Linux Yocto, Android		
Communication Interfac			
Digital I/O	2x In, 2x Out (0.7 A)		
Network	1x 10/100 Mbit/s Ethe		
USB 2.0	1x 480 Mbit/s Host (Ty		
0.11.5: /50 /05	1x 480 Mbit/s OTG (Ty		
CAN Fieldbus / RS-485	1x CAN (ISO/DIS	1x CAN (ISO/DIS	
	11898) + 1x RS-485	11898) + 1x RS-485	
RS-232	2x RS-232 (RX/TX/CTS	galvanic isolated	
Synchronous	SPI up to 12 chip sele		
Serial Interfaces	Matrix keypad up to 8		
Video	Matrix Reypad up to o	λ 0	
Video Output		Full HD micro HDMI	
Audio		T dit TIB TITIET O TIBITI	
Speaker Output	1x sneaker (connector	r) 1.5W RMS (80)	
Audio Internal	1x speaker (connector), 1.5W RMS (8Ω) 1x speaker 0.3 W RMS (8Ω)		
Display and Touch	TA Speaker 0.5 W INVIS (011)		
Size	10.1 inch/255.85 mm		
Resolution	1280 x 800 pixel		
Brightness	Typ. 400 cd/m <sup>2</sup>		
Backlight Lifetime	Min. 50 000 h		
Viewing Angle	85°,85°,85°,85° (UDRL)		
Color	24 bit (16.7 Mio. colors)		
Touch	5 wire resistive		
Housing			
Front	Film/Glass 3.2 mm, s	urface hardness 3H	
Frame	Fine zinc alloy, matt chrome		
Rear	1.4016 stainless steel, foam seal		
Ingress Protection	Front IP 66/Rear IP20		
Device Dimensions	275.2 x 192.0 x 38.0 mm		
	275.2 x 192.0 x 38.0 m		
Device Dimensions	275.2 x 192.0 x 38.0 m 1749 g		
Device Dimensions  W x H x D  Weight			
Device Dimensions  W x H x D  Weight  Power Supply			
Device Dimensions  W x H x D  Weight  Power Supply  Supply Voltage	1749 g Nom. 13 to 32 V DC		
Device Dimensions  W x H x D  Weight  Power Supply  Supply Voltage  Consumption	Nom. 13 to 32 V DC Typ. 10.2 W; max. 26.4		
Device Dimensions  W x H x D  Weight  Power Supply  Supply Voltage  Consumption  Typical Environmental C	Nom. 13 to 32 V DC Typ. 10.2 W; max. 26.4  Conditions		
Device Dimensions  W x H x D  Weight  Power Supply  Supply Voltage  Consumption	Nom. 13 to 32 V DC Typ. 10.2 W; max. 26.4		

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTOKA 10.1 BX IPS**

#### ARM Cortex-A9 Panel Mount



































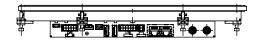


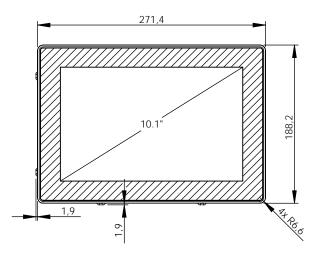


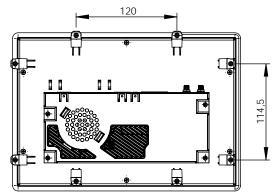


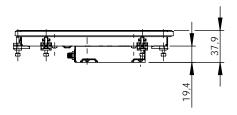


# **SANTOKA 10.1 BX IPS**







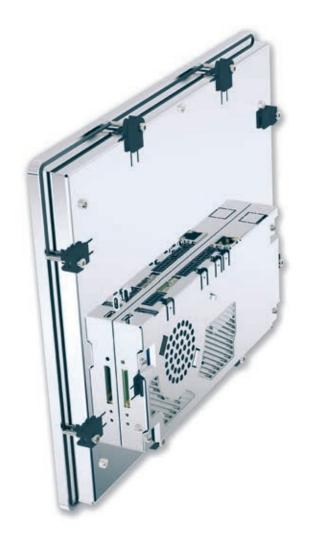




	_	
CPU	x1	x2
CPU Type	i.MX6Solo	i.MX6Dual
Core Class	ARM Cortex - A9	
Core Clock	1 GHz	
		a acceleration and VFP
		mat HD 1080p video de-
Features		deo encoder hardware
1 catales	engine; L1 cache, 32	KB for instruction, 32
	KB for data	T
	512 KB L2 cache	1 MB L2 cache
HW Accelerators	OpenGL ES 2.0, OpenVG 1.	
	(Emulated on 3D GPU	] ' ' '
RTC	Accuracy: +/- 30 ppm	at 25°C
Memory		
eMMC Flash	4 GB MLC eMMC	
RAM Standard	1 GB 32 bit DDR3L	1 GB 64 bit DDR3L
SD Card Slot	4 bit MMC/SDIO/SD/S	DHC
Operating Systems		
Supported OS	Linux Yocto, Android	
Communcation Interface	es	
Network	2x 10/100 Mbit/s Ethe	rnet (RJ-45)
LICD 2.0	2x 480 Mbit/s Host (Ty	/pe A)
USB 2.0	1x 480 Mbit/s OTG (Ty	pe Micro-AB)
	1x CAN (ISO/DIS	1x CAN (ISO/DIS
CAN Fieldbus / RS-485	11898) + 1x RS-485	11898) + 1x RS-485
		galvanic isolated
RS-232	2x RS-232 (RX/TX/CTS	
Synchronous		cts; I <sup>2</sup> C; Matrix keypad
Serial Interfaces	up to 8 x 8	
Wireless Communication		
Wireless	WLAN 802.11 b/g/n; E	
Wiletess	For available mPCIe r	nodules see page 129
Video		
Video Output		Full HD HDMI
Audio		
Speaker Output	1x speaker (connecto	r), 1.5W RMS (8Ω)
Audio Internal	1x speaker 0.3 W RMS	5 (8Ω)
Display and Touch		
Size	10.1 inch/255.85 mm	
Resolution	1280 x 800 pixel	
Brightness	Typ. 400 cd/m <sup>2</sup>	
Backlight Lifetime	Min. 50 000 h	
Viewing Angle	85°,85°,85°,85° (UDR	L)
Color	24 bit (16.7 Mio. color	s)
Touch	5-wire resistive touch	
Housing		
Front	Film/Glass 3.2 mm, s	urface hardness 3H
Frame	Fine zinc alloy, matt c	
Rear	1.4016 stainless steel	
Ingress Protection	Front IP 66/Rear IP20	
Device Dimensions	1	
W x H x D	275.2 x 192.0 x 37.9 m	nm
Weight	1749 g	
Power Supply	1 1 / 4 / y	
Supply Voltage	Nom. 13 to 32 V DC	
- Subbity voltage		14/
		1/1/
Consumption	Typ. 9.8 W; max. 32.6	V V
Consumption Typical Environmental C	onditions	VV
Consumption Typical Environmental C Storage Temp.	onditions -20 to +70 °C	VV
Consumption Typical Environmental C	onditions	VV

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTARO 10.4 BX**



































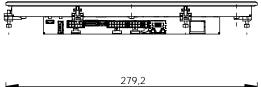


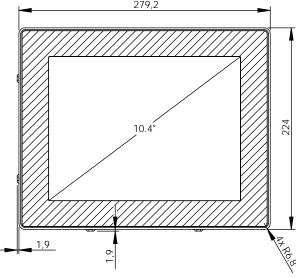




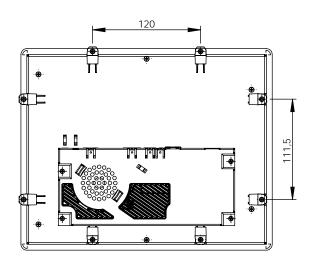


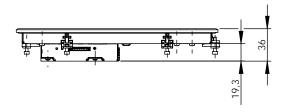
# TECHNICAL SPECIFICATION SANTARO 10.4 BX











CPU	x1	x2
CPU Type	i.MX6Solo	i.MX6Dual
Core Class	ARM Cortex - A9	1.MAODuat
Core Clock	800 MHz	1 GHz
Features		a acceleration and VFP
reatures		nat HD 1080p video de
		deo encoder hardware
	engine; L1 cache, 32	
	KB for data	ND 101 IIISti uction, 32
	512 KB L2 cache	1 MB L2 cache
HW Accelerators	OpenGL ES 2.0, OpenVG 1.	
TIVV Accelerators	(Emulated on 3D GPU	
RTC	Accuracy: +/- 30 ppm	
Memory	Accuracy. 17 00 ppin	4120 0
eMMC Flash	4 GB eMMC Flash	
		1 00 // 1:+ 0000
RAM Standard	1 GB 32 bit DDR3L	1 GB 64 bit DDR3L
SD Card Slot	4 bit MMC/SDIO/SD/S	DHC
Operating Systems	14/: 1 50	
Supported OS	Windows EC on reque	est,
	Linux Yocto, Android	
Communication Interfac		
Digital I/O	2x In, 2x Out (0.7 A)	
Network	1x 10/100 Mbit/s Ethe	
USB 2.0	1x 480 Mbit/s Host (Ty	
	1x 480 Mbit/s OTG (Ty	
CAN Fieldbus / RS-485	1x CAN (ISO/DIS	1x CAN (ISO/DIS
	11898) + 1x RS-485	11898) + 1x RS-485
		galvanic isolated
RS-232	2x RS-232 (RX/TX/CTS	
Synchronous	SPI up to 12 chip sele	
Serial Interfaces	Matrix keypad up to 8	x 8
Video		
Video Output		Full HD micro HDMI
Audio		
Speaker Output	1x speaker (connecto	r), 1.5W RMS (8Ω)
Audio Internal	1x speaker 0.3 W RMS	S (8Ω)
Display and Touch		
Size	10.4 inch/264.0 mm	
Resolution	800 x 600 pixel	
Brightness	Typ. 400 cd/m <sup>2</sup>	
	Typ. 30 000 h	
Backlight Lifetime	1 . , p. 00 000 11	
Backlight Lifetime Viewing Angle	50° 60° 70° 70° (LIDR	)
Viewing Angle	50°,60°,70°,70° (UDR	L)
Viewing Angle Color	18 bit (262 k. colors)	
Viewing Angle Color Touch		
Viewing Angle Color Touch Housing	18 bit (262 k. colors) 4-wire resistive touch	
Viewing Angle Color Touch Housing Front	18 bit (262 k. colors) 4-wire resistive touch Film surface hardnes	s 3H
Viewing Angle Color Touch Housing Front Frame	18 bit (262 k. colors) 4-wire resistive touch Film surface hardnes Aluminum, colorless	s 3H anodized
Viewing Angle Color Touch Housing Front Frame Rear	18 bit (262 k. colors) 4-wire resistive touch Film surface hardnes Aluminum, colorless 1.4016 stainless steel	s 3H anodized , foam seal
Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection	18 bit (262 k. colors) 4-wire resistive touch Film surface hardnes Aluminum, colorless	s 3H anodized , foam seal
Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions	18 bit (262 k. colors) 4-wire resistive touch Film surface hardnes Aluminum, colorless 1.4016 stainless steel Front IP 66/Rear IP20	s 3H anodized , foam seal
Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D	18 bit (262 k. colors) 4-wire resistive touch Film surface hardnes Aluminum, colorless 1.4016 stainless steel Front IP 66/Rear IP20 279.2 x 224.0 x 36.1 m	s 3H anodized , foam seal
Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions	18 bit (262 k. colors) 4-wire resistive touch Film surface hardnes Aluminum, colorless 1.4016 stainless steel Front IP 66/Rear IP20	s 3H anodized , foam seal
Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D	18 bit (262 k. colors) 4-wire resistive touch Film surface hardnes Aluminum, colorless 1.4016 stainless steel Front IP 66/Rear IP20 279.2 x 224.0 x 36.1 m	s 3H anodized , foam seal
Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight	18 bit (262 k. colors) 4-wire resistive touch Film surface hardnes Aluminum, colorless 1.4016 stainless steel Front IP 66/Rear IP20 279.2 x 224.0 x 36.1 m	s 3H anodized , foam seal
Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage	18 bit (262 k. colors) 4-wire resistive touch Film surface hardnes Aluminum, colorless 1.4016 stainless steel Front IP 66/Rear IP20 279.2 x 224.0 x 36.1 m 1500 g.  Nom. 13 to 32 V DC	s 3H anodized , foam seal
Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption	18 bit (262 k. colors) 4-wire resistive touch Film surface hardnes Aluminum, colorless 1.4016 stainless steel Front IP 66/Rear IP20 279.2 x 224.0 x 36.1 m 1500 g.  Nom. 13 to 32 V DC Typ. 8.5 W; max. 26.4	s 3H anodized , foam seal
Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption Typical Environmental Colors	18 bit (262 k. colors) 4-wire resistive touch Film surface hardnes Aluminum, colorless 1.4016 stainless steel Front IP 66/Rear IP20 279.2 x 224.0 x 36.1 m 1500 g.  Nom. 13 to 32 V DC Typ. 8.5 W; max. 26.4	s 3H anodized , foam seal
Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption	18 bit (262 k. colors) 4-wire resistive touch Film surface hardnes Aluminum, colorless 1.4016 stainless steel Front IP 66/Rear IP20 279.2 x 224.0 x 36.1 m 1500 g.  Nom. 13 to 32 V DC Typ. 8.5 W; max. 26.4	s 3H anodized , foam seal nm

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTINO LT 4.3 BX PCT**































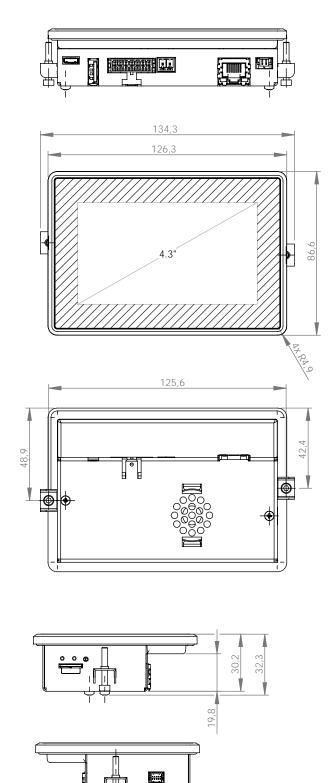








# **SANTINO LT 4.3 BX PCT**



CPU	x1	x2L
CPU Type	i.MX6Solo	i.MX6DualLite
Core Class	ARM Cortex - A9	1.14XODddtEite
Core Clock	1 GHz	
Features	NEON for SIMD med operations; Multi-for coder and HD 720p v engine; L1 cache,32	ia acceleration and VFP mat HD 1080p video de- ideo encoder hardware KB for instruction and
11\A/ A I t	data caches; Unified	
HW Accelerators		G 1.1 (Emulated on 3D GPU)
	Accuracy: +/- 30 ppm	1 at 25°C
Memory	/ 05 14140	
eMMC Flash	4 GB eMMC	T
RAM Standard	512 MB 32 bit DDR3L	
Micro SD Card Slot	4 bit MMC/SDIO/SD/	SDHC
Operating Systems		
Supported OS	Windows EC on requ	est,
	Linux Yocto, Android	
Communication Interfa		
Network	1x 10/100 Mbit/s Eth	
RS-485	1x RS-485 (Half dupl	
RS-232	1x RS-232 (RX/TX/CT	
Synchronous Serial Interfaces	I <sup>2</sup> C, Matrix keypad up	o to 4 x 4
High-Speed USB 2.0	1x 480 Mbit/s Host (T 1x 480 Mbit/s OTG (T	
CAN Fieldbus	1x CAN (ISO/DIS 118	98)
Audio		
Speaker Output	1x speaker (connecto	or), 1.5 W RMS (8Ω)
Audio Internal	1x speaker 1 W RMS	(8Ω)
Display and Touch		
Size	4.3 inch/ 109.3 mm	
Resolution	480 x 272 pixel	
Brightness	Typ. 576 cd/m <sup>2</sup>	
Backlight Lifetime	min. 30 000 h	
Viewing Angle	50°,70°,70°,70° (UDF	RLI
Color	24 bit (16.7 Mio. colo	
Touch	projected capacitive	
Housing		
Front	3.0 mm toughened g	lass RAI 9005
Frame	Fine zinc alloy, matt	
Rear	7 inc dip-cast/ 1 /01/	stainless steel, seal
Ingress Protection	Front IP 66/ Rear IP2	
Device Dimensions	Trontin oo, itear ii z	.0
W x H x D	134.4 x 86.6 x 32.3 m	
		1111
Weight Power Supply	tbd.	
	Name Otto 20 V DO	
Supply Voltage	Nom. 9 to 32 V DC	
Consumption	Typ. tbd.	
Typical Environmental		
Storage Temp.	-20 to +70 °C	
Operating Temp.	0 to +50 °C	
Humidity	5 to 90 % RH	

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTINO LT 5.0 BX PCT**





























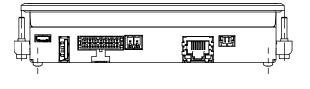


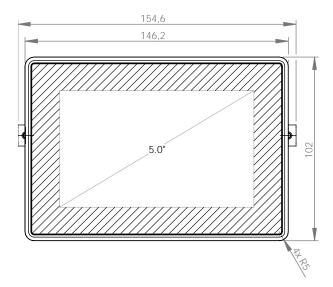


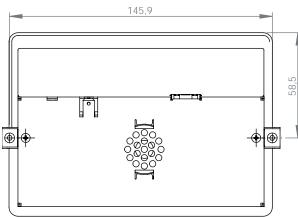


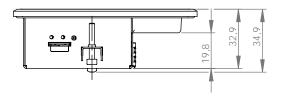


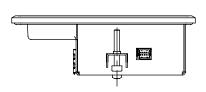
# **SANTINO LT 5.0 BX PCT**











CPU	x1	x2L	
CPU Type	i.MX6Solo	i.MX6DualLite	
Core Class	ARM Cortex - A9		
Core Clock	1 GHz		
Features	NEON for SIMD me	edia acceleration and VFP	
		format HD 1080p video de-	
	coder and HD 720p	video encoder hardware	
		2 KB for instruction and	
	data caches; Unifie	ed 512 KB L2 cache	
HW Accelerators	OpenGL ES 2.0, Open	VG 1.1 (Emulated on 3D GPU)	
RTC	Accuracy: +/- 30 pp	om at 25°C	
Memory			
eMMC Flash	4 GB eMMC		
RAM Standard	512 MB 32 bit DDR3L 1 GB 32 bit DDR3L		
Micro SD Card Slot		4 bit MMC/SDIO/SD/SDHC	
Operating Systems			
Supported OS	Windows EC on red	nuest	
Supported SS	Linux Yocto, Andro	•	
Communication Interfa			
Network	1x 10/100 Mbit/s Et	thernet (R I-45)	
RS-485	1x RS-485 (Half du		
RS-232	1x RS-232 (RX/TX/0		
Synchronous	I <sup>2</sup> C, Matrix keypad		
Serial Interfaces	1 C, Matrix Keypau	up to 4 x 4	
	1x 480 Mbit/s Host	(Tyne A)	
High-Speed USB 2.0	1x 480 Mbit/s OTG		
CAN Fieldbus	1x CAN (ISO/DIS 11		
Audio	1.7. 07.11 (1.0 07.51.0 1.1		
Speaker Output	1y sneaker (connec	ctor), 1.5 W RMS (8Ω)	
Audio Internal	1x speaker 1 W RM		
Display and Touch	TX Speaker T W KIN	10 (012)	
Size	5 inch/125.95 mm		
Resolution	800 x 480 pixel		
Brightness		oftware default: 400 cd/m²	
Backlight Lifetime	min. 50 000 h	onware default: 400 Cu/iii	
	60°,70°,75°,75° (UI	DDI I	
Viewing Angle Color	24 bit (16.7 Mio. co		
Touch	projected capacitiv		
Housing	projected capacitiv	e mutti touch	
	1 0	-I DAL 000F	
Front	1.8 mm toughened	_	
Frame	Fine zinc alloy, mat		
Rear		6 stainless steel, seal	
Ingress Protection	Front IP 66/Rear IF	<b>1</b> 20	
Device Dimensions	145// 4000 5:1		
WxHxD	154.6 x 102.0 x 34.9	d mm	
Weight	388 g.		
Power Supply			
Supply Voltage	Nom. 9 to 32 V DC		
Consumption	Typ. 7.1 W; max. 20	).4 W	
Typical Environmental			
Storage Temp.	-20 to +70 °C		
Operating Temp.	0 to +50 °C		
Humidity	5 to 90 % RH		

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTINO 7.0 BX PCT**

































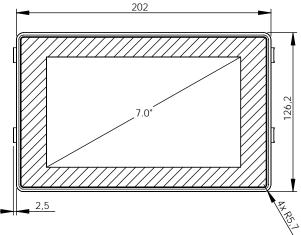


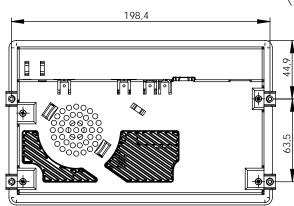


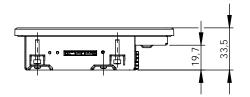


# SANTINO 7.0 BX PCT









CPU	x1	x2L
CPU Type	i.MX6Solo	i.MX6DualLite
Core Class	ARM Cortex - A9	
Core Clock	1 GHz	
Features	NEON for SIMD media operations; Multi-form	
HW Accelerators		1.1 (Emulated on 3D GPU)
RTC	Accuracy: +/- 30 ppm	
Memory	7.000.00j. 1, 00 pp	4.20
eMMC Flash	4 GB MLC eMMC	
RAM Standard	512 MB 32 bit DDR3L	1 GB 32 bit DDR3I
SD Card Slot	4 bit MMC/SDIO/SD/S	
Operating Systems	4 010 1411410/3010/30/3	DITO
operating Systems	Windows EC on roque	ct
Supported OS	Windows EC on reque Linux Yocto, Android	۵۱,
Communication Interfac	·	
Network	1x 10/100 Mbit/s Ethe 1x 480 Mbit/s Host (Ty	
USB 2.0		
	1x 480 Mbit/s OTG (Ty	1x CAN (ISO/DIS
CAN Fieldbus/ RS-485	11898) + 1x RS-485	11898) + 1x RS-485 galvanic isolated
RS-232	2x RS-232 (RX/TX/CTS	S/RTS)
Synchronous	120 Matain Laura at	h - / /
Serial Interfaces	I <sup>2</sup> C, Matrix keypad up	10 4 X 4
Audio		
Speaker Output	1x speaker (connector	r), 1.5 W RMS (8Ω)
Audio Internal	1x speaker 0.3 W RMS	
Display and Touch		
Size	7 inch/177.8 mm	
Resolution	800 x 480 pixel	
Brightness	Typ. 400 cd/m <sup>2</sup>	
Backlight Lifetime	Typ. 50 000 h	
Viewing Angle	50°,70°,70°,70° (UDR	L)
Color	18 bit (262 K colors)	<u> </u>
Touch	projected capacitive n	nulti touch
Housing		
Front	3.0 mm toughened gla	ass. RAL 9005
Frame	Fine zinc alloy, matt c	
Rear	1.4016 stainless steel	
Ingress Protection	Front IP 66/Rear IP20	
Device Dimensions	1	
W x H x D	206.9 x 126.2 x 35.6 m	ım
* * ^     ^	861 q	
	1 00 1 9	
Weight		
Weight Power Supply	Nom 9 to 22 V DC	
Weight <b>Power Supply</b> Supply Voltage	Nom. 9 to 32 V DC	AA/
Weight Power Supply Supply Voltage Consumption	Typ. 5.3 W; max. 22.8	W
Weight Power Supply Supply Voltage Consumption Typical Environmental O	Typ. 5.3 W; max. 22.8 conditions	W
Weight Power Supply Supply Voltage Consumption Typical Environmental C Storage Temp.	Typ. 5.3 W; max. 22.8 conditions -20 to +70 °C	W
Weight Power Supply Supply Voltage Consumption Typical Environmental O	Typ. 5.3 W; max. 22.8 conditions	W

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTARO 7.0 BX PCT**



































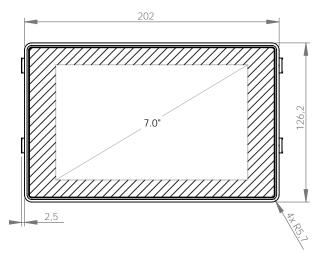




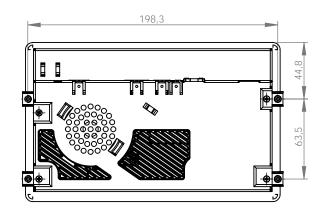


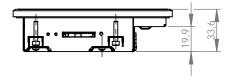
# **SANTARO 7.0 BX PCT**











CPU	x1	x2
	i.MX6Solo	i.MX6Dual
CPU Type	ARM Cortex - A9	I.MX6Duat
Core Class		1 011-
Core Clock	800 MHz	1 GHz
Features		a acceleration and VFP
		mat HD 1080p video de- deo encoder hardware
	engine; L1 cache, 32	
	KB for data	ND 101 IIISti uction, 32
	512 KB L2 cache	1 MB L2 cache
HW Accelerators	OpenGL ES 2.0, OpenVG 1.	1
TIVV Accelerators	(Emulated on 3D GPU	
RTC	Accuracy: +/- 30 ppm	
Memory	riccuracy. If coppin	4120 0
eMMC Flash	4 GB eMMC Flash	
RAM Standard	1 GB 32 bit DDR3L	1 GB 64 bit DDR3L
SD Card Slot	4 bit MMC/SDIO/SD/SDHC	
Operating Systems	- PIL MINIO(2010/20/2	טוזע
Supported OS	Windows EC on reque	act.
Supported 03	Linux Yocto, Android	:51,
Communication Interfac		
Digital I/O Network	2x In, 2x Out (0.7 A)	
USB 2.0	1x 10/100 Mbit/s Ethe 1x 480 Mbit/s Host (Ty	
USB 2.0		
CAN Fieldbus / RS-485	1x 480 Mbit/s OTG (Ty	1x CAN (ISO/DIS
CAN Fletabus / K5-400	11898) + 1x RS-485	11898) + 1x RS-485
	11070) + 1x 1(3-403	galvanic isolated
RS-232	2x RS-232 (RX/TX/CTS	
Synchronous	SPI up to 12 chip sele	
Serial Interfaces	Matrix keypad up to 8	, ,
Video	1	
Video Output		Full HD micro HDMI
Audio		1 444 115 1116 115 115
Speaker Output	1x speaker (connecto	r) 1 5W RMS [80]
Audio Internal	1x speaker 0.3 W RMS	
Display and Touch	TA Speaker 0.5 W INIVIS	5 (012)
Size	7 inch/177.8 mm	
Resolution	800 x 480 pixel	
Brightness  Packlight Lifetime	Typ. 500 cd/m <sup>2</sup>	
Backlight Lifetime Viewing Angle	Typ. 40 000 h 60°,70°,70°,70° (UDR	1)
Color	18 bit (262 K colors)	<b>∟</b> J
Touch	projected capacitive n	oulti touch
	Гргојества сарасниче п	nutti toucii
		DAL 0005
Housing	20	
Front	3.0 mm toughened gl	
Front Frame	Fine zinc alloy, matt o	hrome
Front Frame Rear	Fine zinc alloy, matt c	hrome , foam seal
Front Frame Rear Ingress Protection	Fine zinc alloy, matt o	hrome , foam seal
Front Frame Rear Ingress Protection Device Dimensions	Fine zinc alloy, matt c 1.4016 stainless steel Front IP 66/Rear IP20	hrome ,, foam seal
Front Frame Rear Ingress Protection Device Dimensions W x H x D	Fine zinc alloy, matt c 1.4016 stainless steel Front IP 66/Rear IP20 206.9 x 126.2 x 33.6 m	hrome , foam seal
Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight	Fine zinc alloy, matt c 1.4016 stainless steel Front IP 66/Rear IP20	hrome ,, foam seal
Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply	Fine zinc alloy, matt c 1.4016 stainless steel Front IP 66/Rear IP20 206.9 x 126.2 x 33.6 m	hrome ,, foam seal
Front Frame Rear Ingress Protection Device Dimensions W x H x D	Fine zinc alloy, matt of 1.4016 stainless steel Front IP 66/Rear IP20 206.9 x 126.2 x 33.6 m 861 g	hrome , foam seal nm
Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply	Fine zinc alloy, matt c 1.4016 stainless steel Front IP 66/Rear IP20 206.9 x 126.2 x 33.6 m 861 g	hrome , foam seal nm
Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage	Fine zinc alloy, matt of 1.4016 stainless steel Front IP 66/Rear IP20 206.9 x 126.2 x 33.6 m 861 g Nom. 9 to 32 V DC Typ. 5.7 W; max. 22.8	hrome , foam seal nm
Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption	Fine zinc alloy, matt of 1.4016 stainless steel Front IP 66/Rear IP20 206.9 x 126.2 x 33.6 m 861 g Nom. 9 to 32 V DC Typ. 5.7 W; max. 22.8	hrome , foam seal nm
Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption Typical Environmental C	Fine zinc altoy, matt of 1.4016 stainless steel Front IP 66/Rear IP20 206.9 x 126.2 x 33.6 m 861 g Nom. 9 to 32 V DC Typ. 5.7 W; max. 22.8 Conditions	hrome , foam seal nm

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTOKA 7.0 BX PCT**



































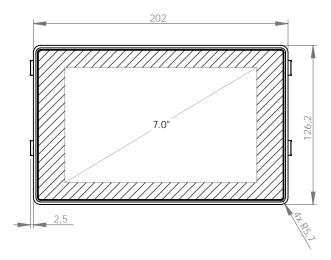


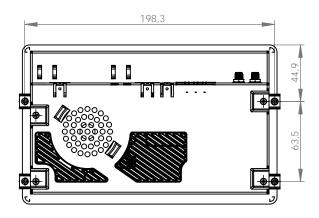


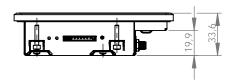


# **SANTOKA 7.0 BX PCT**









CPU	x1	x2
CPU Type	i.MX6Solo	i.MX6Dual
Core Class	ARM Cortex - A9	I.MX6Duat
Core Class	1 GHz	
Core Clock		a acceleration and VFP
		nat HD 1080p video de-
		deo encoder hardware
Features	engine; L1 cache, 32 k	
	KB for data	,
	512 KB L2 cache	1 MB L2 cache
104/4	OpenGL ES 2.0, OpenVG 1.1	0 01 5000 0 1/0 4
HW Accelerators	(Emulated on 3D GPU)	
RTC	Accuracy: +/- 30 ppm	at 25°C
Memory		
eMMC Flash	4 GB MLC eMMC	
RAM Standard	1 GB 32 bit DDR3L	1 GB 64 bit DDR3L
SD Card Slot	4 bit MMC/SDIO/SD/SDHC	
Operating Systems		
Supported OS	Linux Yocto, Android	
Communcation Interface		
Network	2x 10/100 Mbit/s Ethe	rnet (RJ-45)
	2x 480 Mbit/s Host (Ty	
USB 2.0	1x 480 Mbit/s OTG (Ty	
		1x CAN (ISO/DIS
CAN Fieldbus / RS-485	1x CAN (ISO/DIS	11898) + 1x RS-485
	11898) + 1x RS-485	galvanic isolated
RS-232	2x RS-232 (RX/TX/CTS	S/RTS)
Synchronous		cts; I <sup>2</sup> C; Matrix keypad
Serial Interfaces	up to 8 x 8	
Wireless Communication		
Wireless	WLAN 802.11 b/g/n; Bluetooth 4.0 LE	
Wiletess	For available mPCIe r	nodules see page 129
Video		
Video Output		Full HD HDMI
Audio		
	1x speaker (connector	-), 1.5W RMS (8Ω)
Audio Speaker Output Audio Internal	1x speaker (connector 1x speaker 0.3 W RMS	-), 1.5W RMS (8Ω)
Audio Speaker Output	1x speaker 0.3 W RMS	-), 1.5W RMS (8Ω)
Audio Speaker Output Audio Internal	1x speaker 0.3 W RMS 7 inch/177.8 mm	-), 1.5W RMS (8Ω)
Audio Speaker Output Audio Internal Display and Touch	1x speaker 0.3 W RMS 7 inch/177.8 mm 800 x 480 pixel	-), 1.5W RMS (8Ω)
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness	1x speaker 0.3 W RMS 7 inch/177.8 mm 800 x 480 pixel Typ. 400 cd/m <sup>2</sup>	-), 1.5W RMS (8Ω)
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime	1x speaker 0.3 W RMS 7 inch/177.8 mm 800 x 480 pixel Typ. 400 cd/m <sup>2</sup> Typ. 40 000 h	-), 1.5W RMS (8Ω) 5 (8Ω)
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle	7 inch/177.8 mm 800 x 480 pixel Typ. 400 cd/m <sup>2</sup> Typ. 40 000 h 60°,70°,70°,70° (UDR	-), 1.5W RMS (8Ω) 5 (8Ω)
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color	1x speaker 0.3 W RMS  7 inch/177.8 mm  800 x 480 pixel  Typ. 400 cd/m²  Typ. 40 000 h  60°,70°,70°,70° (UDR)  18 bit [262 K colors]	-), 1.5W RMS (8Ω) 5 (8Ω)
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch	7 inch/177.8 mm 800 x 480 pixel Typ. 400 cd/m <sup>2</sup> Typ. 40 000 h 60°,70°,70°,70° (UDR	-), 1.5W RMS (8Ω) 5 (8Ω)
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color	1x speaker 0.3 W RMS  7 inch/177.8 mm  800 x 480 pixel  Typ. 400 cd/m²  Typ. 40 000 h  60°,70°,70°,70° (UDR)  18 bit [262 K colors]	-), 1.5W RMS (8Ω) 5 (8Ω)
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch	1x speaker 0.3 W RMS  7 inch/177.8 mm  800 x 480 pixel  Typ. 400 cd/m²  Typ. 40 000 h  60°,70°,70°,70° (UDR)  18 bit [262 K colors]	-), 1.5W RMS (8Ω) is (8Ω) L) multi touch
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing	1x speaker 0.3 W RMS 7 inch/177.8 mm 800 x 480 pixel Typ. 400 cd/m² Typ. 40000 h 60°,70°,70°,70° (UDR) 18 bit [262 K colors] projected capacitive n	-), 1.5W RMS (8Ω) 5 (8Ω) L) nulti touch ass, RAL 9005
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear	1x speaker 0.3 W RMS  7 inch/177.8 mm  800 x 480 pixel  Typ. 400 cd/m²  Typ. 40000 h  60°,70°,70°,70° (UDR)  18 bit (262 K colors)  projected capacitive m	nulti touch ass, RAL 9005 anodized
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection	1x speaker 0.3 W RMS  7 inch/177.8 mm  800 x 480 pixel  Typ. 400 cd/m²  Typ. 40000 h  60°,70°,70°,70° (UDR)  18 bit [262 K colors]  projected capacitive n  3.0 mm toughened gla  Aluminum, colorless	nulti touch ass, RAL 9005 anodized , foam seal
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear	1x speaker 0.3 W RMS  7 inch/177.8 mm  800 x 480 pixel  Typ. 400 cd/m²  Typ. 40000 h  60°,70°,70°,70° (UDR)  18 bit [262 K colors]  projected capacitive n  3.0 mm toughened gla  Aluminum, colorless steel	nulti touch ass, RAL 9005 anodized , foam seal
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection	1x speaker 0.3 W RMS  7 inch/177.8 mm  800 x 480 pixel  Typ. 400 cd/m²  Typ. 40000 h  60°,70°,70°,70° (UDR)  18 bit [262 K colors]  projected capacitive n  3.0 mm toughened gla  Aluminum, colorless steel	L) nulti touch ass, RAL 9005 anodized , foam seal
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions	1x speaker 0.3 W RMS  7 inch/177.8 mm  800 x 480 pixel  Typ. 4000 cd/m²  Typ. 40 000 h  60°,70°,70°,70° (UDR)  18 bit [262 K colors]  projected capacitive n  3.0 mm toughened gla  Aluminum, colorless a  1.4016 stainless steel  Front IP 66/Rear IP20	L) nulti touch ass, RAL 9005 anodized , foam seal
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D	1x speaker 0.3 W RMS  7 inch/177.8 mm  800 x 480 pixel  Typ. 4000 cd/m²  Typ. 40 000 h  60°,70°,70°,70° (UDR)  18 bit [262 K colors]  projected capacitive m  3.0 mm toughened gla  Aluminum, colorless at 1.4016 stainless steel  Front IP 66/Rear IP20	L) nulti touch ass, RAL 9005 anodized , foam seal
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply	1x speaker 0.3 W RMS  7 inch/177.8 mm  800 x 480 pixel  Typ. 4000 cd/m²  Typ. 40 000 h  60°,70°,70°,70° (UDR)  18 bit [262 K colors]  projected capacitive m  3.0 mm toughened gla  Aluminum, colorless at 1.4016 stainless steel  Front IP 66/Rear IP20	L) nulti touch ass, RAL 9005 anodized , foam seal
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage	1x speaker 0.3 W RMS 7 inch/177.8 mm 800 x 480 pixel Typ. 400 cd/m² Typ. 40 000 h 60°,70°,70°,70° (UDR 18 bit (262 K colors) projected capacitive n 3.0 mm toughened gla Aluminum, colorless a 1.4016 stainless steel Front IP 66/Rear IP20 206.9 x 126.2 x 33.6 m 861 g	nulti touch ass, RAL 9005 anodized foam seal
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption	1x speaker 0.3 W RMS 7 inch/177.8 mm 800 x 480 pixel Typ. 400 cd/m² Typ. 40 000 h 60°,70°,70°,70° (UDR 18 bit (262 K colors) projected capacitive n 3.0 mm toughened gla Aluminum, colorless a 1.4016 stainless steel Front IP 66/Rear IP20 206.9 x 126.2 x 33.6 m 861 g  Nom. 9 to 32 V DC Typ. 5.3 W; max. 28.2	nulti touch ass, RAL 9005 anodized foam seal
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption Typical Environmental C	1x speaker 0.3 W RMS  7 inch/177.8 mm  800 x 480 pixel  Typ. 400 cd/m²  Typ. 40 000 h  60°,70°,70°,70° (UDR)  18 bit (262 K colors)  projected capacitive m  3.0 mm toughened gla  Aluminum, colorless at the color of the color o	nulti touch ass, RAL 9005 anodized foam seal
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption	1x speaker 0.3 W RMS 7 inch/177.8 mm 800 x 480 pixel Typ. 400 cd/m² Typ. 40 000 h 60°,70°,70°,70° (UDR 18 bit (262 K colors) projected capacitive n 3.0 mm toughened gla Aluminum, colorless a 1.4016 stainless steel Front IP 66/Rear IP20 206.9 x 126.2 x 33.6 m 861 g  Nom. 9 to 32 V DC Typ. 5.3 W; max. 28.2	nulti touch ass, RAL 9005 anodized foam seal

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTARO 7.0 BX PCT 1K**



































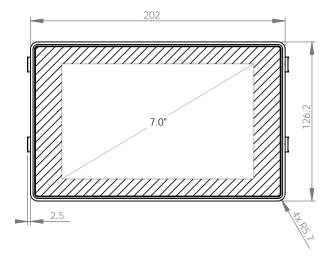


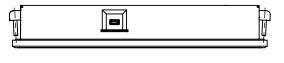


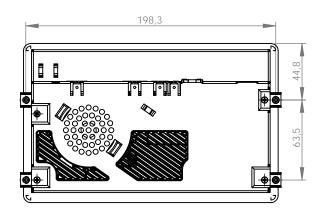


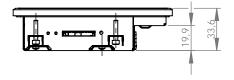
# **SANTARO 7.0 BX PCT 1K**











CPU	x1	x2
	i.MX6Solo	i.MX6Dual
CPU Type	ARM Cortex - A9	I.MX6Duat
Core Class		1 011-
Core Clock	800 MHz	1 GHz
Features		a acceleration and VFP
		mat HD 1080p video de- deo encoder hardware
	engine; L1 cache, 32 l	
	KB for data	ND 101 IIISH uchon, 52
	512 KB L2 cache	1 MB L2 cache
HW Accelerators	OpenGL ES 2.0, OpenVG 1.1	
TIVV Accelerators	(Emulated on 3D GPU)	
RTC	Accuracy: +/- 30 ppm	
Memory	1	
eMMC Flash	4 GB eMMC Flash	
RAM Standard	1 GB 32 bit DDR3L	1 GB 64 bit DDR3L
SD Card Slot	4 bit MMC/SDIO/SD/S	
Operating Systems	1 - pic i-ii-io/2010/20/3	5110
Supported OS	Windows EC on reque	ct
Sapported 03	Linux Yocto, Android	٠,
Communication Interfac		
Digital I/O	2x In, 2x Out (0.7 A)	
Network	1x 10/100 Mbit/s Ethe	rnot (P I_45)
USB 2.0	1x 480 Mbit/s Host (Ty	
U3B 2.0	1x 480 Mbit/s OTG (Ty	
CAN Fieldbus / RS-485	1x CAN (ISO/DIS	1x CAN (ISO/DIS
CAN Fletabas / NO-403	11898) + 1x RS-485	11898) + 1x RS-485
	11070) 1 12113 400	galvanic isolated
RS-232	2x RS-232 (RX/TX/CTS	
Synchronous	SPI up to 12 chip sele	
Serial Interfaces	Matrix keypad up to 8	
Video	7/1	
Video Output		Full HD micro HDMI
Audio		
Speaker Output	1x speaker (connecto	r) 15W RMS [80]
Audio Internal	1x speaker 0.3 W RMS	
Display and Touch	TX Speaker 0.0 W Kine	5 (012)
Bispitaly unta Touch		
Size	7 inch/178 0 mm	
Size Resolution	7 inch/178.0 mm	
Resolution	1024 x 600 pixel	
Resolution Brightness	1024 x 600 pixel Typ. 420 cd/m <sup>2</sup>	
Resolution Brightness Backlight Lifetime	1024 x 600 pixel Typ. 420 cd/m <sup>2</sup> Typ. 20 000 h	11
Resolution Brightness Backlight Lifetime Viewing Angle	1024 x 600 pixel Typ. 420 cd/m <sup>2</sup> Typ. 20 000 h 70°,75°,75° (UDR	
Resolution Brightness Backlight Lifetime Viewing Angle Color	1024 x 600 pixel Typ. 420 cd/m <sup>2</sup> Typ. 20000 h 70°,75°,75°,75° (UDR 24 bit (16.7 Mio. color	s)
Resolution Brightness Backlight Lifetime Viewing Angle Color Touch	1024 x 600 pixel Typ. 420 cd/m <sup>2</sup> Typ. 20 000 h 70°,75°,75° (UDR	s)
Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing	1024 x 600 pixel Typ. 420 cd/m² Typ. 20000 h 70°,75°,75°,75° (UDR 24 bit (16.7 Mio. color projected capacitive n	s) nulti touch
Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front	1024 x 600 pixel Typ. 420 cd/m² Typ. 20000 h 70°,75°,75°,75° (UDR 24 bit (16.7 Mio. color projected capacitive n 3.0 mm toughened gla	s) nulti touch ass, RAL 9005
Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame	1024 x 600 pixel Typ. 420 cd/m² Typ. 20000 h 70°,75°,75°,75° (UDR 24 bit (16.7 Mio. color projected capacitive n  3.0 mm toughened gla Fine zinc alloy, matt c	s) nulti touch ass, RAL 9005 hrome
Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear	1024 x 600 pixel Typ. 420 cd/m² Typ. 20000 h 70°,75°,75°,75° (UDR 24 bit (16.7 Mio. color projected capacitive n 3.0 mm toughened gla Fine zinc alloy, matt c 1.4016 stainless steel	s) nulti touch ass, RAL 9005 hrome , foam seal
Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection	1024 x 600 pixel Typ. 420 cd/m² Typ. 20000 h 70°,75°,75°,75° (UDR 24 bit (16.7 Mio. color projected capacitive n  3.0 mm toughened gla Fine zinc alloy, matt c	s) nulti touch ass, RAL 9005 hrome , foam seal
Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions	1024 x 600 pixel Typ. 420 cd/m² Typ. 20000 h 70°,75°,75°,75° (UDR 24 bit (16.7 Mio. color projected capacitive n 3.0 mm toughened gl. Fine zinc alloy, matt c 1.4016 stainless steel Front IP 66/Rear IP20	s) nulti touch ass, RAL 9005 hrome , foam seal
Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D	1024 x 600 pixel Typ. 420 cd/m² Typ. 20 000 h 70°,75°,75°,75° (UDR 24 bit (16.7 Mio. color projected capacitive n  3.0 mm toughened gl. Fine zinc alloy, matt c 1.4016 stainless steel Front IP 66/Rear IP20	s) nulti touch ass, RAL 9005 hrome , foam seal
Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight	1024 x 600 pixel Typ. 420 cd/m² Typ. 20000 h 70°,75°,75°,75° (UDR 24 bit (16.7 Mio. color projected capacitive n 3.0 mm toughened gl. Fine zinc alloy, matt c 1.4016 stainless steel Front IP 66/Rear IP20	s) nulti touch ass, RAL 9005 hrome , foam seal
Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply	1024 x 600 pixel Typ. 420 cd/m² Typ. 20 000 h 70°,75°,75°,75° [UDR 24 bit [16.7 Mio. color projected capacitive n  3.0 mm toughened gla Fine zinc alloy, matt c 1.4016 stainless steel Front IP 66/Rear IP20  206.9 x 126.2 x 33.6 m 936 g	s) nulti touch ass, RAL 9005 hrome , foam seal
Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage	1024 x 600 pixel Typ. 420 cd/m² Typ. 20 000 h 70°,75°,75°,75° [UDR 24 bit [16.7 Mio. color projected capacitive n  3.0 mm toughened gla Fine zinc alloy, matt c 1.4016 stainless steel Front IP 66/Rear IP20  206.9 x 126.2 x 33.6 m 936 g  Nom. 9 to 32 V DC	s) nulti touch ass, RAL 9005 hrome , foam seal
Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption	1024 x 600 pixel Typ. 420 cd/m² Typ. 20 000 h 70°,75°,75°,75° [UDR 24 bit [16.7 Mio. color projected capacitive n  3.0 mm toughened gl. Fine zinc alloy, matt c 1.4016 stainless steel Front IP 66/Rear IP20  206.9 x 126.2 x 33.6 m 936 g  Nom. 9 to 32 V DC Typ. 5.1 W; max. 22.8	s) nulti touch ass, RAL 9005 hrome , foam seal
Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage	1024 x 600 pixel Typ. 420 cd/m² Typ. 20 000 h 70°,75°,75°,75° [UDR 24 bit [16.7 Mio. color projected capacitive n  3.0 mm toughened gla Fine zinc alloy, matt c 1.4016 stainless steel Front IP 66/Rear IP20  206.9 x 126.2 x 33.6 m 936 g  Nom. 9 to 32 V DC Typ. 5.1 W; max. 22.8  Conditions	s) nulti touch ass, RAL 9005 hrome , foam seal
Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption	1024 x 600 pixel Typ. 420 cd/m² Typ. 20 000 h 70°,75°,75°,75° [UDR 24 bit [16.7 Mio. color projected capacitive n  3.0 mm toughened gl. Fine zinc alloy, matt c 1.4016 stainless steel Front IP 66/Rear IP20  206.9 x 126.2 x 33.6 m 936 g  Nom. 9 to 32 V DC Typ. 5.1 W; max. 22.8	s) nulti touch ass, RAL 9005 hrome , foam seal
Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption Typical Environmental (	1024 x 600 pixel Typ. 420 cd/m² Typ. 20 000 h 70°,75°,75°,75° [UDR 24 bit [16.7 Mio. color projected capacitive n  3.0 mm toughened gla Fine zinc alloy, matt c 1.4016 stainless steel Front IP 66/Rear IP20  206.9 x 126.2 x 33.6 m 936 g  Nom. 9 to 32 V DC Typ. 5.1 W; max. 22.8  Conditions	s) nulti touch ass, RAL 9005 hrome , foam seal

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTOKA 7.0 BX PCT 1K**

































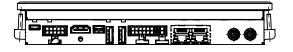


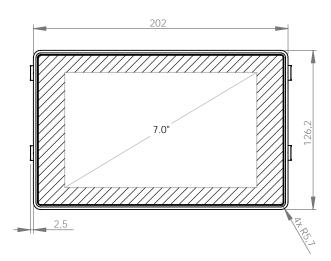


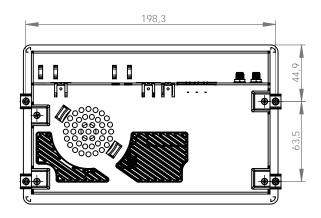


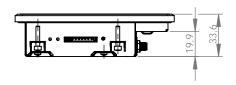


# **SANTOKA 7.0 BX PCT 1K**







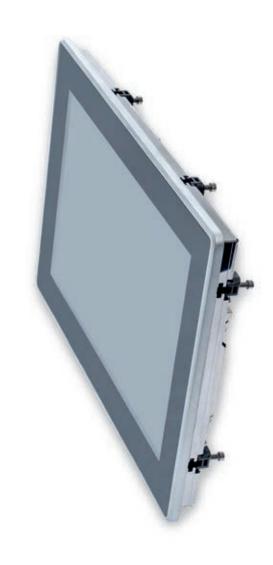


CPU	x1	x2
CPU Type	i.MX6Solo	i.MX6Dual
Core Class	ARM Cortex - A9	1.MAODuat
Core Clock	1 GHz	
Core Clock	NEON for SIMD media	accoloration and VED
	operations; Multi-form	
	coder and HD 720p vid	
Features	engine; L1 cache, 32 K	
	KB for data	D for mon action, oz
	512 KB L2 cache	1 MB L2 cache
	OpenGL ES 2.0, OpenVG 1.1	
HW Accelerators	(Emulated on 3D GPU)	OpenGL ES 2.0, OpenVG 1
RTC	Accuracy: +/- 30 ppm a	at 25°C
Memory	, , , , , , , , , , , , , , , , , , , ,	
eMMC Flash	4 GB MLC eMMC	
RAM Standard	1 GB 32 bit DDR3L	1 GB 64 bit DDR3L
SD Card Slot	4 bit MMC/SDIO/SD/SDHC	
Operating Systems	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	-
Supported OS	Linux Yocto, Android	
Communcation Interface	· · · · · · · · · · · · · · · · · · ·	
Network	2x 10/100 Mbit/s Ether	net (R I_45)
Network	2x 480 Mbit/s Host (Ty	
USB 2.0	1x 480 Mbit/s OTG (Typ	
		1x CAN (ISO/DIS
CAN Fieldbus / RS-485	1x CAN (ISO/DIS	11898) + 1x RS-485
0/11 T T T T T T T T T T T T T T T T T T	11898) + 1x RS-485	galvanic isolated
RS-232	2x RS-232 (RX/TX/CTS	
Synchronous	SPI up to 12 chip selec	
Serial Interfaces	up to 8 x 8	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Wireless Communicatio	n	
14 <i>P</i> 1	WLAN 802.11 b/g/n; Bluetooth 4.0 LE	
Wireless	For available mPCIe m	
Video		
Video Output		Full HD HDMI
aco oatput		
Audio	<u> </u>	
Audio	1x speaker (connector	). 1.5W RMS (8Ω)
	1x speaker (connector 1x speaker 0.3 W RMS	
Audio Speaker Output Audio Internal	1x speaker (connector 1x speaker 0.3 W RMS	
Audio Speaker Output Audio Internal Display and Touch	1x speaker 0.3 W RMS	
Audio Speaker Output Audio Internal	1x speaker 0.3 W RMS 7 inch/178.0 mm	
Audio Speaker Output Audio Internal Display and Touch Size Resolution	1x speaker 0.3 W RMS 7 inch/178.0 mm 1024 x 600 pixel	
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness	1x speaker 0.3 W RMS 7 inch/178.0 mm 1024 x 600 pixel Typ. 420 cd/m²	
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime	1x speaker 0.3 W RMS 7 inch/178.0 mm 1024 x 600 pixel Typ. 420 cd/m² Typ. 20 000 h	[80]
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle	1x speaker 0.3 W RMS  7 inch/178.0 mm  1024 x 600 pixel  Typ. 420 cd/m²  Typ. 20 000 h  70°,75°,75°,75° (UDRL	[80]
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color	1x speaker 0.3 W RMS  7 inch/178.0 mm  1024 x 600 pixel  Typ. 420 cd/m²  Typ. 20000 h  70°,75°,75°,75° (UDRL  24 bit [16.7 Mio. colors	(8Q)
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch	1x speaker 0.3 W RMS  7 inch/178.0 mm  1024 x 600 pixel  Typ. 420 cd/m²  Typ. 20 000 h  70°,75°,75°,75° (UDRL	(8Q)
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing	1x speaker 0.3 W RMS  7 inch/178.0 mm  1024 x 600 pixel  Typ. 420 cd/m²  Typ. 20000 h  70°,75°,75°,75° (UDRL  24 bit (16.7 Mio. colors projected capacitive m	(80)
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front	1x speaker 0.3 W RMS  7 inch/178.0 mm  1024 x 600 pixel  Typ. 420 cd/m²  Typ. 20000 h  70°,75°,75°,75° (UDRL  24 bit (16.7 Mio. colors projected capacitive m  3.0 mm toughened gla	(80)  J J ulti touch  ss, RAL 9005
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame	1x speaker 0.3 W RMS  7 inch/178.0 mm  1024 x 600 pixel  Typ. 420 cd/m²  Typ. 20000 h  70°,75°,75°,75° (UDRL  24 bit (16.7 Mio. colors projected capacitive m  3.0 mm toughened gla Fine zinc alloy, matt ch	(80)  .] .] ulti touch  ss, RAL 9005  nrome
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear	1x speaker 0.3 W RMS  7 inch/178.0 mm  1024 x 600 pixel  Typ. 420 cd/m²  Typ. 20000 h  70°,75°,75°,75° (UDRL  24 bit (16.7 Mio. colors projected capacitive m  3.0 mm toughened gla Fine zinc alloy, matt ch  1.4016 stainless steel,	(80)  .] .] ulti touch  ss, RAL 9005  nrome
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection	1x speaker 0.3 W RMS  7 inch/178.0 mm  1024 x 600 pixel  Typ. 420 cd/m²  Typ. 20000 h  70°,75°,75°,75° (UDRL  24 bit (16.7 Mio. colors projected capacitive m  3.0 mm toughened gla Fine zinc alloy, matt ch	(80)  .] .] ulti touch  ss, RAL 9005  nrome
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions	1x speaker 0.3 W RMS  7 inch/178.0 mm  1024 x 600 pixel  Typ. 420 cd/m²  Typ. 20 000 h  70°,75°,75°,75° (UDRL  24 bit (16.7 Mio. colors projected capacitive m  3.0 mm toughened gla Fine zinc alloy, matt ch  1.4016 stainless steel, Front IP 66/Rear IP20	(80)  L] L) L) Ulti touch  ss, RAL 9005  nrome foam seal
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D	1x speaker 0.3 W RMS  7 inch/178.0 mm  1024 x 600 pixel  Typ. 420 cd/m²  Typ. 20 000 h  70°,75°,75°,75° (UDRL 24 bit (16.7 Mio. colors) projected capacitive m  3.0 mm toughened gla Fine zinc alloy, matt ch 1.4016 stainless steel, Front IP 66/Rear IP20	(80)  L] L) L) Ulti touch  ss, RAL 9005  nrome foam seal
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight	1x speaker 0.3 W RMS  7 inch/178.0 mm  1024 x 600 pixel  Typ. 420 cd/m²  Typ. 20 000 h  70°,75°,75°,75° (UDRL  24 bit (16.7 Mio. colors projected capacitive m  3.0 mm toughened gla Fine zinc alloy, matt ch  1.4016 stainless steel, Front IP 66/Rear IP20	(80)  L] L) L) Ulti touch  ss, RAL 9005  nrome foam seal
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply	1x speaker 0.3 W RMS  7 inch/178.0 mm  1024 x 600 pixel  Typ. 420 cd/m²  Typ. 20 000 h  70°,75°,75°,75° (UDRL  24 bit (16.7 Mio. colors) projected capacitive m  3.0 mm toughened gla Fine zinc alloy, matt ch  1.4016 stainless steel, Front IP 66/Rear IP20  206.9 x 126.2 x 33.6 mi  936 g	(80)  L] L) L) Ulti touch  ss, RAL 9005  nrome foam seal
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage	1x speaker 0.3 W RMS  7 inch/178.0 mm  1024 x 600 pixel  Typ. 420 cd/m²  Typ. 20 000 h  70°,75°,75°,75° (UDRL 24 bit (16.7 Mio. colors) projected capacitive m  3.0 mm toughened gla Fine zinc alloy, matt ch 1.4016 stainless steel, Front IP 66/Rear IP20  206.9 x 126.2 x 33.6 mm  936 g	(80)  .) .) .) .) .) .) .) .) .) .) .) .) .
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption	1x speaker 0.3 W RMS  7 inch/178.0 mm  1024 x 600 pixel  Typ. 420 cd/m²  Typ. 20 000 h  70°,75°,75°,75° (UDRL 24 bit (16.7 Mio. colors) projected capacitive m  3.0 mm toughened gla Fine zinc alloy, matt ch 1.4016 stainless steel, Front IP 66/Rear IP20  206.9 x 126.2 x 33.6 mm  936 g  Nom. 9 to 32 V DC  Typ. 4.7 W; max. 27.6 V	(80)  .) .) .) .) .) .) .) .) .) .) .) .) .
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption Typical Environmental C	1x speaker 0.3 W RMS  7 inch/178.0 mm  1024 x 600 pixel  Typ. 420 cd/m²  Typ. 20 000 h  70°,75°,75° (UDRL  24 bit (16.7 Mio. colors) projected capacitive m  3.0 mm toughened gla Fine zinc alloy, matt ch  1.4016 stainless steel, Front IP 66/Rear IP20  206.9 x 126.2 x 33.6 mm  936 g  Nom. 9 to 32 V DC  Typ. 4.7 W; max. 27.6 V  conditions	(80)  .) .) .) .) .) .) .) .) .) .) .) .) .
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption Typical Environmental C Storage Temp.	1x speaker 0.3 W RMS  7 inch/178.0 mm  1024 x 600 pixel  Typ. 420 cd/m²  Typ. 20 000 h  70°,75°,75°,75° (UDRL  24 bit (16.7 Mio. colors) projected capacitive m  3.0 mm toughened gla Fine zinc alloy, matt ch  1.4016 stainless steel, Front IP 66/Rear IP20  206.9 x 126.2 x 33.6 mm  936 g  Nom. 9 to 32 V DC  Typ. 4.7 W; max. 27.6 V  conditions  -20 to +70 °C	(80)  .) .) .) .) .) .) .) .) .) .) .) .) .
Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption Typical Environmental C	1x speaker 0.3 W RMS  7 inch/178.0 mm  1024 x 600 pixel  Typ. 420 cd/m²  Typ. 20 000 h  70°,75°,75° (UDRL  24 bit (16.7 Mio. colors) projected capacitive m  3.0 mm toughened gla Fine zinc alloy, matt ch  1.4016 stainless steel, Front IP 66/Rear IP20  206.9 x 126.2 x 33.6 mm  936 g  Nom. 9 to 32 V DC  Typ. 4.7 W; max. 27.6 V  conditions	(80)  .) .) .) .) .) .) .) .) .) .) .) .) .

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTARO 10.1 BX PCT IPS**





































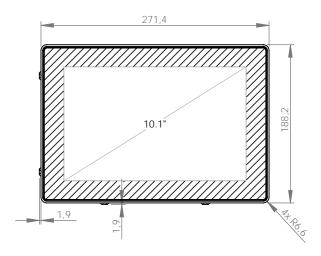


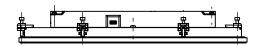


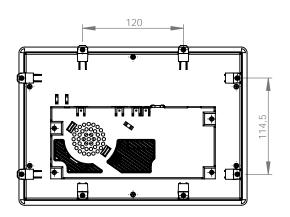


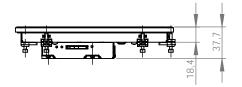
### **SANTARO 10.1 BX PCT IPS**











CPU	x1	x2
	i.MX6Solo	i.MX6Dual
CPU Type Core Class	ARM Cortex - A9	I.MX6Duat
		1 011-
Core Clock	800 MHz	1 GHz a acceleration and VFP
Features		
		mat HD 1080p video de- deo encoder hardware
	engine; L1 cache, 32	
	KB for data	ND 101 IIISH UCHOH, 32
	512 KB L2 cache	1 MB L2 cache
HW Accelerators	OpenGL ES 2.0, OpenVG 1.	1
TIVV Accelerators	(Emulated on 3D GPU	
RTC	Accuracy: +/- 30 ppm	
Memory	1	
eMMC Flash	4 GB eMMC Flash	
RAM Standard	1 GB 32 bit DDR3L	1 GB 64 bit DDR3L
SD Card Slot	4 bit MMC/SDIO/SD/SDHC	
Operating Systems	4 510 1411410/3510/35/3	DITO
Supported OS	Windows EC on reque	act
Supported 05	Linux Yocto, Android	:51,
Communication Interfac		
Digital I/O	2x In, 2x Out (0.7 A)	
Network	1x 10/100 Mbit/s Ethe	rnot (D I 45)
USB 2.0	1x 480 Mbit/s Host (Ty	
U3B 2.0	1x 480 Mbit/s OTG (Ty	
CAN Fieldbus / RS-485	1x CAN (ISO/DIS	1x CAN (ISO/DIS
CAN Fletabas / NO-403	11898) + 1x RS-485	11898) + 1x RS-485
	11070) 1 12103 400	galvanic isolated
RS-232	2x RS-232 (RX/TX/CT	
Synchronous	SPI up to 12 chip sele	
Serial Interfaces	Matrix keypad up to 8	, ,
Video	7)	
Video Output		Full HD micro HDMI
Audio		
Speaker Output	1x speaker (connecto	r) 15W RMS [80]
Audio Internal	1x speaker 0.3 W RMS	
Display and Touch	TX Specific 0.0 W W.	5 (012)
Size	10.1 inch/255.85mm	
Resolution	1280 x 800 pixel	
Brightness	Typ. 420 cd/m <sup>2</sup>	
Drighthess		
	Min 50,000 h	
Backlight Lifetime	Min. 50 000 h	1)
Backlight Lifetime Viewing Angle	85°,85°,85°,85° (UDR	
Backlight Lifetime Viewing Angle Color	85°,85°,85°,85° (UDR 24 bit (16.7 Mio. color	s)
Backlight Lifetime Viewing Angle Color Touch	85°,85°,85°,85° (UDR	s)
Backlight Lifetime Viewing Angle Color Touch Housing	85°,85°,85°,85° (UDR 24 bit (16.7 Mio. color projected capacitive r	s) nulti touch
Backlight Lifetime Viewing Angle Color Touch Housing Front	85°,85°,85°,85° (UDR 24 bit (16.7 Mio. color projected capacitive r 3.0 mm toughened gl	s) nulti touch ass, RAL 9005
Backlight Lifetime Viewing Angle Color Touch Housing Front Frame	85°,85°,85°,85° (UDR 24 bit (16.7 Mio. color projected capacitive r 3.0 mm toughened gl Fine zinc alloy, matt c	s) nulti touch ass, RAL 9005 hrome
Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear	85°,85°,85°,85° (UDR 24 bit (16.7 Mio. color projected capacitive r 3.0 mm toughened gl Fine zinc alloy, matt c 1.4016 stainless steel	s) nulti touch ass, RAL 9005 hrome , foam seal
Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection	85°,85°,85°,85° (UDR 24 bit (16.7 Mio. color projected capacitive r 3.0 mm toughened gl Fine zinc alloy, matt c	s) nulti touch ass, RAL 9005 hrome , foam seal
Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions	85°,85°,85°,85° (UDR 24 bit (16.7 Mio. color projected capacitive r 3.0 mm toughened gl Fine zinc alloy, matt c 1.4016 stainless steel Front IP 66/Rear IP20	s) nulti touch ass, RAL 9005 hrome , foam seal
Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D	85°,85°,85°,85° (UDR 24 bit (16.7 Mio. color projected capacitive r 3.0 mm toughened gl Fine zinc alloy, matt c 1.4016 stainless steel Front IP 66/Rear IP20	s) nulti touch ass, RAL 9005 hrome , foam seal
Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight	85°,85°,85°,85° (UDR 24 bit (16.7 Mio. color projected capacitive r 3.0 mm toughened gl Fine zinc alloy, matt c 1.4016 stainless steel Front IP 66/Rear IP20	s) nulti touch ass, RAL 9005 hrome , foam seal
Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply	85°,85°,85°,85° (UDR 24 bit (16.7 Mio. color projected capacitive r 3.0 mm toughened gl Fine zinc alloy, matt c 1.4016 stainless steel Front IP 66/Rear IP20 275.2 x 192.0 x 37.7 m 1749 g	s) nulti touch ass, RAL 9005 hrome , foam seal
Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage	85°,85°,85°,85° (UDR 24 bit (16.7 Mio. color projected capacitive r 3.0 mm toughened gl Fine zinc alloy, matt c 1.4016 stainless steel Front IP 66/Rear IP20 275.2 x 192.0 x 37.7 m 1749 g	s) nulti touch ass, RAL 9005 hrome , foam seal
Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption	85°,85°,85°,85° (UDR 24 bit (16.7 Mio. color projected capacitive r 3.0 mm toughened gl Fine zinc alloy, matt of 1.4016 stainless steel Front IP 66/Rear IP20 275.2 x 192.0 x 37.7 m 1749 g	s) nulti touch ass, RAL 9005 hrome , foam seal
Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage	85°,85°,85°,85° (UDR 24 bit (16.7 Mio. color projected capacitive r  3.0 mm toughened gl Fine zinc alloy, matt c 1.4016 stainless steel Front IP 66/Rear IP20  275.2 x 192.0 x 37.7 m 1749 g  Nom. 13 to 32 V DC Typ. 10.2 W; max. 26.4	s) nulti touch ass, RAL 9005 hrome , foam seal
Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption	85°,85°,85°,85° (UDR 24 bit (16.7 Mio. color projected capacitive r 3.0 mm toughened gl Fine zinc alloy, matt of 1.4016 stainless steel Front IP 66/Rear IP20 275.2 x 192.0 x 37.7 m 1749 g	s) nulti touch ass, RAL 9005 hrome , foam seal
Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption Typical Environmental (	85°,85°,85°,85° (UDR 24 bit (16.7 Mio. color projected capacitive r  3.0 mm toughened gl Fine zinc alloy, matt c 1.4016 stainless steel Front IP 66/Rear IP20  275.2 x 192.0 x 37.7 m 1749 g  Nom. 13 to 32 V DC Typ. 10.2 W; max. 26.4	s) nulti touch ass, RAL 9005 hrome , foam seal

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTOKA 10.1 BX PCT IPS**



































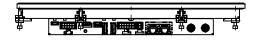


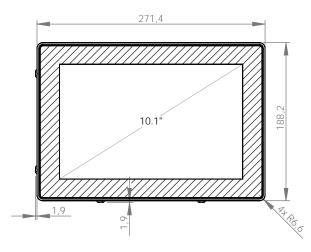


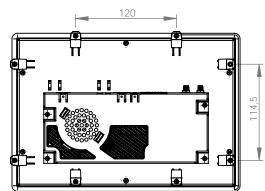


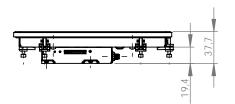


# **SANTOKA 10.1 BX PCT IPS**









CPU Type	CPU	x1	x2	
Core Class				
Core Clock			1.MADDaut	
NEON for SIMD media acceleration and VFP operations; Multi-format HD 1080p video decoder and HD 720p video encoder hardware engine; L1 cache, 32 KB for instruction, 32 KB for data				
Peatures	oure otoek	1	acceleration and VFP	
Features				
engine; L1 cache, 32 KB for instruction, 32 KB for data	_			
KB for data   512 KB L2 cache   1 MB L2 cach	Features			
Maccelerators			,	
RTC		512 KB L2 cache	1 MB L2 cache	
RTC		OpenGL ES 2.0, OpenVG 1.1	0 0 5000 0 000	
RTC         Accuracy: +/- 30 ppm at 25°C           Memory           eMMC Flash         4 GB MLC eMMC           RAM Standard         1 GB 32 bit DDR3L         1 GB 64 bit DDR3L           SD Card Slot         4 bit MMC/SDIO/SD/SDHC           Operating Systems           Supported OS         Linux Yocto, Android           Communcation Interfaces           Network         2x 10/100 Mbit/s Ethernet (RJ-45)           USB 2.0         2x 480 Mbit/s Host (Type A)           1x CAN (ISO/DIS 11898) + 1x RS-485           2x RS-232 (RX/TX/CTS/RTS)           Synchronous           1x CAN (ISO/DIS 11898) + 1x RS-485 <td colspan<="" td=""><td>HW Accelerators</td><td></td><td>OpenGL ES 2.0, OpenVG 1.7</td></td>	<td>HW Accelerators</td> <td></td> <td>OpenGL ES 2.0, OpenVG 1.7</td>	HW Accelerators		OpenGL ES 2.0, OpenVG 1.7
Memory           eMMC Flash         4 GB MLC eMMC           RAM Standard         1 GB 32 bit DDR3L         1 GB 64 bit DDR3L           SD Card Slot         4 bit MMC/SDIO/SD/SDHC           Operating Systems           Supported 0S         Linux Yocto, Android           Communcation Interfaces           Network         2x 10/100 Mbit/s Ethernet (RJ-45)           USB 2.0         2x 480 Mbit/s Host (Type A)           1x 480 Mbit/s OTG (Type Micro-AB)         1x CAN (ISO/DIS 11898) + 1x RS-485           1898 + 1x RS-485         1x CAN (ISO/DIS 11898) + 1x RS-485           28 Spynchronous         SPI up to 12 chip selects; I²C; Matrix keypad up to 8 x 8           Wireless Communication         WLAN 802.11 b/g/n; Bluetooth 4.0 LE For available mPCle modules see page 129           Video         Wideo           Video         WLAN 802.11 b/g/n; Bluetooth 4.0 LE For available mPCle modules see page 129           Video         Wideo           Video         In x speaker (connector), 1.5W RMS (80)           Speaker Output         1x speaker (connector), 1.5W RMS (80)           Audio Internal         1x speaker (connector), 1.5W RMS (80)           Bisplay and Touch         1280 x 800 pixel           Brightness         Typ. 420 cd/m²           Backlight Lifetime <td>RTC</td> <td></td> <td>at 25°C</td>	RTC		at 25°C	
RAM Standard   1 GB 32 bit DDR3L   1 GB 64 bit DDR3L	Memory	, , , , , , , , , , , , , , , , , , , ,		
SD Card Slot   4 bit MMC/SDIO/SD/SDHC	eMMC Flash	4 GB MLC eMMC		
SD Card Slot   4 bit MMC/SDIO/SD/SDHC			1 GB 64 bit DDR3L	
Operating Systems           Supported OS         Linux Yocto, Android           Communcation Interfaces           Network         2x 10/100 Mbit/s Ethert (RJ-45)           USB 2.0         2x 480 Mbit/s Host (Type A)           1x 480 Mbit/s OTG (Type Micro-AB)           CAN Fieldbus / RS-485         1x CAN (ISO/DIS 11898) + 1x RS-485 (galvanic isolated           RS-232         2x RS-232 (RX/TX/CTS/RTS)           Synchronous         SPI up to 12 chip selects; I2C; Matrix keypad up to 8 x 8           Wireless Communication         WLAN 802.11 b/g/n; Bluetooth 4.0 LE For available mPCle modules see page 129           Video         WLAN 802.11 b/g/n; Bluetooth 4.0 LE For available mPCle modules see page 129           Video         WLAN 802.11 b/g/n; Bluetooth 4.0 LE For available mPCle modules see page 129           Video         WLAN 802.11 b/g/n; Bluetooth 4.0 LE For available mPCle modules see page 129           Video         WLAN 802.11 b/g/n; Bluetooth 4.0 LE For available mPCle modules see page 129           Video         Video Output         Full HD HDMI           Audio Internal         1x speaker (connector), 1.5W RMS [80]           Backlight Different         1x speaker (connector), 1.5W RMS [80]           Brightness         Typ. 420 cd/m²           Backlight Lifetime         Min. 50000 h           Viewing Angle         85°,85°,				
Communcation Interfaces           Network         2x 10/100 Mbit/s Ethernet (RJ-45)           USB 2.0         2x 480 Mbit/s Host (Type A)           1x 480 Mbit/s OTG (Type Micro-AB)           CAN Fieldbus / RS-485         1x CAN (ISO/DIS 11898) + 1x RS-485 (I1898) + Ix RS-485 (		1 5.0.1.1.10,05.10,05,0	5110	
Communcation Interfaces           Network         2x 10/100 Mbit/s Ether t (RJ-45)           USB 2.0         2x 480 Mbit/s Host (Type AI) 1x 480 Mbit/s OTG (Type Micro-AB)           CAN Fieldbus / RS-485         1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated           RS-232         2x RS-232 [RX/TX/CTS/RTS]           Synchronous Serial Interfaces         SPI up to 12 chip selects; I²C; Matrix keypad up to 8 x 8           Wireless Communication           Wireless         WLAN 802.11 b/g/n; Bluetooth 4.0 LE For available mPCIe modules see page 129           Video           Video         Video Output         Full HD HDMI           Audio         1x speaker (connector), 1.5W RMS (80)           Audio Internal         1x speaker (connector), 1.5W RMS (80)           Display and Touch         1size           Size         10.1 inch/ 256.54 mm           Resolution         1280 x 800 pixel           Brightness         Typ. 420 cd/m²           Backlight Lifetime         Min. 50000 h           Viewing Angle         85°,85°,85°,85° (UDRL)           Color         24 bit [16.7 Mio. colors]           Touch         projected capacitive multitouch           Housing         Freme           Front IP 66/Rear IP20           Device Dimensio		Linux Yocto Android		
Network	- ' '			
USB 2.0  2x 480 Mbit/s OTG (Type A) 1x 480 Mbit/s OTG (Type Micro-AB)  CAN Fieldbus / RS-485  RS-232  2x RS-232 [RX/TX/CTS/RTS]  Synchronous Serial Interfaces  Wireless WLAN 802.11 b/g/n; Bluetooth 4.0 LE For available mPCle modules see page 129  Video  Video Output  Muse Pull HD HDMI  Audio  Speaker Output  Audio Internat  Display and Touch  Size  10.1 inch/ 256.54 mm  Resolution  1280 x 800 pixel  Brightness  Typ. 420 cd/m²  Backlight Lifetime Min. 50000 h  Viewing Angle Spokers, 85°, 85°, 85°, 85° (UDRL)  Cotor 24 bit [16.7 Mio. colors]  Touch  Housing  Front  3.0 mm thoughened glass, RAL 9005  Frame Frine zinc alloy, matt chrome Rear 1.4016 stainless steel, foam seal Ingress Protection Front IP 66/Rear IP20  Device Dimensions  W x H x D Vincy 9.8 W; max. 32.6 W  Typical Environmental Conditions  Storage Temp20 to +70 °C Operating Temp.  O to +60 °C			spot (P I_/5)	
1x 480 Mbit/s 0TG [Type Micro-AB]	Network			
CAN Fieldbus / RS-485    1x CAN [ISO/DIS 11898] + 1x RS-485	USB 2.0	1		
CAN Fieldbus / RS-485  11898] + 1x RS-485  11898] + 1x RS-485  RS-232  2x RS-232 (RX/TX/CTS/RTS)  Synchronous Serial Interfaces  Wireless Communication  Wireless WLAN 802.11 b/g/n; Bluetooth 4.0 LE For available mPCle modules see page 129  Video  Video Output Full HD HDMI  Audio  Speaker Output 1x speaker (connector), 1.5W RMS (8Ω)  Audio Internal 1x speaker 0.3 W RMS (8Ω)  Display and Touch  Size 10.1 inch/ 256.54 mm  Resolution 1280 x 800 pixel  Brightness Typ. 420 cd/m²  Backlight Lifetime Min. 50 000 h  Viewing Angle 85°,85°,85° (UDRL)  Color 24 bit (16.7 Mio. colors)  Touch projected capacitive multitouch  Housing  Front 3.0 mm thoughened glass, RAL 9005  Frame Fine zinc alloy, matt chrome  Rear 1.4016 stainless steel, foam seal  Ingress Protection Front IP 66/Rear IP20  Device Dimensions  W x H x D 275.2 x 192.0 x 37.9 mm  Weight 1749 g  Power Supply  Supply Voltage Nom. 13 to 32 V DC  Consumption Typ. 9.8 W; max. 32.6 W  Typical Environmental Conditions  Storage Temp20 to +70 °C  Operating Temp. 0 to +60 °C		1 1 400 MDIL/S 010 (1y)		
RS-232 2x RS-232 [RX/TX/CTS/RTS] Synchronous Serial Interfaces up to 8 x 8  Wireless Communication  Wireless WLAN 802.11 b/g/n; Bluetooth 4.0 LE For available mPCle modules see page 129  Video Video Output Full HD HDMI  Audio Speaker Output 1x speaker (connector), 1.5W RMS (8Ω)  Audio Internal 1x speaker 0.3 W RMS (8Ω)  Display and Touch Size 10.1 inch/256.54 mm  Resolution 1280 x 800 pixel Brightness Typ. 420 cd/m² Backlight Lifetime Min. 50 000 h Viewing Angle 85°,85°,85° (UDRL) Color 24 bit [16.7 Mio. colors] Touch projected capacitive multitouch  Housing Front 3.0 mm thoughened glass, RAL 9005 Frame Fine zinc alloy, matt chrome Rear 1.4016 stainless steel, foam seal Ingress Protection Front IP 66/Rear IP20  Device Dimensions  W x H x D 275.2 x 192.0 x 37.9 mm Weight 1749 g  Power Supply Supply Voltage Nom. 13 to 32 V DC Consumption Typ. 9.8 W; max. 32.6 W  Typical Environmental Conditions  Storage Temp20 to +70 °C Operating Temp. 0 to +60 °C	CAN Fioldbus / PS_485	1x CAN (ISO/DIS	( , _ ,	
RS-232 2x RS-232 [RX/TX/CTS/RTS] Synchronous Serial Interfaces	CAN Fletabas / NS-403	11898) + 1x RS-485		
Synchronous Serial InterfacesSPI up to 12 chip selects; I²C; Matrix keypad up to 8 x 8Wireless CommunicationWLAN 802.11 b/g/n; Bluetooth 4.0 LE For available mPCIe modules see page 129VideoVideoVideo OutputFull HD HDMIAudioSpeaker Output1x speaker (connector), 1.5W RMS (8Ω)Audio Internal1x speaker 0.3 W RMS (8Ω)Display and TouchSize10.1 inch/ 256.54 mmSize10.1 inch/ 256.54 mmResolution1280 x 800 pixelBrightnessTyp. 420 cd/m²Backlight LifetimeMin. 50000 hViewing Angle85°,85°,85°,85°,85° (UDRL)Color24 bit (16.7 Mio. colors)Touchprojected capacitive multitouchHousingFrontFront3.0 mm thoughened glass, RAL 9005FrameFine zinc alloy, matt chromeRear1.4016 stainless steel, foam sealIngress ProtectionFront IP 66/Rear IP20Device DimensionsFront IP 66/Rear IP20Device DimensionsVx H x D275.2 x 192.0 x 37.9 mmWeight1749 gPower SupplySupply VoltageNom. 13 to 32 V DCConsumptionTyp. 9.8 W; max. 32.6 WTypical Environmental ConditionsStorage Temp20 to +70 °COperating Temp.0 to +60 °C	RS-232	2x RS-232 (RX/TX/CTS	J	
Serial Interfacesup to 8 x 8Wireless CommunicationWLAN 802.11 b/g/n; Bluetooth 4.0 LE For available mPCIe modules see page 129VideoVideo OutputFull HD HDMIAudioFull HD HDMISpeaker Output1x speaker (connector), 1.5W RMS (8Ω)Audio Internal1x speaker 0.3 W RMS (8Ω)Display and TouchSize10.1 inch/ 256.54 mmSize10.1 inch/ 256.54 mmResolution1280 x 800 pixelBrightnessTyp. 420 cd/m²Backlight LifetimeMin. 50000 hViewing Angle85°,85°,85°,85°,85° (UDRL)Color24 bit (16.7 Mio. colors)Touchprojected capacitive multitouchHousingFrontFront3.0 mm thoughened glass, RAL 9005FrameFine zinc alloy, matt chromeRear1.4016 stainless steel, foam sealIngress ProtectionFront IP 66/Rear IP20Device DimensionsFront IP 66/Rear IP20Device DimensionsVx H x D275.2 x 192.0 x 37.9 mmWeight1749 gPower SupplySupply VoltageNom. 13 to 32 V DCConsumptionTyp. 9.8 W; max. 32.6 WTypical Environmental ConditionsStorage Temp20 to +70 °COperating Temp.0 to +60 °C				
Wireless CommunicationWirelessWLAN 802.11 b/g/n; Bluetooth 4.0 LE For available mPCle modules see page 129VideoVideo OutputFull HD HDMIAudioSpeaker Output1x speaker (connector), 1.5W RMS (8Ω)Audio Internal1x speaker 0.3 W RMS (8Ω)Display and TouchSize10.1 inch/ 256.54 mmSize10.1 inch/ 256.54 mmResolution1280 x 800 pixelBrightnessTyp. 420 cd/m²Backlight LifetimeMin. 50 000 hViewing Angle85°,85°,85°,85° (UDRL)Color24 bit (16.7 Mio. colors)Touchprojected capacitive multitouchHousingFront3.0 mm thoughened glass, RAL 9005FrameFine zinc alloy, matt chromeRear1.4016 stainless steel, foam sealIngress ProtectionFront IP 66/Rear IP20Device DimensionsW x H x D275.2 x 192.0 x 37.9 mmWeight1749 gPower SupplySupply VoltageNom. 13 to 32 V DCConsumptionTyp. 9.8 W; max. 32.6 WTypical Environmental ConditionsStorage Temp20 to +70 °COperating Temp.0 to +60 °C			is, i o, matrix keypaa	
WirelessWLAN 802.11 b/g/n; Bluetooth 4.0 LE For available mPCle modules see page 129VideoVideo OutputFull HD HDMIAudioSpeaker Output1x speaker (connector), 1.5W RMS (8Ω)Audio Internal1x speaker 0.3 W RMS (8Ω)Display and TouchDisplay and TouchSize10.1 inch/ 256.54 mmResolution1280 x 800 pixelBrightnessTyp. 420 cd/m²Backlight LifetimeMin. 50 000 hViewing Angle85°,85°,85°,85° (UDRL)Color24 bit (16.7 Mio. colors)Touchprojected capacitive multitouchHousingFront3.0 mm thoughened glass, RAL 9005FrameFine zinc alloy, matt chromeRear1.4016 stainless steel, foam sealIngress ProtectionFront IP 66/Rear IP20Device DimensionsW x H x D275.2 x 192.0 x 37.9 mmWeight1749 gPower SupplySupply VoltageNom. 13 to 32 V DCConsumptionTyp. 9.8 W; max. 32.6 WTypical Environmental ConditionsStorage Temp20 to +70 °COperating Temp.0 to +60 °C				
VideoFor available mPCIe modules see page 129VideoVideo OutputFull HD HDMIAudioSpeaker Output1x speaker (connector), 1.5W RMS (8Ω)Audio Internal1x speaker 0.3 W RMS (8Ω)Display and TouchSize10.1 inch/ 256.54 mmSize10.1 inch/ 256.54 mmResolution1280 x 800 pixelBrightnessTyp. 420 cd/m²Backlight LifetimeMin. 50 000 hViewing Angle85°,85°,85°,85° (UDRL)Color24 bit (16.7 Mio. colors)Touchprojected capacitive multitouchHousingFront3.0 mm thoughened glass, RAL 9005FrameFine zinc alloy, matt chromeRear1.4016 stainless steel, foam sealIngress ProtectionFront IP 66/Rear IP20Device DimensionsTyp. 12 × 192.0 x 37.9 mmWeight1749 gPower SupplySupply VoltageNom. 13 to 32 V DCConsumptionTyp. 9.8 W; max. 32.6 WTypical Environmental ConditionsStorage Temp20 to +70 °COperating Temp.0 to +60 °C			Juetooth 4 0 I F	
VideoVideo OutputFull HD HDMIAudioSpeaker Output1x speaker (connector), 1.5W RMS (8Ω)Audio Internal1x speaker 0.3 W RMS (8Ω)Display and TouchSize10.1 inch/ 256.54 mmSize10.1 inch/ 256.54 mmResolution1280 x 800 pixelBrightnessTyp. 420 cd/m²Backlight LifetimeMin. 50 000 hViewing Angle85°,85°,85°,85° (UDRL)Color24 bit (16.7 Mio. colors)Touchprojected capacitive multitouchHousingFront3.0 mm thoughened glass, RAL 9005FrameFine zinc alloy, matt chromeRear1.4016 stainless steel, foam sealIngress ProtectionFront IP 66/Rear IP20Device DimensionsVx H x D275.2 x 192.0 x 37.9 mmWeight1749 gPower SupplySupply VoltageNom. 13 to 32 V DCConsumptionTyp. 9.8 W; max. 32.6 WTypical Environmental ConditionsStorage Temp20 to +70 °COperating Temp.0 to +60 °C	Wireless			
AudioSpeaker Output1x speaker (connector), 1.5W RMS (8Ω)Audio Internal1x speaker 0.3 W RMS (8Ω)Display and Touch1280 x 800 pixelSize10.1 inch/ 256.54 mmResolution1280 x 800 pixelBrightnessTyp. 420 cd/m²Backlight LifetimeMin. 50 000 hViewing Angle85°,85°,85°,85° (UDRL)Color24 bit (16.7 Mio. colors)Touchprojected capacitive multitouchHousingFront3.0 mm thoughened glass, RAL 9005FrameFine zinc alloy, matt chromeRear1.4016 stainless steel, foam sealIngress ProtectionFront IP 66/Rear IP20Device DimensionsW x H x D275.2 x 192.0 x 37.9 mmWeight1749 gPower SupplySupply VoltageNom. 13 to 32 V DCConsumptionTyp. 9.8 W; max. 32.6 WTypical Environmental ConditionsStorage Temp20 to +70 °COperating Temp.0 to +60 °C	Video			
AudioSpeaker Output1x speaker (connector), 1.5W RMS (8Ω)Audio Internal1x speaker 0.3 W RMS (8Ω)Display and Touch1280 x 800 pixelSize10.1 inch/ 256.54 mmResolution1280 x 800 pixelBrightnessTyp. 420 cd/m²Backlight LifetimeMin. 50 000 hViewing Angle85°,85°,85°,85° (UDRL)Color24 bit (16.7 Mio. colors)Touchprojected capacitive multitouchHousingFront3.0 mm thoughened glass, RAL 9005FrameFine zinc alloy, matt chromeRear1.4016 stainless steel, foam sealIngress ProtectionFront IP 66/Rear IP20Device DimensionsW x H x D275.2 x 192.0 x 37.9 mmWeight1749 gPower SupplySupply VoltageNom. 13 to 32 V DCConsumptionTyp. 9.8 W; max. 32.6 WTypical Environmental ConditionsStorage Temp20 to +70 °COperating Temp.0 to +60 °C	Video Output		Full HD HDMI	
Speaker Output				
Audio Internal 1x speaker 0.3 W RMS (8Ω)  Display and Touch  Size 10.1 inch/ 256.54 mm  Resolution 1280 x 800 pixel  Brightness Typ. 420 cd/m²  Backlight Lifetime Min. 50 000 h  Viewing Angle 85°,85°,85°,85° (UDRL)  Color 24 bit (16.7 Mio. colors)  Touch projected capacitive multitouch  Housing  Front 3.0 mm thoughened glass, RAL 9005  Frame Fine zinc alloy, matt chrome  Rear 1.4016 stainless steel, foam seal  Ingress Protection Front IP 66/Rear IP20  Device Dimensions  W x H x D 275.2 x 192.0 x 37.9 mm  Weight 1749 g  Power Supply  Supply Voltage Nom. 13 to 32 V DC  Consumption Typ. 9.8 W; max. 32.6 W  Typical Environmental Conditions  Storage Temp20 to +70 °C  Operating Temp. 0 to +60 °C		1x sneaker (connector	1 5W RMS [80]	
Display and TouchSize10.1 inch/ 256.54 mmResolution1280 x 800 pixelBrightnessTyp. 420 cd/m²Backlight LifetimeMin. 50 000 hViewing Angle85°,85°,85°,85° (UDRL)Color24 bit [16.7 Mio. colors]Touchprojected capacitive multitouchHousingFront3.0 mm thoughened glass, RAL 9005FrameFine zinc alloy, matt chromeRear1.4016 stainless steel, foam sealIngress ProtectionFront IP 66/Rear IP20Device DimensionsW x H x D275.2 x 192.0 x 37.9 mmWeight1749 gPower SupplySupply VoltageNom. 13 to 32 V DCConsumptionTyp. 9.8 W; max. 32.6 WTypical Environmental ConditionsStorage Temp20 to +70 °COperating Temp.0 to +60 °C				
Size 10.1 inch/ 256.54 mm  Resolution 1280 x 800 pixel  Brightness Typ. 420 cd/m²  Backlight Lifetime Min. 50 000 h  Viewing Angle 85°,85°,85°,85° (UDRL)  Color 24 bit (16.7 Mio. colors)  Touch projected capacitive multitouch  Housing  Front 3.0 mm thoughened glass, RAL 9005  Frame Fine zinc alloy, matt chrome  Rear 1.4016 stainless steel, foam seal  Ingress Protection Front IP 66/Rear IP20  Device Dimensions  W x H x D 275.2 x 192.0 x 37.9 mm  Weight 1749 g  Power Supply  Supply Voltage Nom. 13 to 32 V DC  Consumption Typ. 9.8 W; max. 32.6 W  Typical Environmental Conditions  Storage Temp20 to +70 °C  Operating Temp. 0 to +60 °C		TX Speaker 0.0 W Mins	(012)	
Resolution 1280 x 800 pixel Brightness Typ. 420 cd/m² Backlight Lifetime Min. 50 000 h Viewing Angle 85°,85°,85°,85° (UDRL) Color 24 bit (16.7 Mio. colors) Touch projected capacitive multitouch Housing Front 3.0 mm thoughened glass, RAL 9005 Frame Fine zinc alloy, matt chrome Rear 1.4016 stainless steel, foam seal Ingress Protection Front IP 66/Rear IP20 Device Dimensions W x H x D 275.2 x 192.0 x 37.9 mm Weight 1749 g  Power Supply Supply Voltage Nom. 13 to 32 V DC Consumption Typ. 9.8 W; max. 32.6 W  Typical Environmental Conditions Storage Temp20 to +70 °C Operating Temp. 0 to +60 °C	<u> </u>	10.1 inch/254.54 mm		
Brightness Typ. 420 cd/m²  Backlight Lifetime Min. 50 000 h  Viewing Angle 85°,85°,85°,85° (UDRL)  Color 24 bit [16.7 Mio. colors]  Touch projected capacitive multitouch  Housing  Front 3.0 mm thoughened glass, RAL 9005  Frame Fine zinc alloy, matt chrome  Rear 1.4016 stainless steel, foam seal  Ingress Protection Front IP 66/Rear IP20  Device Dimensions  W x H x D 275.2 x 192.0 x 37.9 mm  Weight 1749 g  Power Supply  Supply Voltage Nom. 13 to 32 V DC  Consumption Typ. 9.8 W; max. 32.6 W  Typical Environmental Conditions  Storage Temp20 to +70 °C  Operating Temp. 0 to +60 °C				
Backlight Lifetime Min. 50 000 h  Viewing Angle 85°,85°,85°,85° (UDRL)  Color 24 bit [16.7 Mio. colors]  Touch projected capacitive multitouch  Housing  Front 3.0 mm thoughened glass, RAL 9005  Frame Fine zinc alloy, matt chrome  Rear 1.4016 stainless steel, foam seal  Ingress Protection Front IP 66/Rear IP20  Device Dimensions  W x H x D 275.2 x 192.0 x 37.9 mm  Weight 1749 g  Power Supply  Supply Voltage Nom. 13 to 32 V DC  Consumption Typ. 9.8 W; max. 32.6 W  Typical Environmental Conditions  Storage Temp20 to +70 °C  Operating Temp. 0 to +60 °C				
Viewing Angle         85°,85°,85°,85° (UDRL)           Color         24 bit (16.7 Mio. colors)           Touch         projected capacitive multitouch           Housing           Front         3.0 mm thoughened glass, RAL 9005           Frame         Fine zinc alloy, matt chrome           Rear         1.4016 stainless steel, foam seal           Ingress Protection         Front IP 66/Rear IP20           Device Dimensions         W x H x D           W x H x D         275.2 x 192.0 x 37.9 mm           Weight         1749 g           Power Supply           Supply Voltage         Nom. 13 to 32 V DC           Consumption         Typ. 9.8 W; max. 32.6 W           Typical Environmental Conditions           Storage Temp.         -20 to +70 °C           Operating Temp.         0 to +60 °C				
Color 24 bit [16.7 Mio. colors] Touch projected capacitive multitouch  Housing  Front 3.0 mm thoughened glass, RAL 9005 Frame Fine zinc alloy, matt chrome Rear 1.4016 stainless steel, foam seal Ingress Protection Front IP 66/Rear IP20  Device Dimensions  W x H x D 275.2 x 192.0 x 37.9 mm  Weight 1749 g  Power Supply  Supply Voltage Nom. 13 to 32 V DC  Consumption Typ. 9.8 W; max. 32.6 W  Typical Environmental Conditions  Storage Temp20 to +70 °C  Operating Temp. 0 to +60 °C			1	
Touch projected capacitive multitouch  Housing  Front 3.0 mm thoughened glass, RAL 9005  Frame Fine zinc alloy, matt chrome  Rear 1.4016 stainless steel, foam seal Ingress Protection Front IP 66/Rear IP20  Device Dimensions  W x H x D 275.2 x 192.0 x 37.9 mm  Weight 1749 g  Power Supply  Supply Voltage Nom. 13 to 32 V DC  Consumption Typ. 9.8 W; max. 32.6 W  Typical Environmental Conditions  Storage Temp20 to +70 °C  Operating Temp. 0 to +60 °C				
## Housing  Front				
Front 3.0 mm thoughened glass, RAL 9005 Frame Fine zinc alloy, matt chrome Rear 1.4016 stainless steel, foam seal Ingress Protection Front IP 66/Rear IP20  Device Dimensions  W x H x D 275.2 x 192.0 x 37.9 mm  Weight 1749 g  Power Supply  Supply Voltage Nom. 13 to 32 V DC Consumption Typ. 9.8 W; max. 32.6 W  Typical Environmental Conditions  Storage Temp20 to +70 °C Operating Temp. 0 to +60 °C		projected capacitive m	iuttituucii	
Frame Fine zinc alloy, matt chrome Rear 1.4016 stainless steel, foam seal Ingress Protection Front IP 66/Rear IP20  Device Dimensions  W x H x D 275.2 x 192.0 x 37.9 mm  Weight 1749 g  Power Supply  Supply Voltage Nom. 13 to 32 V DC Consumption Typ. 9.8 W; max. 32.6 W  Typical Environmental Conditions  Storage Temp20 to +70 °C Operating Temp. 0 to +60 °C			DAI 0005	
Rear 1.4016 stainless steel, foam seal Ingress Protection Front IP 66/Rear IP20  Device Dimensions  W x H x D 275.2 x 192.0 x 37.9 mm  Weight 1749 g  Power Supply  Supply Voltage Nom. 13 to 32 V DC  Consumption Typ. 9.8 W; max. 32.6 W  Typical Environmental Conditions  Storage Temp20 to +70 °C  Operating Temp. 0 to +60 °C				
Ingress Protection	Frame			
Device Dimensions           W x H x D         275.2 x 192.0 x 37.9 mm           Weight         1749 g           Power Supply           Supply Voltage         Nom. 13 to 32 V DC           Consumption         Typ. 9.8 W; max. 32.6 W           Typical Environmental Conditions           Storage Temp.         -20 to +70 °C           Operating Temp.         0 to +60 °C				
W x H x D         275.2 x 192.0 x 37.9 mm           Weight         1749 g           Power Supply           Supply Voltage         Nom. 13 to 32 V DC           Consumption         Typ. 9.8 W; max. 32.6 W           Typical Environmental Conditions           Storage Temp.         -20 to +70 °C           Operating Temp.         0 to +60 °C	Rear		foam seal	
Weight 1749 g  Power Supply  Supply Voltage Nom. 13 to 32 V DC  Consumption Typ. 9.8 W; max. 32.6 W  Typical Environmental Conditions  Storage Temp20 to +70 °C  Operating Temp. 0 to +60 °C	Rear Ingress Protection		foam seal	
Power Supply Supply Voltage Nom. 13 to 32 V DC Consumption Typ. 9.8 W; max. 32.6 W  Typical Environmental Conditions Storage Temp20 to +70 °C Operating Temp. 0 to +60 °C	Rear Ingress Protection Device Dimensions	Front IP 66/Rear IP20		
Supply Voltage Nom. 13 to 32 V DC Consumption Typ. 9.8 W; max. 32.6 W  Typical Environmental Conditions Storage Temp20 to +70 °C Operating Temp. 0 to +60 °C	Rear Ingress Protection <b>Device Dimensions</b> W x H x D	Front IP 66/Rear IP20 275.2 x 192.0 x 37.9 m		
Consumption Typ. 9.8 W; max. 32.6 W  Typical Environmental Conditions  Storage Temp20 to +70 °C  Operating Temp. 0 to +60 °C	Rear Ingress Protection Device Dimensions W x H x D Weight	Front IP 66/Rear IP20 275.2 x 192.0 x 37.9 m		
Consumption Typ. 9.8 W; max. 32.6 W  Typical Environmental Conditions  Storage Temp20 to +70 °C  Operating Temp. 0 to +60 °C	Rear Ingress Protection Device Dimensions W x H x D Weight	Front IP 66/Rear IP20 275.2 x 192.0 x 37.9 m		
Typical Environmental Conditions       Storage Temp.     -20 to +70 °C       Operating Temp.     0 to +60 °C	Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply	275.2 x 192.0 x 37.9 m 1749 g		
Storage Temp. $-20 \text{ to } +70 \text{ °C}$ Operating Temp. $0 \text{ to } +60 \text{ °C}$	Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage	275.2 x 192.0 x 37.9 m 1749 g Nom. 13 to 32 V DC	m	
Operating Temp. 0 to +60 °C	Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption	275.2 x 192.0 x 37.9 m 1749 g Nom. 13 to 32 V DC Typ. 9.8 W; max. 32.6 V	m	
	Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption Typical Environmental C	275.2 x 192.0 x 37.9 m 1749 g Nom. 13 to 32 V DC Typ. 9.8 W; max. 32.6 V	m	
	Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption Typical Environmental C Storage Temp.	275.2 x 192.0 x 37.9 m 1749 g Nom. 13 to 32 V DC Typ. 9.8 W; max. 32.6 V conditions	m	

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTARO 10.4 BX PCT**



































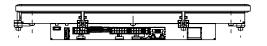


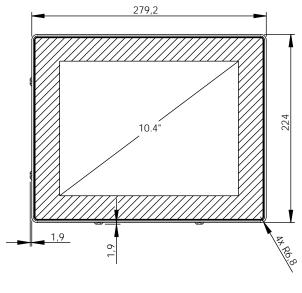


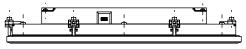


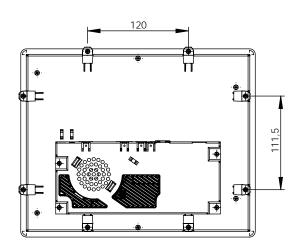


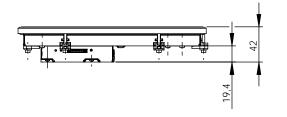
# **SANTARO 10.4 BX PCT**











CPU	x1	x2
СРИ Туре	i.MX6Solo	i.MX6Dual
Core Class	ARM Cortex - A9	
Core Clock	800 MHz	1 GHz
Features		a acceleration and VFP
reatures		mat HD 1080p video de
		deo encoder hardware
		KB for instruction, 32
	KB for data	, ,
	512 KB L2 cache	1 MB L2 cache
HW Accelerators	OpenGL ES 2.0, OpenVG 1.	1 0 01 5000 0 1/04
	(Emulated on 3D GPU	
RTC	Accuracy: +/- 30 ppm	at 25°C
Memory	, , , , , , , , , , , , , , , , , , , ,	
eMMC Flash	4 GB eMMC Flash	
RAM Standard	1 GB 32 bit DDR3L	1 GB 64 bit DDR3L
SD Card Slot	4 bit MMC/SDIO/SD/S	
Operating Systems	4 010 1411410/3010/30/3	DDITO
Supported OS	Windows EC on reque	nct.
Supported 03	Linux Yocto, Android	551,
Communication Interfac	· · · · · · · · · · · · · · · · · · ·	
Digital I/O	2x In, 2x Out (0.7 A)	. (D.L. (E)
Network	1x 10/100 Mbit/s Ethe	
USB 2.0	1x 480 Mbit/s Host (T	
OAN E: 111 / DC /OF	1x 480 Mbit/s OTG (Ty	
CAN Fieldbus / RS-485	1x CAN (ISO/DIS	1x CAN (ISO/DIS
	11898) + 1x RS-485	·
DC 000	2 DC 222 (DV/TV/CT	galvanic isolated
RS-232	2x RS-232 (RX/TX/CT	
Synchronous	SPI up to 12 chip sele	
Serial Interfaces  Video	Matrix keypad up to 8	X Ö
		TE HILLD : HDMI
Video Output		Full HD micro HDMI
Audio		) 4 514 5140 (0.0)
Speaker Output	1x speaker (connecto	
Audio Internal	1x speaker 0.3 W RM	S (8Ω)
Display and Touch		
Size	10.4 inch/264.0mm	
	800 x 600 pixel	
Size	800 x 600 pixel Typ. 400 cd/m <sup>2</sup>	
Size Resolution	800 x 600 pixel Typ. 400 cd/m <sup>2</sup> Typ. 30 000 h	
Size Resolution Brightness	800 x 600 pixel Typ. 400 cd/m² Typ. 30 000 h 50°,60°,70°,70° (UDR	L)
Size Resolution Brightness Backlight Lifetime	800 x 600 pixel Typ. 400 cd/m <sup>2</sup> Typ. 30 000 h 50°,60°,70°,70° (UDR 18 bit (262 k. colors)	
Size Resolution Brightness Backlight Lifetime Viewing Angle	800 x 600 pixel Typ. 400 cd/m² Typ. 30 000 h 50°,60°,70°,70° (UDR	
Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch	800 x 600 pixel Typ. 400 cd/m <sup>2</sup> Typ. 30 000 h 50°,60°,70°,70° (UDR 18 bit (262 k. colors)	
Size Resolution Brightness Backlight Lifetime Viewing Angle Color	800 x 600 pixel Typ. 400 cd/m² Typ. 30 000 h 50°,60°,70°,70° (UDR 18 bit (262 k. colors) projected capacitive r	nulti touch
Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing	800 x 600 pixel Typ. 400 cd/m <sup>2</sup> Typ. 30 000 h 50°,60°,70°,70° (UDR 18 bit (262 k. colors)	nulti touch ass, RAL 9005
Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front	800 x 600 pixel Typ. 400 cd/m² Typ. 30 000 h 50°,60°,70°,70° (UDR 18 bit (262 k. colors) projected capacitive r	multi touch ass, RAL 9005 anodized
Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear	800 x 600 pixel Typ. 400 cd/m² Typ. 30 000 h 50°,60°,70°,70° (UDR 18 bit (262 k. colors) projected capacitive r 3.0 mm toughened gl Aluminum, colorless 1.4016 stainless stee	multi touch ass, RAL 9005 anodized l, foam seal
Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection	800 x 600 pixel Typ. 400 cd/m² Typ. 30 000 h 50°,60°,70°,70° (UDR 18 bit (262 k. colors) projected capacitive r 3.0 mm toughened gl Aluminum, colorless	multi touch ass, RAL 9005 anodized l, foam seal
Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions	800 x 600 pixel Typ. 400 cd/m² Typ. 30 000 h 50°,60°,70°,70° (UDR 18 bit (262 k. colors) projected capacitive r  3.0 mm toughened gl Aluminum, colorless 1.4016 stainless stee Front IP 66/Rear IP20	multi touch ass, RAL 9005 anodized l, foam seal
Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D	800 x 600 pixel Typ. 400 cd/m² Typ. 30 000 h 50°,60°,70°,70° (UDR 18 bit [262 k. colors) projected capacitive r  3.0 mm toughened gl Aluminum, colorless 1.4016 stainless stee Front IP 66/Rear IP20	multi touch ass, RAL 9005 anodized l, foam seal
Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight	800 x 600 pixel Typ. 400 cd/m² Typ. 30 000 h 50°,60°,70°,70° (UDR 18 bit (262 k. colors) projected capacitive r  3.0 mm toughened gl Aluminum, colorless 1.4016 stainless stee Front IP 66/Rear IP20	multi touch ass, RAL 9005 anodized l, foam seal
Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply	800 x 600 pixel Typ. 400 cd/m² Typ. 30 000 h 50°,60°,70°,70° (UDR 18 bit [262 k. colors] projected capacitive r  3.0 mm toughened gl Aluminum, colorless 1.4016 stainless stee Front IP 66/Rear IP20 279.2 x 224.0 x 42.0 m 2173 g	multi touch ass, RAL 9005 anodized l, foam seal
Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage	800 x 600 pixel Typ. 400 cd/m² Typ. 30 000 h 50°,60°,70°,70° (UDR 18 bit [262 k. colors] projected capacitive r  3.0 mm toughened gl Aluminum, colorless 1.4016 stainless stee Front IP 66/Rear IP20 279.2 x 224.0 x 42.0 m 2173 g	multi touch  ass, RAL 9005 anodized l, foam seal )
Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption	800 x 600 pixel Typ. 400 cd/m² Typ. 30 000 h 50°,60°,70°,70° (UDR 18 bit [262 k. colors] projected capacitive n 3.0 mm toughened gl Aluminum, colorless 1.4016 stainless stee Front IP 66/Rear IP20 279.2 x 224.0 x 42.0 m 2173 g  Nom. 13 to 32 V DC Typ. 8.5 W; max. 26.4	multi touch  ass, RAL 9005 anodized l, foam seal )
Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption Typical Environmental C	800 x 600 pixel Typ. 400 cd/m² Typ. 30 000 h 50°,60°,70°,70° (UDR 18 bit [262 k. colors] projected capacitive r  3.0 mm toughened gl Aluminum, colorless 1.4016 stainless stee Front IP 66/Rear IP20 279.2 x 224.0 x 42.0 m 2173 g  Nom. 13 to 32 V DC Typ. 8.5 W; max. 26.4 onditions	multi touch  ass, RAL 9005 anodized l, foam seal )
Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption Typical Environmental C Storage Temp.	800 x 600 pixel Typ. 400 cd/m² Typ. 30 000 h 50°,60°,70°,70° (UDR 18 bit [262 k. colors] projected capacitive r  3.0 mm toughened gl Aluminum, colorless 1.4016 stainless stee Front IP 66/Rear IP20 279.2 x 224.0 x 42.0 m 2173 g  Nom. 13 to 32 V DC Typ. 8.5 W; max. 26.4 onditions -20 to +70 °C	multi touch  ass, RAL 9005 anodized l, foam seal )
Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption Typical Environmental C	800 x 600 pixel Typ. 400 cd/m² Typ. 30 000 h 50°,60°,70°,70° (UDR 18 bit [262 k. colors] projected capacitive r  3.0 mm toughened gl Aluminum, colorless 1.4016 stainless stee Front IP 66/Rear IP20 279.2 x 224.0 x 42.0 m 2173 g  Nom. 13 to 32 V DC Typ. 8.5 W; max. 26.4 onditions	multi touch  ass, RAL 9005 anodized l, foam seal )

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTOKA 12.1 BX PCT**

































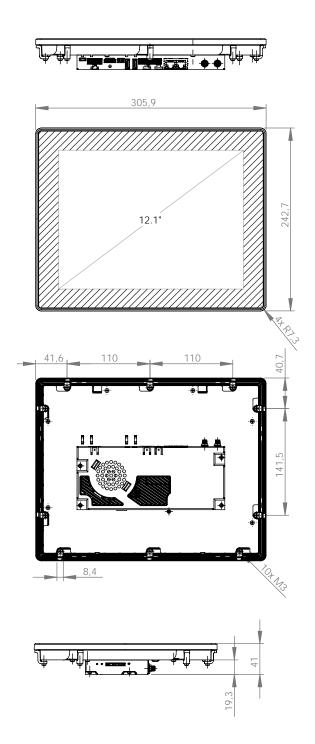








# **SANTOKA 12.1 BX PCT**

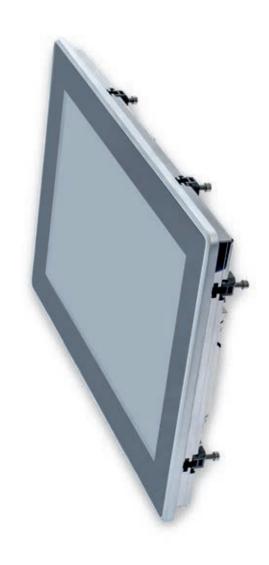


CPU	x1	x2
CPU Type	i.MX6Solo	i.MX6Dual
Core Class	ARM Cortex - A9	
Core Clock	1 GHz	
COTE CLOCK	NEON for SIMD media acceleration and VFP	
	I .	nat HD 1080p video de-
	coder and HD 720p vid	
Features	engine; L1 cache, 32 k	
	KB for data	to for motification, oz
	512 KB L2 cache	1 MB L2 cache
	OpenGL ES 2.0, OpenVG 1.1	
HW Accelerators	(Emulated on 3D GPU)	
RTC	Accuracy: +/- 30 ppm	
Memory		
eMMC Flash	4 GB MLC eMMC	
RAM Standard	1 GB 32 bit DDR3L	1 GB 64 bit DDR3L
SD Card Slot	4 bit MMC/SDIO/SD/S	
Operating Systems		
Supported OS	Linux Yocto, Android	
Communcation Interface		
Network	2x 10/100 Mbit/s Ethe	rnet (RJ-45)
	2x 480 Mbit/s Host (Ty	
USB 2.0	1x 480 Mbit/s OTG (Ty	
		1x CAN (ISO/DIS
CAN Fieldbus / RS-485	1x CAN (ISO/DIS	11898) + 1x RS-485
07.11.1.101.02.007.110	11898) + 1x RS-485	galvanic isolated
RS-232	2x RS-232 (RX/TX/CTS	
Synchronous	SPI up to 12 chip selec	
Serial Interfaces	up to 8 x 8	
Wireless Communicatio	n	
Wireless	WLAN 802.11 b/g/n; B	luetooth 4.0 LE
Will etess	For available mPCIe n	nodules see page 129
Video		
Video Output		Full HD HDMI
Audio		
Speaker Output	1x speaker (connector	
Audio Internal	1x speaker 0.3 W RMS	(8Ω)
Display and Touch		
Size	12.1 inch/307.5 mm	
Resolution	1024 x 768 pixel	
Brightness	Typ. 480 cd/m <sup>2</sup>	
Backlight Lifetime	Min. 70 000 h	
Viewing Angle	70°,70°,80°,80° (UDRL)	
Color	24 bit (16.7 Mio. colors)	
Touch	projected capacitive multi touch	
Housing		
Front	4.0 mm toughened gla	ass, RAL 9005
Frame	Fine zinc alloy, matt chrome	
Rear	1.4016 stainless steel, foam seal	
Ingress Protection	Front IP 66/Rear IP20	
Device Dimensions		
WxHxD	305.9 x 242.7 x 41.0 m	m
Weight	2700 g	
Power Supply		
Supply Voltage	Nom. 13 to 32 V DC	
	Typ. 9.8 W; max. 32.6 W	
Consumption		
Consumption  Typical Environmental C		
Typical Environmental C	onditions	
Typical Environmental C Storage Temp.	-20 to +70 °C	
Typical Environmental C	onditions	

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTARO 10.1 BX PCT IPS outdoor**





































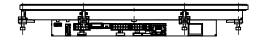


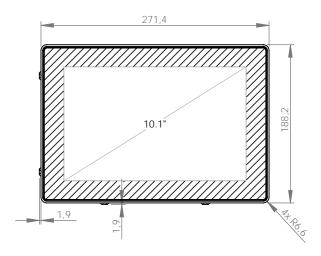


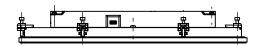


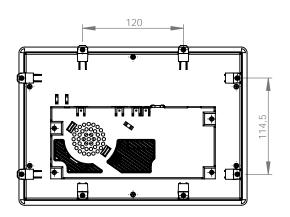
#### **TECHNICAL SPECIFICATION**

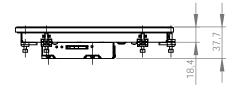
#### **SANTARO 10.1 BX PCT IPS outdoor**











CDU	4	
CPU	x1	x2
CPU Type	i.MX6Solo	i.MX6Dual
Core Class	ARM Cortex - A9	4.011
Core Clock	800 MHz	1 GHz
Features		a acceleration and VFP mat HD 1080p video de-
		deo encoder hardware
		KB for instruction, 32
	KB for data	ND for mon denom, oz
	512 KB L2 cache	1 MB L2 cache
HW Accelerators	OpenGL ES 2.0, OpenVG 1.	1 0 01 5000 0 1/01
	(Emulated on 3D GPU	
RTC	Accuracy: +/- 30 ppm	at 25°C
Memory		
eMMC Flash	4 GB eMMC Flash	
RAM Standard	1 GB 32 bit DDR3L	1 GB 64 bit DDR3L
SD Card Slot	4 bit MMC/SDIO/SD/S	DHC
Operating Systems		
Supported OS	Windows EC on reque	est,
	Linux Yocto, Android	
Communication Interfac		
Digital I/O	2x In, 2x Out (0.7 A)	(= , , = )
Network	1x 10/100 Mbit/s Ethe	
USB 2.0	1x 480 Mbit/s Host (T	
04115: 111 / DC /05	1x 480 Mbit/s OTG (Ty	
CAN Fieldbus / RS-485	1x CAN (ISO/DIS	( /
	11898) + 1x RS-485	11898) + 1x RS-485
RS-232	2x RS-232 (RX/TX/CT	galvanic isolated
Synchronous	SPI up to 12 chip sele	
Serial Interfaces	Matrix keypad up to 8	
Video	7/	
Video Output		Full HD micro HDMI
Audio		
Speaker Output	1x speaker (connecto	r), 1.5W RMS (8Ω)
Audio Internal	1x speaker 0.3 W RM	
Display and Touch		
Size	10.1 inch/255.85mm	
Resolution	1280 x 800 pixel	
Brightness	Typ. 850 cd/m <sup>2</sup>	
Backlight Lifetime	Min. 50 000 h	
Viewing Angle	85°,85°,85°,85° (UDRL)	
Color	24 bit (16.7 Mio. colors)	
Touch	projected capacitive multi touch	
Special Features	optical bonded	
Housing		
Front	3.0 mm toughened glass, RAL 9005	
Frame	Fine zinc alloy, matt chrome	
Rear	1.4016 stainless steel, foam seal	
Ingress Protection	Front IP 66/Rear IP20	
Device Dimensions		
WxHxD	275.2 x 192.0 x 37.7 mm	
	1749 g	
Weight	1747 g	
Weight Power Supply		
Weight  Power Supply  Supply Voltage	Nom. 13 to 32 V DC	
Weight Power Supply Supply Voltage Consumption	Nom. 13 to 32 V DC Typ. 10.2 W; max. 26.	4 W
Weight Power Supply Supply Voltage Consumption Typical Environmental C	Nom. 13 to 32 V DC Typ. 10.2 W; max. 26	4 W
Weight Power Supply Supply Voltage Consumption Typical Environmental C Storage Temp.	Nom. 13 to 32 V DC Typ. 10.2 W; max. 26. conditions -20 to +70 °C	4 W
Weight Power Supply Supply Voltage Consumption Typical Environmental C	Nom. 13 to 32 V DC Typ. 10.2 W; max. 26	4 W

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

#### **SANTOKA 32.0 BX PCT**

































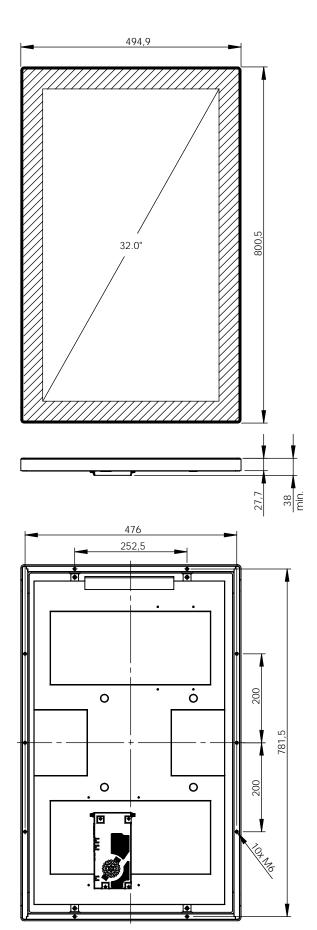








# **SANTOKA 32.0 BX PCT**



СРИ	x2	x4
CPU Type	i.MX6Dual	i.MX6Quad
Core Class	ARM Cortex - A9	1.147/00/0000
Core Clock	1 GHz	
GOTE GLOCK	NEON for SIMD media acceleration and VFP operations; Multi-format HD 1080p video de-	
   Features	coder and HD 720p vi	deo encoder hardware
reatures	engine; L1 cache, 32	KB for instruction, 32
	KB for data	
	1 MB L2 cache	
HW Accelerators	OpenGL ES 2.0, OpenVG 1.	
RTC	Accuracy: +/- 30 ppm	at 25°C
Memory		
eMMC Flash	4 GB MLC eMMC	
RAM Standard	1 GB 64 bit DDR3L	
SD Card Slot	4 bit MMC/SDIO/SD/S	DHC
Operating Systems		
Supported OS	Linux Yocto, Android	
Communcation Interface	es	
Network	2x 10/100 Mbit/s Ethe	
USB 2.0	2x 480 Mbit/s Host (Ty	/ [ · · · · ·
000 2.0	1x 480 Mbit/s OTG (Ty	
CAN Fieldbus / RS-485	1x CAN (ISO/DIS 1189	78) + 1x RS-485
DC 000	galvanic isolated	C (DTC)
RS-232	2x RS-232 (RX/TX/CT	
Synchronous		ects; I <sup>2</sup> C; Matrix keypad
Serial Interfaces	up to 8 x 8	
Wireless Communication		
Wireless	WLAN 802.11 b/g/n; E	modules see page 129
Video	To available iiii Cie i	Houdies see page 127
Video Output	Full HD HDMI	
Audio	T GRETTE TIETH	
Speaker Output	1x speaker (connecto	r) 15W RMS [80]
Audio Internal	1x speaker 0.3 W RMS	
Display and Touch	TX Speaker 6.6 W KING	5 (012)
Size	32.0 inch/812.8 mm	
Resolution	1920 x 1080 pixel	
Brightness	Typ. 400 cd/m <sup>2</sup>	
Backlight Lifetime	Min. 50 000 h	
Viewing Angle	89°,89°,89°,89° (UDR	L)
Color	24 bit (16.7 Mio. color	
Touch	projected capacitive r	
Housing		
Front	4.0 mm toughened gl	ass, RAL 9005
Frame	Aluminum, colorless	
Rear	1.4016 stainless steel	
Ingress Protection	Front IP 66/Rear IP20	
Device Dimensions		
WxHxD	800.5 x 494.9 x 27.7 m	nm
Weight	tbd.	
Power Supply	-	
Supply Voltage	Nom. 13 to 32 V DC/2	4 V Backlight
Consumption	Typ. tbd; max. 40.6 W	
Typical Environmental C		
Storage Temp.	-20 to +70 °C	
Operating Temp.	0 to +50 °C	
Humidity	5 to 90 % RH	

#### **SANTINO LT 4.3 SG**

#### ARM Cortex-A9 Flush Mount































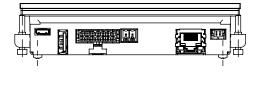


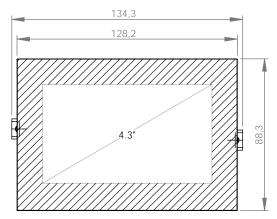


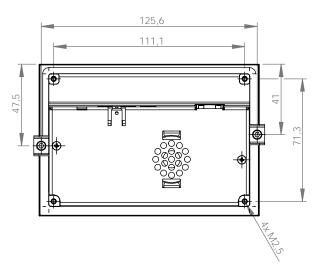


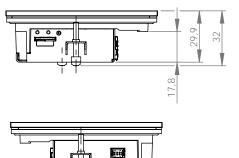


# TECHNICAL SPECIFICATION SANTINO LT 4.3 SG









CPU	x1	x2L	
CPU Type	i.MX6Solo	i.MX6DualLite	
Core Class	ARM Cortex - A9		
Core Clock	1 GHz		
Features		dia acceleration and VFP	
		rmat HD 1080p video de-	
		video encoder hardware	
		KB for instruction and	
	data caches; Unified		
HW Accelerators	OpenGL ES 2.0, OpenV	G 1.1 (Emulated on 3D GPU	
RTC	Accuracy: +/- 30 ppr		
Memory	7 . 11		
eMMC Flash	4 GB eMMC		
RAM Standard		L 1 GB 32 bit DDR3L	
Micro SD Card Slot	4 bit MMC/SDIO/SD/		
Operating Systems		00110	
Supported OS	Windows EC on requ	iost	
Supported 05	Linux Yocto, Android		
Communication Interfa			
Network	1x 10/100 Mbit/s Eth	acract (DI /E)	
RS-485			
RS-480 RS-232	1x RS-485 (Half dup		
	1x RS-232 (RX/TX/C		
Synchronous Serial Interfaces	I <sup>2</sup> C, Matrix keypad u	p to 4 x 4	
Serial interfaces	1/00 MI::+/- II+ (	T A)	
High-Speed USB 2.0		1x 480 Mbit/s Host (Type A), 1x 480 Mbit/s OTG (Type Micro-AB)	
CAN Fieldbus	1x CAN (ISO/DIS 118		
Audio	TX CAN (ISU/DIS TTO	070)	
	1	) 1 F W DMC (00)	
Speaker Output		1x speaker (connector), 1.5 W RMS (8Ω)	
Audio Internal	1x speaker 1 W RMS	(811)	
Display and Touch			
Size	4.3 inch/109.3 mm		
Resolution	480 x 272 pixel		
Brightness	typ 576 cd/m²		
Backlight Lifetime	min. 30 000 h		
Viewing Angle	50°,70°,70°,70° (UDRL)		
Color	24 bit (16.7 Mio. colors)		
Touch	projected capacitive	multi touch	
Housing			
Front	3.0 mm toughened glass, RAL 9005		
Frame	None		
Rear	Aluminum/1.4016 stainless steel, seal		
Ingress Protection	Front IP 66/Rear IP20		
Device Dimensions			
WxHxD	128.2 x 88.3 x 32.0 m	nm	
Weight	tbd.		
Power Supply	1		
Supply Voltage	Nom. 9 to 32 V DC		
Consumption	Typ. tbd.		
Typical Environmental			
Storage Temp.	-20 to +70 °C		
Operating Temp.	0 to +50 °C		
Humidity	5 to 90 % RH		

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTINO LT 5.0 SG**

#### ARM Cortex-A9 Flush Mount































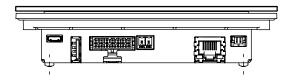


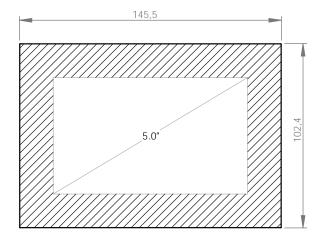


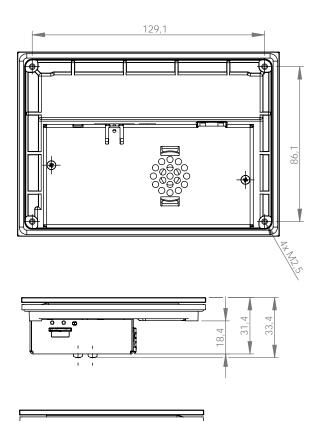




# TECHNICAL SPECIFICATION SANTINO LT 5.0 SG







CPU	x1	x2L	
CPU Type	i.MX6Solo	i.MX6DualLite	
Core Class	ARM Cortex - A9		
Core Clock	1 GHz		
Features	NEON for SIMD med	NEON for SIMD media acceleration and VFP	
	operations; Multi-format HD 1080p video de-		
	coder and HD 720p v	ideo encoder hardware	
		KB for instruction and	
	data caches; Unified	512 KB L2 cache	
HW Accelerators	OpenGL ES 2.0, OpenV0	3 1.1 (Emulated on 3D GPU	
RTC	Accuracy: +/- 30 ppn	n at 25°C	
Memory			
eMMC Flash	4 GB eMMC		
RAM Standard	512 MB 32 bit DDR3L	1 GB 32 bit DDR3L	
Micro SD Card Slot	4 bit MMC/SDIO/SD/		
Operating Systems			
Supported OS	Windows EC on requ	est	
capported 00	Linux Yocto, Android		
Communication Interfa			
Network	1x 10/100 Mbit/s Eth	ernet (R I-//5)	
RS-485	1x RS-485 (Half dupl		
RS-232	1x RS-232 (RX/TX/CT		
Synchronous	I <sup>2</sup> C, Matrix keypad up		
Serial Interfaces	120, Matrix keypad up	) (0 4 X 4	
Serial filler faces	1x 480 Mbit/s Host (7	Tuno Al	
High-Speed USB 2.0	1x 480 Mbit/s OTG (T		
CAN Fieldbus	1x CAN (ISO/DIS 118		
Audio	TX CAN (ISO/DIS 110	70)	
Speaker Output	1v cnooker (connects	ar) 1 5 W DMC (00)	
Audio Internal	1x speaker (connecto		
Display and Touch	1x speaker 1 W KM3	1x speaker 1 W RMS (8Ω)	
	F: 1/10F0F		
Size	5 inch/125.95 mm		
Resolution	800 x 480 pixel		
Brightness		tware default: 400 cd/m	
Backlight Lifetime	min. 50 000 h		
Viewing Angle	60°,70°,75°,75° (UDF		
Color	24 bit (16.7 Mio. colors)		
Touch	projected capacitive	multi touch	
Housing			
Front	2.8 mm toughened g	lass, RAL 9005	
Frame	None		
Rear			
Ingress Protection	Front IP 66/Rear IP2	0	
Device Dimensions			
WxHxD	145.5 x 102.4 x 33.4 r	nm	
Weight	429 g		
Power Supply	-		
Supply Voltage	Nom. 9 to 32 V DC	Nom. 9 to 32 V DC	
Consumption	Typ. 7.1 W; max. 20.4 W		
Typical Environmental			
Storage Temp.	-20 to +70 °C		
Operating Temp.	0 to +50 °C		
Humidity	5 to 90 % RH		
riumunty	J 10 70 70 KH		

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTINO 7.0 SG**

### ARM Cortex-A9 Flush Mount































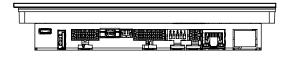


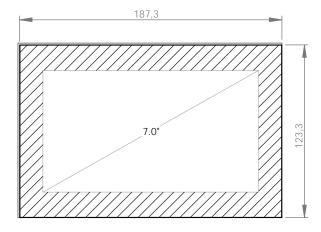


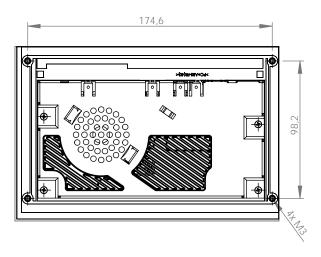


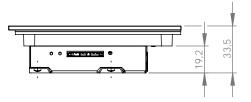


# TECHNICAL SPECIFICATION SANTINO 7.0 SG









CPU	x1	x2L	
CPU Type	i.MX6Solo	i MX6Duall ite	
Core Class	ARM Cortex - A9	1.141XODUALLITE	
Core Clock	1 GHz		
Core Clock	NEON for SIMD media acceleration and VFP		
		mat HD 1080p video de-	
Features	1 '	ideo encoder hardware	
reatures		KB for instruction, 32	
	KB for data; 512 KB I		
HW Accelerators		G 1.1 (Emulated on 3D GPU)	
RTC	Accuracy: +/- 30 ppm		
Memory	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
eMMC Flash	4 GB MLC eMMC		
RAM Standard		1 GB 32 bit DDR3L	
SD Card Slot	4 bit MMC/SDIO/SD/S		
Operating Systems	4 510 1411410/ 5/5/10/ 5/5/	35110	
operating systems	Windows EC on requ	oct	
Supported OS	Linux Yocto, Android	est,	
Communication Interfac	,		
Network	1x 10/100 Mbit/s Eth	annat (D L /E)	
Network	1x 480 Mbit/s Host (T		
USB 2.0		7 1	
	1x 480 Mbit/s OTG (Ty	1x CAN (ISO/DIS	
CAN Fieldbus/ RS-485	11898) + 1x RS-485		
CAN Fletabas/ NS-405	11070) + 11103-403	galvanic isolated	
RS-232	2x RS-232 (RX/TX/CT		
Synchronous			
Serial Interfaces	I <sup>2</sup> C, Matrix keypad up	to 4 x 4	
Audio			
Speaker Output	1x speaker (connecto	or) 15 W PMS (80)	
Audio Internal	1x speaker 0.3 W RM		
Display and Touch	TX Speaker 0.0 VV INT	15 (012)	
Size	7 inch/177.8 mm		
Resolution	800 x 480 pixel		
Brightness Backlight Lifetime	Typ. 400 cd/m <sup>2</sup>		
	Typ. 50 000 h		
Viewing Angle Color	50°,70°,70°,70° (UDRL) 18 bit (262 K colors)		
	projected capacitive multi touch		
Touch	projected capacitive	mulli louch	
Housing	1.0	DAI 0005	
Front	1.8 mm toughened glass, RAL 9005		
Frame	None		
Rear	ABS-PC/1.4016 stainless steel, foam seal		
Ingress Protection	Front IP 66/Rear IP20		
Device Dimensions			
WxHxD	184.24 x 118.86 x 33.99 mm		
Weight	tbd.		
Power Supply			
Supply Voltage	Nom. 9 to 32 V DC		
Consumption	Typ. 5.3 W; max. 22.8	Typ. 5.3 W; max. 22.8 W	
Typical Environmental C			
Storage Temp.	-20 to +70 °C		
Operating Temp.	0 to +50 °C		
Humidity	5 to 90 % RH		
,	0 (0 / 0 / 0 1(11		

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTARO 7.0 SG IPS**

#### ARM Cortex-A9 Flush Mount



































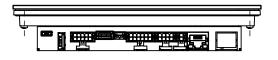


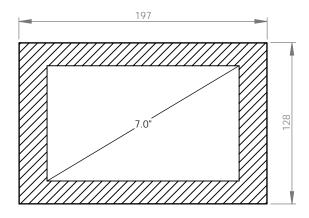




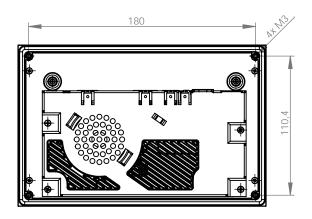


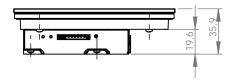
# **SANTARO 7.0 SG IPS**











CPU	x1	x2
CPU Type	i.MX6Solo	i.MX6Dual
Core Class	ARM Cortex - A9	1.MV0Duat
		1 GHz
Core Clock	800 MHz	a acceleration and VFP
Features		nat HD 1080p video de-
		deo encoder hardware
	engine; L1 cache, 32 l	
	KB for data	ND 101 1113ti detion, 52
	512 KB L2 cache	1 MB L2 cache
HW Accelerators	OpenGL ES 2.0, OpenVG 1.1	
TIW Accelerators	(Emulated on 3D GPU)	
RTC	Accuracy: +/- 30 ppm	
Memory	7.000.00ji 1, 00 pp	4.20
eMMC Flash	4 GB eMMC Flash	
RAM Standard	1 GB 32 bit DDR3L	1 GB 64 bit DDR3L
SD Card Slot	4 bit MMC/SDIO/SD/S	
	4 DIT MINIC/3010/30/3	DITC
Operating Systems Supported OS	Windows FC an as are	ct
20 Sahhoi rea	Windows EC on reque Linux Yocto, Android	:51,
Communication Interfac		
Digital I/O	2x In, 2x Out (0.7 A)	. (D   (E)
Network	1x 10/100 Mbit/s Ethe	
USB 2.0	1x 480 Mbit/s Host (Ty	
04115: 111 / DC /05	1x 480 Mbit/s OTG (Ty	
CAN Fieldbus / RS-485	1x CAN (ISO/DIS	1x CAN (ISO/DIS
	11898) + 1x RS-485	11898) + 1x RS-485
DC 222	2 DC 222 (DV/TV/CT	galvanic isolated
RS-232	2x RS-232 (RX/TX/CTS	
Synchronous	SPI up to 12 chip sele	
Serial Interfaces Video	Matrix keypad up to 8	X 8
		E IIIID : IIDM
Video Output		Full HD micro HDMI
Audio		) 4 5)4 5 (00)
Speaker Output	1x speaker (connector	
Audio Internal	1x speaker 0.3 W RMS	5 (8Ω)
Display and Touch		
Size	7 inch/177.8 mm	
Resolution	800 x 480 pixel	
Brightness	Typ. 400 cd/m <sup>2</sup>	
Backlight Lifetime	Typ. 30 000 h	
Viewing Angle	89°,89°,89°,89° (UDR	L)
Color	24 bit (16.7 Mio. color	s)
Touch	projected capacitive n	nulti touch
Housing		
Front	3.0 mm toughened gla	ass, RAL 9005
Frame	None	
Rear	ABS-PC/ 1.4016 stain	less steel, foam seal
Ingress Protection	Front IP 66/Rear IP20	
Device Dimensions		
WxHxD	197.0 x 128.0 x 35.9 m	ım
Weight	832 g	
Power Supply	i 3	
Supply Voltage	Nom. 13 to 32 V DC	
Consumption  Typical Environmental C	Typ. 6.9 W; max. 25 W	
Typical Environmental C		
Storage Temp.	-20 to +70 °C	
Linorating Jaman	0 to +60 °C	
Operating Temp. Humidity	5 to 90 % RH	

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTOKA 7.0 SG IPS**



































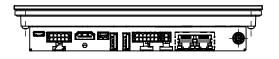


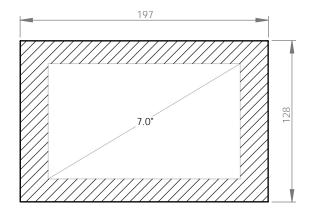


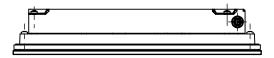


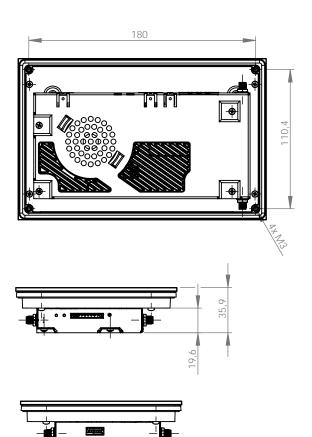


# SANTOKA 7.0 SG IPS









CPU	x1	x2
CPU Type	i.MX6Solo	i.MX6Dual
Core Class	ARM Cortex - A9	
Core Clock	1 GHz	
Features	coder and HD 720p vid engine; L1 cache, 32 K KB for data 512 KB L2 cache	nat HD 1080p video de- leo encoder hardware
HW Accelerators	OpenGL ES 2.0, OpenVG 1.1 (Emulated on 3D GPU)	OpenGL ES 2.0, OpenVG 1.1
RTC	Accuracy: +/- 30 ppm	at 25°C
Memory		
eMMC Flash	4 GB MLC eMMC	
RAM Standard	1 GB 32 bit DDR3L	1 GB 64 bit DDR3L
SD Card Slot	4 bit MMC/SDIO/SD/SI	DHC
Operating Systems		
Supported OS	Linux Yocto, Android	
Communcation Interface	es	
Network	2x 10/100 Mbit/s Ether	net (RJ-45)
USB 2.0	2x 480 Mbit/s Host (Ty	pe A)
U3D 2.U	1x 480 Mbit/s OTG (Typ	
CAN Fieldbus / RS-485	1x CAN (ISO/DIS 11898) + 1x RS-485	1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated
RS-232	2x RS-232 (RX/TX/CTS	/RTS)
Synchronous	SPI up to 12 chip selec	cts; I <sup>2</sup> C; Matrix keypad
Serial Interfaces	up to 8 x 8	
Wireless Communication	n	
ctcss communication		
Wireless	WLAN 802.11 b/g/n; B For available mPCIe m	
Wireless Video	WLAN 802.11 b/g/n; B	nodules see page 129
Wireless	WLAN 802.11 b/g/n; B	
Wireless  Video  Video Output	WLAN 802.11 b/g/n; B	nodules see page 129 Full HD HDMI
Wireless Video Video Output Audio	WLAN 802.11 b/g/n; B For available mPCIe m	Full HD HDMI  ), 1.5W RMS (8Ω)
Wireless  Video Video Output  Audio Speaker Output	WLAN 802.11 b/g/n; B For available mPCle m	Full HD HDMI  ), 1.5W RMS (8Ω)
Wireless  Video Video Output  Audio  Speaker Output  Audio Internal	WLAN 802.11 b/g/n; B For available mPCle m	Full HD HDMI  ), 1.5W RMS (8Ω)
Wireless  Video Video Output  Audio Speaker Output  Audio Internal Display and Touch	WLAN 802.11 b/g/n; B For available mPCle m 1x speaker (connector 1x speaker 0.3 W RMS 7.0 inch/177.8 mm 800 x 480 pixel	Full HD HDMI  ), 1.5W RMS (8Ω)
Wireless  Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness	WLAN 802.11 b/g/n; B For available mPCle m  1x speaker (connector 1x speaker 0.3 W RMS  7.0 inch/177.8 mm  800 x 480 pixel Typ. 400 cd/m²	Full HD HDMI  ), 1.5W RMS (8Ω)
Wireless  Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime	WLAN 802.11 b/g/n; B For available mPCle m  1x speaker (connector 1x speaker 0.3 W RMS  7.0 inch/177.8 mm  800 x 480 pixel Typ. 400 cd/m² Min. 30 000 h	Full HD HDMI  ), 1.5W RMS (8Ω)  (8Ω)
Wireless  Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle	WLAN 802.11 b/g/n; B For available mPCle m  1x speaker (connector 1x speaker 0.3 W RMS  7.0 inch/177.8 mm  800 x 480 pixel Typ. 400 cd/m² Min. 30 000 h  70°,70°,80°,80° (UDRL	Full HD HDMI  ), 1.5W RMS (8Ω)  (8Ω)
Wireless  Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color	WLAN 802.11 b/g/n; B For available mPCle m  1x speaker (connector 1x speaker 0.3 W RMS  7.0 inch/177.8 mm  800 x 480 pixel Typ. 400 cd/m² Min. 30 000 h  70°,70°,80°,80° (UDRL 24 bit [16.7 Mio. colors	Full HD HDMI  1, 1.5W RMS (8Ω)  (8Ω)
Wireless  Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch	WLAN 802.11 b/g/n; B For available mPCle m  1x speaker (connector 1x speaker 0.3 W RMS  7.0 inch/177.8 mm  800 x 480 pixel Typ. 400 cd/m² Min. 30 000 h  70°,70°,80°,80° (UDRL	Full HD HDMI  1, 1.5W RMS (8Ω)  (8Ω)
Wireless  Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing	WLAN 802.11 b/g/n; B For available mPCle m  1x speaker (connector 1x speaker 0.3 W RMS  7.0 inch/177.8 mm  800 x 480 pixel Typ. 400 cd/m² Min. 30 000 h  70°,70°,80°,80° (UDRL 24 bit [16.7 Mio. colors projected capacitive m	Full HD HDMI  J., 1.5W RMS (8Ω)  (8Ω)
Wireless  Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front	WLAN 802.11 b/g/n; B For available mPCIe m  1x speaker (connector 1x speaker 0.3 W RMS  7.0 inch/177.8 mm 800 x 480 pixel Typ. 400 cd/m² Min. 30 000 h 70°,70°,80°,80° (UDRL 24 bit (16.7 Mio. colors projected capacitive m	Full HD HDMI  J., 1.5W RMS (8Ω)  (8Ω)
Wireless  Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame	WLAN 802.11 b/g/n; B For available mPCle m  1x speaker (connector 1x speaker 0.3 W RMS  7.0 inch/177.8 mm 800 x 480 pixel Typ. 400 cd/m² Min. 30 000 h 70°,70°,80°,80° (UDRL 24 bit (16.7 Mio. colors projected capacitive m  3.0 mm toughened gla None	Full HD HDMI  J. 1.5W RMS (8Ω)  (8Ω)  J. 1.5W RMS (8Ω)  (8Ω)
Wireless  Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear	WLAN 802.11 b/g/n; B For available mPCle m  1x speaker (connector 1x speaker 0.3 W RMS  7.0 inch/177.8 mm  800 x 480 pixel Typ. 400 cd/m² Min. 30 000 h  70°,70°,80°,80° (UDRL 24 bit [16.7 Mio. colors projected capacitive m  3.0 mm toughened gla None ABS - PC/ 1.4016 stair	Full HD HDMI  J., 1.5W RMS (8Ω)  (8Ω)  J. Signature in the second secon
Wireless  Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection	WLAN 802.11 b/g/n; B For available mPCle m  1x speaker (connector 1x speaker 0.3 W RMS  7.0 inch/177.8 mm 800 x 480 pixel Typ. 400 cd/m² Min. 30 000 h 70°,70°,80°,80° (UDRL 24 bit (16.7 Mio. colors projected capacitive m  3.0 mm toughened gla None	Full HD HDMI  J., 1.5W RMS (8Ω)  (8Ω)  J. Signature in the second secon
Wireless  Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions	WLAN 802.11 b/g/n; B For available mPCIe m  1x speaker (connector 1x speaker 0.3 W RMS  7.0 inch/177.8 mm 800 x 480 pixel Typ. 400 cd/m² Min. 30 000 h 70°,70°,80°,80° (UDRL 24 bit (16.7 Mio. colors projected capacitive m  3.0 mm toughened gla None ABS - PC/ 1.4016 stair Front IP 66/ Rear IP20	Full HD HDMI  Full HD HDMI  1, 1.5W RMS (8Ω)  (8Ω)  2.1  3.1  3.1  4.1  4.1  5.1  4.1  6.1  6.1  6.1  6.1  6.1  6.1  6
Wireless  Video  Video Output  Audio  Speaker Output  Audio Internal  Display and Touch  Size  Resolution  Brightness  Backlight Lifetime  Viewing Angle  Color  Touch  Housing  Front  Frame  Rear  Ingress Protection  Device Dimensions  W x H x D	WLAN 802.11 b/g/n; B For available mPCIe m  1x speaker (connector 1x speaker 0.3 W RMS  7.0 inch/177.8 mm  800 x 480 pixel Typ. 400 cd/m² Min. 30 000 h  70°,70°,80°,80° (UDRL 24 bit (16.7 Mio. colors projected capacitive m  3.0 mm toughened gla None ABS - PC/ 1.4016 stain Front IP 66/ Rear IP20	Full HD HDMI  Full HD HDMI  1, 1.5W RMS (8Ω)  (8Ω)  2.1  3.1  3.1  4.1  4.1  5.1  4.1  6.1  6.1  6.1  6.1  6.1  6.1  6
Wireless  Video Video Output  Audio Speaker Output Audio Internal Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight	WLAN 802.11 b/g/n; B For available mPCIe m  1x speaker (connector 1x speaker 0.3 W RMS  7.0 inch/177.8 mm 800 x 480 pixel Typ. 400 cd/m² Min. 30 000 h 70°,70°,80°,80° (UDRL 24 bit (16.7 Mio. colors projected capacitive m  3.0 mm toughened gla None ABS - PC/ 1.4016 stair Front IP 66/ Rear IP20	Full HD HDMI  Full HD HDMI  1, 1.5W RMS (8Ω)  (8Ω)  2.1  3.1  3.1  4.1  5.1  4.1  6.1  6.1  6.1  6.1  6.1  6.1  6
Wireless  Video  Video Output  Audio  Speaker Output  Audio Internal  Display and Touch  Size  Resolution  Brightness  Backlight Lifetime  Viewing Angle  Color  Touch  Housing  Front  Frame  Rear  Ingress Protection  Device Dimensions  W x H x D  Weight  Power Supply	WLAN 802.11 b/g/n; B For available mPCIe m  1x speaker (connector 1x speaker 0.3 W RMS  7.0 inch/177.8 mm  800 x 480 pixel Typ. 400 cd/m² Min. 30 000 h  70°,70°,80°,80° (UDRL 24 bit (16.7 Mio. colors projected capacitive m  3.0 mm toughened gla None ABS - PC/ 1.4016 stair Front IP 66/ Rear IP20  197.0 x 128.0 x 35.9 mi 837 g	Full HD HDMI  Full HD HDMI  1, 1.5W RMS (8Ω)  (8Ω)  2.1  3.1  3.1  4.1  5.1  4.1  6.1  6.1  6.1  6.1  6.1  6.1  6
Wireless  Video  Video Output  Audio  Speaker Output  Audio Internal  Display and Touch  Size  Resolution  Brightness  Backlight Lifetime  Viewing Angle  Color  Touch  Housing  Front  Frame  Rear  Ingress Protection  Device Dimensions  W x H x D  Weight  Power Supply  Supply Voltage	WLAN 802.11 b/g/n; B For available mPCIe m  1x speaker (connector 1x speaker 0.3 W RMS  7.0 inch/177.8 mm 800 x 480 pixel Typ. 400 cd/m² Min. 30 000 h 70°,70°,80°,80° (UDRL 24 bit (16.7 Mio. colors projected capacitive m  3.0 mm toughened gla None ABS - PC/ 1.4016 stair Front IP 66/ Rear IP20  197.0 x 128.0 x 35.9 mi 837 g  Nom. 13 to 32 V DC	Full HD HDMI  J. 1.5W RMS (8Ω)  (8Ω)  L)  Signature touch  Signature touc
Wireless  Video  Video Output  Audio  Speaker Output  Audio Internal  Display and Touch  Size  Resolution  Brightness  Backlight Lifetime  Viewing Angle  Color  Touch  Housing  Front  Frame  Rear  Ingress Protection  Device Dimensions  W x H x D  Weight  Power Supply  Supply Voltage  Consumption	WLAN 802.11 b/g/n; B For available mPCIe m  1x speaker (connector 1x speaker 0.3 W RMS  7.0 inch/177.8 mm 800 x 480 pixel Typ. 400 cd/m² Min. 30 000 h 70°,70°,80°,80° (UDRL 24 bit (16.7 Mio. colors projected capacitive m  3.0 mm toughened gla None ABS - PC/ 1.4016 stair Front IP 66/ Rear IP20  197.0 x 128.0 x 35.9 mi 837 g  Nom. 13 to 32 V DC Typ. 6.9 W; max. 31.1 V	Full HD HDMI  J. 1.5W RMS (8Ω)  (8Ω)  L)  Signature touch  Signature touc
Wireless  Video  Video Output  Audio  Speaker Output  Audio Internal  Display and Touch  Size  Resolution  Brightness  Backlight Lifetime  Viewing Angle  Color  Touch  Housing  Front  Frame  Rear  Ingress Protection  Device Dimensions  W x H x D  Weight  Power Supply  Supply Voltage  Consumption  Typical Environmental C	WLAN 802.11 b/g/n; B For available mPCIe m  1x speaker (connector 1x speaker 0.3 W RMS  7.0 inch/177.8 mm  800 x 480 pixel Typ. 400 cd/m² Min. 30 000 h  70°,70°,80°,80° (UDRL 24 bit (16.7 Mio. colors projected capacitive m  3.0 mm toughened gla None ABS - PC/ 1.4016 stair Front IP 66/ Rear IP20  197.0 x 128.0 x 35.9 m  837 g  Nom. 13 to 32 V DC Typ. 6.9 W; max. 31.1 V  onditions	Full HD HDMI  J. 1.5W RMS (8Ω)  (8Ω)  L)  Signature touch  Signature touc
Wireless  Video  Video Output  Audio  Speaker Output  Audio Internal  Display and Touch  Size  Resolution  Brightness  Backlight Lifetime  Viewing Angle  Color  Touch  Housing  Front  Frame  Rear  Ingress Protection  Device Dimensions  W x H x D  Weight  Power Supply  Supply Voltage  Consumption  Typical Environmental C  Storage Temp.	WLAN 802.11 b/g/n; B For available mPCIe m  1x speaker (connector 1x speaker 0.3 W RMS  7.0 inch/177.8 mm  800 x 480 pixel Typ. 400 cd/m² Min. 30 000 h 70°,70°,80°,80° (UDRL 24 bit (16.7 Mio. colors projected capacitive m  3.0 mm toughened gla None ABS - PC/ 1.4016 stair Front IP 66/ Rear IP20  197.0 x 128.0 x 35.9 m  837 g  Nom. 13 to 32 V DC Typ. 6.9 W; max. 31.1 V  onditions -20 to +70 °C	Full HD HDMI  J. 1.5W RMS (8Ω)  (8Ω)  L)  Signature touch  Signature touc
Wireless  Video  Video Output  Audio  Speaker Output  Audio Internal  Display and Touch  Size  Resolution  Brightness  Backlight Lifetime  Viewing Angle  Color  Touch  Housing  Front  Frame  Rear  Ingress Protection  Device Dimensions  W x H x D  Weight  Power Supply  Supply Voltage  Consumption  Typical Environmental C	WLAN 802.11 b/g/n; B For available mPCIe m  1x speaker (connector 1x speaker 0.3 W RMS  7.0 inch/177.8 mm  800 x 480 pixel Typ. 400 cd/m² Min. 30 000 h  70°,70°,80°,80° (UDRL 24 bit (16.7 Mio. colors projected capacitive m  3.0 mm toughened gla None ABS - PC/ 1.4016 stair Front IP 66/ Rear IP20  197.0 x 128.0 x 35.9 m  837 g  Nom. 13 to 32 V DC Typ. 6.9 W; max. 31.1 V  onditions	Full HD HDMI  J. 1.5W RMS (8Ω)  (8Ω)  L)  Signature touch  Signature touc

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTARO 8.4 SG**



























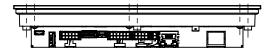


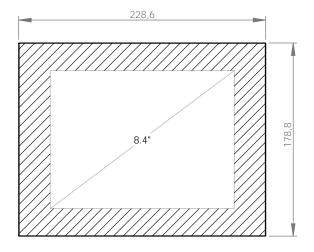


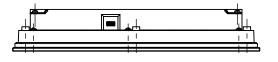


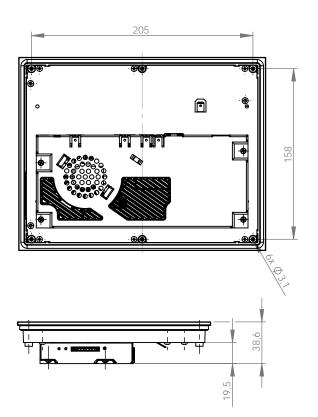


# TECHNICAL SPECIFICATION SANTARO 8.4 SG









CPU	x1	x2
CPU Type	i.MX6Solo	i.MX6Dual
Core Class	ARM Cortex - A9	1.MV0Duat
Core Class Core Clock	800 MHz	1 GHz
		a acceleration and VFP
Features		
		mat HD 1080p video de-
		deo encoder hardware
	KB for data	KB for instruction, 32
	512 KB L2 cache	1 MB L2 cache
HW Accelerators		
HW Accelerators	OpenGL ES 2.0, OpenVG 1.	
DTO	(Emulated on 3D GPU Accuracy: +/- 30 ppm	
RTC	Accuracy: +/- 30 ppm	at 25°C
Memory		
eMMC Flash	4 GB eMMC Flash	
RAM Standard	1 GB 32 bit DDR3L	1 GB 64 bit DDR3L
SD Card Slot	4 bit MMC/SDIO/SD/S	SDHC
Operating Systems		
Supported OS	Windows EC on reque	est,
	Linux Yocto, Android	
Communication Interfac	es	
Digital I/O	2x In, 2x Out (0.7 A)	
Network	1x 10/100 Mbit/s Ethe	ernot (R I_45)
USB 2.0	1x 480 Mbit/s Host (T	
03B 2.0	1x 480 Mbit/s 110st (1)	· 1
CAN Fieldbus / RS-485	1x CAN (ISO/DIS	1x CAN (ISO/DIS
CAN Fletabus / K3-465	11898) + 1x RS-485	11898) + 1x RS-485
	11070] + 1X K3-400	galvanic isolated
RS-232	2x RS-232 (RX/TX/CT	. 1 3
Synchronous	SPI up to 12 chip sele	
Serial Interfaces	Matrix keypad up to 8	) X 0
Video		T = 11.115
Video Output		Full HD micro HDMI
Audio		
Speaker Output	1x speaker (connecto	
Audio Internal	1x speaker 0.3 W RM	S (8Ω)
Display and Touch		
Size	8.4 inch/213.4 mm	
Resolution	800 x 600 pixel	
Brightness	Typ. 360 cd/m <sup>2</sup>	
Backlight Lifetime	Min. 50 000 h	
Viewing Angle	80°,60°,80°,80° (UDR	RL)
Color	24 bit (16.7 Mio. color	
Touch	projected capacitive r	
Housing	I F. SJOSTON CAPACITIVE I	
Front	3.0 mm toughened gl	acc RAI 9005
Frame	None	.ass, NAL 700J
		loca stool feers and
Rear Protection	ABS-PC/1.4016 stain	
Ingress Protection	Front IP 66/ Rear IP 2	LU LU
Device Dimensions	000 / 450 0 00 :	
WxHxD	228.6 x 178.8 x 38.6 n	nm
Weight	tbd.	
Power Supply		
Supply Voltage	Nom. 13 to 32 V DC	
Consumption	Typ. 10.2 W; max. 24	W
Typical Environmental C		
Storage Temp.	-20 to +70 °C	
Operating Temp.	0 to +60 °C	
Humidity	5 to 90 % RH	
Training	0 10 70 70 1111	

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

## **SANTARO 10.1 SG IPS**



































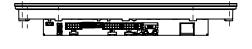


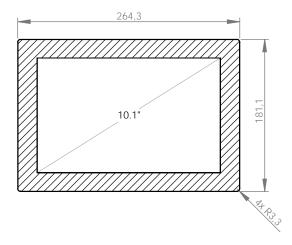




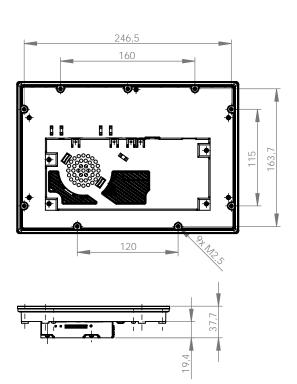


## **SANTARO 10.1 SG IPS**









CPU	x1	x2
CPU Type	i.MX6Solo	i.MX6Dual
Core Class	ARM Cortex - A9	i.i-i/toBaat
Core Clock	800 MHz	1 GHz
Features		a acceleration and VFP
reatures		nat HD 1080p video de-
		deo encoder hardware
	engine; L1 cache, 32 k	
	KB for data	AD IOI IIISH UCHOII, 32
	512 KB L2 cache	1 MB L2 cache
HW Accelerators		
HW Accelerators	OpenGL ES 2.0, OpenVG 1.1 (Emulated on 3D GPU)	
RTC	Accuracy: +/- 30 ppm	
	Accuracy: +/- 30 ppm	at 20 C
Memory	( 0 0 1 1 1 1 1	
eMMC Flash	4 GB eMMC Flash	T
RAM Standard	1 GB 32 bit DDR3L	1 GB 64 bit DDR3L
SD Card Slot	4 bit MMC/SDIO/SD/S	DHC
Operating Systems		
Supported OS	Windows EC on reque	st,
	Linux Yocto, Android	
<b>Communication Interfac</b>	es	
Digital I/O	2x In, 2x Out (0.7 A)	
Network	1x 10/100 Mbit/s Ethe	rnet (RJ-45)
USB 2.0	1x 480 Mbit/s Host (Ty	
	1x 480 Mbit/s OTG (Ty	
CAN Fieldbus / RS-485	1x CAN (ISO/DIS	1x CAN (ISO/DIS
	11898) + 1x RS-485	11898) + 1x RS-485
		galvanic isolated
RS-232	2x RS-232 (RX/TX/CTS	S/RTS)
Synchronous	SPI up to 12 chip sele	
Serial Interfaces	Matrix keypad up to 8	
Video		
Video Output		Full HD micro HDMI
Audio		1 444 115 111010 1151 11
Speaker Output	1x speaker (connector	a) 1 5W PMS (80)
	1x speaker 0.3 W RMS	
Audio Intornal	I IX SUBAKEL U.S VV KIVIS	) (012)
Audio Internal		
Display and Touch		
<b>Display and Touch</b> Size	10.1 inch/255.85 mm	
<b>Display and Touch</b> Size Resolution	10.1 inch/255.85 mm 1280 x 800 pixel	
Display and Touch Size Resolution Brightness	10.1 inch/255.85 mm 1280 x 800 pixel Typ. 400 cd/m <sup>2</sup>	
Display and Touch Size Resolution Brightness Backlight Lifetime	10.1 inch/255.85 mm 1280 x 800 pixel Typ. 400 cd/m <sup>2</sup> Min. 50 000 h	
Display and Touch Size Resolution Brightness	10.1 inch/255.85 mm 1280 x 800 pixel Typ. 400 cd/m <sup>2</sup>	L)
Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color	10.1 inch/255.85 mm 1280 x 800 pixel Typ. 400 cd/m <sup>2</sup> Min. 50 000 h 85°,85°,85°,85° (UDR) 24 bit (16.7 Mio. colors)	s)
Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch	10.1 inch/255.85 mm 1280 x 800 pixel Typ. 400 cd/m <sup>2</sup> Min. 50 000 h 85°,85°,85°,85° (UDR	s)
Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color	10.1 inch/255.85 mm 1280 x 800 pixel Typ. 400 cd/m <sup>2</sup> Min. 50 000 h 85°,85°,85°,85° (UDR) 24 bit (16.7 Mio. colors)	s)
Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch	10.1 inch/255.85 mm 1280 x 800 pixel Typ. 400 cd/m <sup>2</sup> Min. 50 000 h 85°,85°,85°,85° (UDR) 24 bit (16.7 Mio. colors)	s)
Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing	10.1 inch/255.85 mm 1280 x 800 pixel Typ. 400 cd/m² Min. 50 000 h 85°,85°,85°,85° (UDR) 24 bit (16.7 Mio. color: 5-wire resistive touch	s)
Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front	10.1 inch/255.85 mm 1280 x 800 pixel Typ. 400 cd/m <sup>2</sup> Min. 50 000 h 85°,85°,85°,85° (UDR) 24 bit (16.7 Mio. color: 5-wire resistive touch	s) ass, RAL 9005
Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame	10.1 inch/255.85 mm 1280 x 800 pixel Typ. 400 cd/m² Min. 50 000 h 85°,85°,85°,85° (UDR) 24 bit (16.7 Mio. color: 5-wire resistive touch 3.0 mm toughened gla	ass, RAL 9005 ess steel, foam seal
Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear	10.1 inch/255.85 mm 1280 x 800 pixel Typ. 400 cd/m <sup>2</sup> Min. 50 000 h 85°,85°,85°,85° (UDR) 24 bit (16.7 Mio. color: 5-wire resistive touch 3.0 mm toughened glands None ABS-PC/1.4016 stainl	ass, RAL 9005 ess steel, foam seal
Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingess Protection Device Dimensions	10.1 inch/255.85 mm 1280 x 800 pixel Typ. 400 cd/m² Min. 50 000 h 85°,85°,85°,85° (UDR) 24 bit (16.7 Mio. colors) 5-wire resistive touch 3.0 mm toughened glanne None ABS-PC/1.4016 stainl Front IP 66/ Rear IP 2	ass, RAL 9005 ess steel, foam seal
Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingess Protection Device Dimensions W x H x D	10.1 inch/255.85 mm 1280 x 800 pixel Typ. 400 cd/m <sup>2</sup> Min. 50 000 h 85°,85°,85°,85° (UDR) 24 bit (16.7 Mio. colors) 5-wire resistive touch 3.0 mm toughened glanne ABS-PC/1.4016 stainl Front IP 66/ Rear IP 2	ass, RAL 9005 ess steel, foam seal
Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingess Protection Device Dimensions W x H x D Weight	10.1 inch/255.85 mm 1280 x 800 pixel Typ. 400 cd/m² Min. 50 000 h 85°,85°,85°,85° (UDR) 24 bit (16.7 Mio. colors) 5-wire resistive touch 3.0 mm toughened glanne None ABS-PC/1.4016 stainl Front IP 66/ Rear IP 2	ass, RAL 9005 ess steel, foam seal
Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingess Protection Device Dimensions W x H x D Weight Power Supply	10.1 inch/255.85 mm 1280 x 800 pixel Typ. 400 cd/m <sup>2</sup> Min. 50 000 h 85°,85°,85°,85° (UDR) 24 bit (16.7 Mio. colorships) 5-wire resistive touch 3.0 mm toughened glast None ABS-PC/1.4016 stainl Front IP 66/ Rear IP 2 264.3 x 181.1 x 37.7 mm 1420 g.	ass, RAL 9005 ess steel, foam seal
Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingess Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage	10.1 inch/255.85 mm 1280 x 800 pixel Typ. 400 cd/m² Min. 50 000 h 85°,85°,85°,85° (UDR) 24 bit (16.7 Mio. color) 5-wire resistive touch 3.0 mm toughened gla None ABS-PC/1.4016 stainl Front IP 66/ Rear IP 2 264.3 x 181.1 x 37.7 m 1420 g. Nom. 13 to 32 V DC	ess steel, foam seal
Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingess Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption	10.1 inch/255.85 mm 1280 x 800 pixel Typ. 400 cd/m² Min. 50 000 h 85°,85°,85°,85° (UDR) 24 bit (16.7 Mio. color) 5-wire resistive touch 3.0 mm toughened gla None ABS-PC/1.4016 stainl Front IP 66/ Rear IP 2 264.3 x 181.1 x 37.7 m 1420 g.  Nom. 13 to 32 V DC Typ. 28.3 W; max. 42.1	ess steel, foam seal
Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingess Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption Typical Environmental C	10.1 inch/255.85 mm 1280 x 800 pixel Typ. 400 cd/m² Min. 50 000 h 85°,85°,85°,85° (UDR) 24 bit (16.7 Mio. color) 5-wire resistive touch 3.0 mm toughened gla None ABS-PC/1.4016 stainl Front IP 66/ Rear IP 2 264.3 x 181.1 x 37.7 m 1420 g.  Nom. 13 to 32 V DC Typ. 28.3 W; max. 42.1	ess steel, foam seal
Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingess Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption Typical Environmental C Storage Temp.	10.1 inch/255.85 mm 1280 x 800 pixel Typ. 400 cd/m² Min. 50 000 h 85°,85°,85°,85° (UDR) 24 bit (16.7 Mio. color) 5-wire resistive touch 3.0 mm toughened gla None ABS-PC/1.4016 stainl Front IP 66/ Rear IP 2 264.3 x 181.1 x 37.7 m 1420 g.  Nom. 13 to 32 V DC Typ. 28.3 W; max. 42.1 conditions -20 to +70 °C	ess steel, foam seal
Display and Touch Size Resolution Brightness Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingess Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption Typical Environmental C	10.1 inch/255.85 mm 1280 x 800 pixel Typ. 400 cd/m² Min. 50 000 h 85°,85°,85°,85° (UDR) 24 bit (16.7 Mio. color) 5-wire resistive touch 3.0 mm toughened gla None ABS-PC/1.4016 stainl Front IP 66/ Rear IP 2 264.3 x 181.1 x 37.7 m 1420 g.  Nom. 13 to 32 V DC Typ. 28.3 W; max. 42.1	ess steel, foam seal

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTOKA 10.1 SG IPS**



































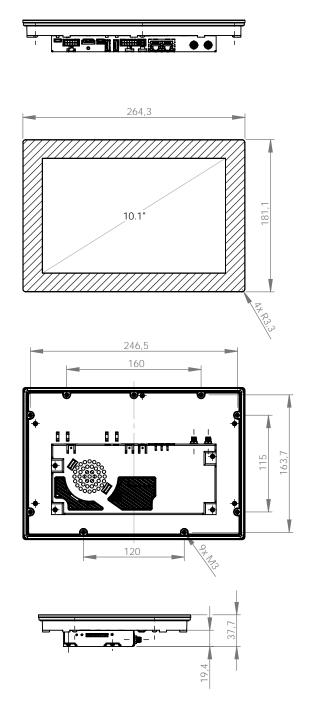








# SANTOKA 10.1 SG IPS



CPU	x1	x2
CPU Type	i.MX6Solo	i.MX6Dual
Core Class	ARM Cortex - A9	
Core Clock	1 GHz	
Features	NEON for SIMD media operations; Multi-form	a acceleration and VFP nat HD 1080p video de- deo encoder hardware KB for instruction, 32
	512 KB L2 cache	1 MB L2 cache
HW Accelerators	OpenGL ES 2.0, OpenVG 1.1 (Emulated on 3D GPU)	
RTC	Accuracy: +/- 30 ppm	at 25°C
Memory		
eMMC Flash	4 GB MLC eMMC	
RAM Standard	1 GB 32 bit DDR3L	1 GB 64 bit DDR3L
SD Card Slot	4 bit MMC/SDIO/SD/S	
Operating Systems		
Supported OS	Linux Yocto, Android	
Communcation Interface		
Network	2x 10/100 Mbit/s Ethe	rnet (R I=//5)
NELWOLK	2x 480 Mbit/s Host (Ty	
USB 2.0	1x 480 Mbit/s OTG (Ty	
CAN Fieldbus / RS-485	1x CAN (ISO/DIS 11898) + 1x RS-485	1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated
RS-232	2x RS-232 (RX/TX/CTS	1 3
	SPI up to 12 chip selec	
Synchronous Serial Interfaces	up to 8 x 8	cts; 120; Matrix keypad
Wireless Communication		
wireless communicatio		1 / 0 / 5
Wireless	WLAN 802.11 b/g/n; B For available mPCIe n	
Video		
Video Output		Full HD HDMI
Audio		
Speaker Output	1x speaker (connector	·), 1.5W RMS (8Ω)
Audio Internal	1x speaker 0.3 W RMS	
Display and Touch	'	
Size	10.1 inch/255.85mm	
Resolution	1280 x 800 pixel	
Brightness	Typ. 420 cd/m <sup>2</sup>	
Backlight Lifetime	Min. 50 000 h	
Viewing Angle	85°,85°,85°,85° (UDRI	_]
Color	24 bit (16.7 Mio. colors	
Touch	projected capacitive m	
Housing		
Front	3.0 mm toughened gla	ass RAI 9005
Frame	None	100, IAL /000
Rear	ABS-PC/1.4016 stainle	acc steel from sool
Ingess Protection	Front IP 66/Rear IP20	coo oteet, Ivalii ocat
Device Dimensions	Tronth bolited IFZU	
	2// 2 - 101 1 - 27 7	
W x H x D	264.3 x 181.1 x 37.7 m	Ш
Weight	1420 g.	
Power Supply		
Supply Voltage	Nom. 13 to 32 V DC	
Consumption	I T 0 0 M/ 20 / 1	N
	Typ. 9.8 W; max. 32.6 \	• •
Typical Environmental C		
Typical Environmental C Storage Temp.		
Typical Environmental C	onditions -20 to +70 °C 0 to +60 °C	
Typical Environmental C Storage Temp.	onditions -20 to +70 °C	

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTOKA 12.1 SG**

































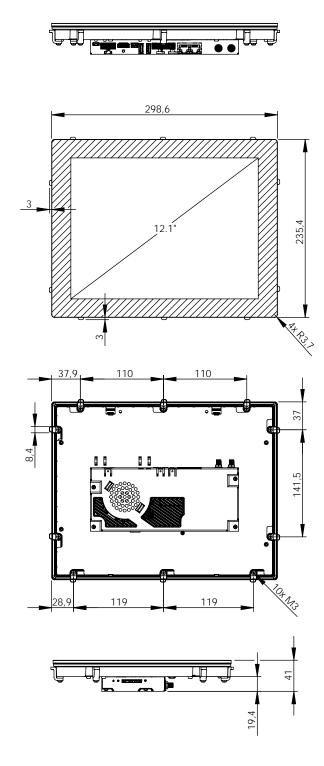








# TECHNICAL SPECIFICATION SANTOKA 12.1 SG



CPU	x1	x2
CPU Type	i.MX6Solo	i.MX6Dual
Core Class	ARM Cortex - A9	1.MV0Duat
Core Class	1 GHz	
COTE CLOCK		a acceleration and VFP
		nat HD 1080p video de-
		deo encoder hardware
Features	engine; L1 cache, 32 k	
	KB for data	AD TOT MISH detion, 02
	512 KB L2 cache	1 MB L2 cache
	OpenGL ES 2.0, OpenVG 1.1	
HW Accelerators	(Emulated on 3D GPU)	
RTC	Accuracy: +/- 30 ppm	
Memory	, , , , , , , , , , , , , , , , , , , ,	
eMMC Flash	4 GB MLC eMMC	
RAM Standard	1 GB 32 bit DDR3L	1 GB 64 bit DDR3L
SD Card Slot	4 bit MMC/SDIO/SD/S	DHC
Operating Systems		
Supported OS	Linux Yocto, Android	
Communcation Interface	:s	
Network	2x 10/100 Mbit/s Ethe	rnet (RJ-45)
USB 2.0	2x 480 Mbit/s Host (Ty	rpe A)
USB 2.0	1x 480 Mbit/s OTG (Ty	pe Micro-AB)
	1x CAN (ISO/DIS	1x CAN (ISO/DIS
CAN Fieldbus / RS-485	11898) + 1x RS-485	11898) + 1x RS-485
		galvanic isolated
RS-232	2x RS-232 (RX/TX/CTS	
Synchronous		cts; I <sup>2</sup> C; Matrix keypad
Serial Interfaces	up to 8 x 8	
Wireless Communication		
Wireless	WLAN 802.11 b/g/n; E	
Video	For available mPCIe n	nodules see page 129
Video Output		Full HD HDMI
Audio		Full HD HDMI
Speaker Output	1x speaker (connector	a) 1 5W DMC (00)
Audio Internal	1x speaker 0.3 W RMS	
Display and Touch	TX Speaker 0.5 W KIVIS	) (012)
Size	12.1 inch/307.3 mm	
Resolution	1024 x 768 pixel	
Brightness	Typ. 600 cd/m <sup>2</sup>	
Backlight Lifetime	Typ. 70 000 h	
Viewing Angle	70°,70°,80°,80° (UDRI	
Color	24 bit (16.7 Mio. colors	
Touch	projected capacitive m	
Housing	L E. OJOURGE CAPACITIVE II	
Front	4.0 mm toughened gla	ass RAI 9005
Frame	None	, / 000
Rear	ABS-PC/1.4016 stainle	ess steel foam seal
Ingress Protection	Front IP 66/Rear IP20	
Device Dimensions	00,	
WxHxD	298.6 x 235.4 x 41.1 m	m
Weight	2140 q	
Power Supply	J	
Supply Voltage	Nom. 13 to 32 V DC	
Consumption	Typ. 10.3 W	
Typical Environmental C		
Storage Temp.	-20 to +70 °C	
Operating Temp.	0 to +60 °C	
Humidity	5 to 90 % RH	

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTARO 19.0 SG**

































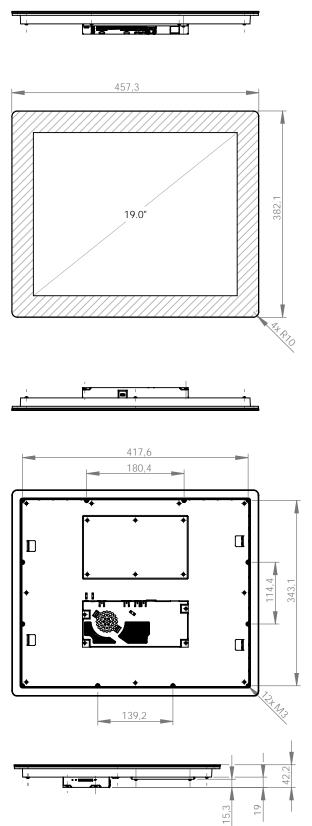








# TECHNICAL SPECIFICATION SANTARO 19.0 SG



CPU	x1	x2
CPU Type	i.MX6Solo	i.MX6Dual
Core Class	ARM Cortex - A9	
Core Clock	800 MHz	1 GHz
Features	NEON for SIMD media	acceleration and VFP
	operations; Multi-format HD 1080p video de-	
	coder and HD 720p video encoder hardware	
	engine; L1 cache, 32 k	
	KB for data	
	512 KB L2 cache	1 MB L2 cache
HW Accelerators	OpenGL ES 2.0, OpenVG 1.1	OpenCI EC 2 O OpenVC 1
	(Emulated on 3D GPU)	OpenGL ES 2.0, OpenVG 1.
RTC	Accuracy: +/- 30 ppm	at 25°C
Memory		
eMMC Flash	4 GB eMMC Flash	
RAM Standard	1 GB 32 bit DDR3L	1 GB 64 bit DDR3L
SD Card Slot	4 bit MMC/SDIO/SD/SI	OHC
Operating Systems		
Supported OS	Windows EC on reque	st.
- Mercara sa	Linux Yocto, Android	•
Communication Interfac		
Digital I/O	2x In, 2x Out (0.7 A)	
Network	1x 10/100 Mbit/s Ether	net (R I-45)
USB 2.0	1x 480 Mbit/s Host (Ty	
03D 2.0	1x 480 Mbit/s OTG (Typ	
CAN Fieldbus / RS-485	1x CAN (ISO/DIS	1x CAN (ISO/DIS
0/1141 Tetaba5/ 115 400	11898) + 1x RS-485	11898) + 1x RS-485
	11070) 1 17 110 400	galvanic isolated
RS-232	2x RS-232 (RX/TX/CTS	9
Synchronous	SPI up to 12 chip selec	
Serial Interfaces	Matrix keypad up to 8	
Video	7, 1	
Video Output		Full HD micro HDMI
Audio		
Speaker Output	1x speaker (connector	1 5W RMS (80)
Audio Internal	1x speaker 0.3 W RMS	
Display and Touch	TX Speaker 0.0 W 11113	(012)
Size	19.0 inch/481.93 mm	
	-	
Resolution	1280 x 1024 pixel	
Drightness	Tun 200 cd/m2	
Brightness	Typ. 280 cd/m <sup>2</sup>	
Backlight Lifetime	Min. 50 000 h	1
Backlight Lifetime Viewing Angle	Min. 50 000 h 80°,80°,85°,85° (UDRL	
Backlight Lifetime Viewing Angle Color	Min. 50 000 h 80°,80°,85°,85° (UDRL 24 bit (16.7 Mio. colors	;)
Backlight Lifetime Viewing Angle Color Touch	Min. 50 000 h 80°,80°,85°,85° (UDRL	;)
Backlight Lifetime Viewing Angle Color Touch Housing	Min. 50 000 h 80°,80°,85°,85° (UDRL 24 bit (16.7 Mio. colors projected capacitive m	s) Julti touch
Backlight Lifetime Viewing Angle Color Touch Housing Front	Min. 50 000 h 80°,80°,85°,85° (UDRL 24 bit (16.7 Mio. colors projected capacitive m 3.0 mm toughened gla	s) Julti touch
Backlight Lifetime Viewing Angle Color Touch Housing Front Frame	Min. 50 000 h 80°,80°,85°,85° (UDRL 24 bit (16.7 Mio. colors projected capacitive m 3.0 mm toughened gla None	s) nulti touch nss, PMS Black C
Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear	Min. 50 000 h 80°,80°,85°,85° (UDRL 24 bit [16.7 Mio. colors projected capacitive m 3.0 mm toughened gla None ABS-PC/1.4016 stainle	s) nulti touch nss, PMS Black C
Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection	Min. 50 000 h 80°,80°,85°,85° (UDRL 24 bit (16.7 Mio. colors projected capacitive m 3.0 mm toughened gla None	s) nulti touch nss, PMS Black C
Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions	Min. 50 000 h 80°,80°,85°,85° (UDRI 24 bit (16.7 Mio. colors projected capacitive m 3.0 mm toughened gla None ABS-PC/1.4016 stainle Front IP 20/Rear IP20	est steel
Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D	Min. 50 000 h 80°,80°,85°,85° (UDRI 24 bit (16.7 Mio. colors projected capacitive m 3.0 mm toughened gla None ABS-PC/1.4016 stainle Front IP 20/Rear IP20	est steel
Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions	Min. 50 000 h 80°,80°,85°,85° (UDRI 24 bit (16.7 Mio. colors projected capacitive m 3.0 mm toughened gla None ABS-PC/1.4016 stainle Front IP 20/Rear IP20	est steel
Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D	Min. 50 000 h 80°,80°,85°,85° (UDRI 24 bit (16.7 Mio. colors projected capacitive m 3.0 mm toughened gla None ABS-PC/1.4016 stainle Front IP 20/Rear IP20	est steel
Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply	Min. 50 000 h 80°,80°,85°,85° (UDRI 24 bit (16.7 Mio. colors projected capacitive m 3.0 mm toughened gla None ABS-PC/1.4016 stainle Front IP 20/Rear IP20	est steel
Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight	Min. 50 000 h 80°,80°,85°,85° (UDRL 24 bit (16.7 Mio. colors projected capacitive m  3.0 mm toughened gla None ABS-PC/1.4016 stainle Front IP 20/Rear IP20  457.3 x 382.1 x 42.2 m 4820 g  Nom. 13 to 32 V DC	es) Inulti touch I
Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption	Min. 50 000 h 80°,80°,85°,85° (UDRL 24 bit (16.7 Mio. colors projected capacitive m  3.0 mm toughened gla None ABS-PC/1.4016 stainle Front IP 20/Rear IP20  457.3 x 382.1 x 42.2 m 4820 g  Nom. 13 to 32 V DC Typ. 28.3 W; max. 42.1	es) Inulti touch I
Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption Typical Environmental C	Min. 50 000 h 80°,80°,85°,85° (UDRL 24 bit (16.7 Mio. colors projected capacitive m  3.0 mm toughened gla None ABS-PC/1.4016 stainle Front IP 20/Rear IP20  457.3 x 382.1 x 42.2 m 4820 g  Nom. 13 to 32 V DC Typ. 28.3 W; max. 42.1	es) Inulti touch I
Backlight Lifetime Viewing Angle Color Touch Housing Front Frame Rear Ingress Protection Device Dimensions W x H x D Weight Power Supply Supply Voltage Consumption	Min. 50 000 h 80°,80°,85°,85° (UDRL 24 bit (16.7 Mio. colors projected capacitive m  3.0 mm toughened gla None ABS-PC/1.4016 stainle Front IP 20/Rear IP20  457.3 x 382.1 x 42.2 m 4820 g  Nom. 13 to 32 V DC Typ. 28.3 W; max. 42.1	es) Inulti touch I

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

### **SANTARO 10.1 SG IPS outdoor**





































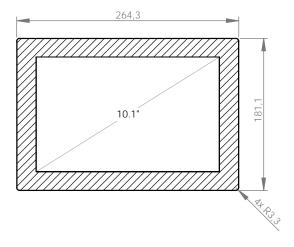




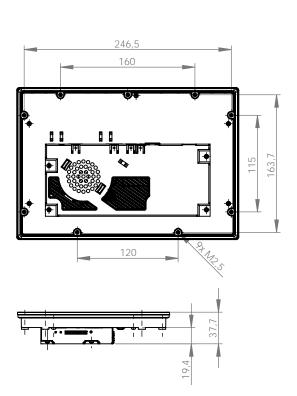


# TECHNICAL SPECIFICATION SANTARO 10.1 SG IPS outdoor









Core Class	operations; Multi-form coder and HD 720p videngine; L1 cache, 32 k KB for data 512 KB L2 cache OpenGL ES 2.0, OpenVG 1.1 Emulated on 3D GPU) Accuracy: +/- 30 ppm in GB 6B eMMC Flash GB 32 bit DDR3L Sibit MMC/SDIO/SD/SI Windows EC on requestinux Yocto, Android	1 MB L2 cache  OpenGL ES 2.0, OpenVG 1.1 at 25°C  1 GB 64 bit DDR3L DHC  st,  rnet (RJ-45) pe A) pe Micro-AB) 1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated /RTS)
Core Class Core Clock Reatures Reatures Reatures RTC AMemory eMMC Flash RAM Standard SD Card Slot Operating Systems Supported OS L Communication Interfaces Digital I/O Network USB 2.0 1 CAN Fieldbus / RS-485 1 RS-232 Synchronous Serial Interfaces N Video Video Video Output Audio Speaker Output 1 Audio Internal Display and Touch	ARM Cortex - A9 300 MHz NEON for SIMD media sperations; Multi-form coder and HD 720p vide engine; L1 cache, 32 k (B for data 312 KB L2 cache DenGL ES 2.0, OpenVG 1.1 Emulated on 3D GPU) Accuracy: +/- 30 ppm a  GB eMMC Flash GB 32 bit DDR3L bit MMC/SDIO/SD/SI Windows EC on requestinux Yocto, Android ax In, 2x Out (0.7 A) x 10/100 Mbit/s Ether x 480 Mbit/s Host (Ty x 480 Mbit/s OTG (Typ x CAN (ISO/DIS 1898) + 1x RS-485 EX RS-232 (RX/TX/CTS SPI up to 12 chip select	1 GHz acceleration and VFP nat HD 1080p video de- leo encoder hardware (B for instruction, 32  1 MB L2 cache OpenGL ES 2.0, OpenVG 1. at 25°C  1 GB 64 bit DDR3L DHC  st,  rnet (RJ-45) pe A) pe Micro-AB) 1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated /RTS)
Core Clock  Features  N Features  N Features  N Core R Core R Features  N S S HW Accelerators  O (I) RTC AMemory  eMMC Flash RAM Standard SD Card Slot  Operating Systems  Supported OS  L Communication Interfaces  Digital I/O Network 1 USB 2.0 1 CAN Fieldbus / RS-485 1 RS-232 Synchronous Serial Interfaces N Video Video Video Output Audio Speaker Output 1 Audio Internal Display and Touch	NEON for SIMD media operations; Multi-form coder and HD 720p videngine; L1 cache, 32 kg for data of the size of th	acceleration and VFP nat HD 1080p video de- leo encoder hardware (B for instruction, 32  1 MB L2 cache  OpenGL ES 2.0, OpenVG 1.  at 25°C  1 GB 64 bit DDR3L  DHC  st,  rnet (RJ-45) pe A) le Micro-AB)  1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated /RTS)
Features  No control of the state of the sta	NEON for SIMD media operations; Multi-form coder and HD 720p videngine; L1 cache, 32 k (B for data 512 KB L2 cache openGL ES 2.0, OpenVG 1.1 Emulated on 3D GPU) Accuracy: +/- 30 ppm is GB eMMC Flash GB 32 bit DDR3L is bit MMC/SDIO/SD/SI windows EC on requestinux Yocto, Android is 2x In, 2x Out (0.7 A) is 10/100 Mbit/s Ether x 480 Mbit/s Host (Tyx 480 Mbit/s OTG (Tyx x CAN (ISO/DIS 1898) + 1x RS-485 EX RS-232 (RX/TX/CTS 5PI up to 12 chip selections and the properties of the selection of the sele	acceleration and VFP nat HD 1080p video de- leo encoder hardware (B for instruction, 32  1 MB L2 cache  OpenGL ES 2.0, OpenVG 1.  at 25°C  1 GB 64 bit DDR3L  DHC  st,  rnet (RJ-45) pe A) le Micro-AB)  1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated /RTS)
HW Accelerators  RTC  Memory  eMMC Flash RAM Standard SD Card Slot  Operating Systems  Supported OS  L  Communication Interfaces  Digital I/O Network 1 USB 2.0 1 CAN Fieldbus / RS-485 1 RS-232 Synchronous Serial Interfaces N  Video Video Output  Audio Speaker Output 1 Audio Internal Display and Touch	operations; Multi-form coder and HD 720p videngine; L1 cache, 32 kg for data for March 12 kg for March 1	nat HD 1080p video de- leo encoder hardware (B for instruction, 32  1 MB L2 cache  OpenGL ES 2.0, OpenVG 1.  at 25°C  1 GB 64 bit DDR3L  DHC  st,  rnet (RJ-45) pe A) pe Micro-AB)  1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated /RTS)
HW Accelerators  RTC  Memory  eMMC Flash RAM Standard SD Card Slot  Operating Systems  Supported OS  Communication Interfaces  Digital I/O Network 1 USB 2.0 1 CAN Fieldbus / RS-485 1 RS-232 Synchronous Serial Interfaces  Video Video Output  Audio Speaker Output 1 Audio Internal Display and Touch	coder and HD 720p videngine; L1 cache, 32 kg for data for grade and HD 720p videngine; L1 cache, 32 kg for data for grade and HD 720p videngine; L1 cache, 32 kg for data for grade and HD 720p videngine; L2 kg for data for grade and HD 720p videngine; L2 kg for grade and HD 720p videngine; L	leo encoder hardware (B for instruction, 32  1 MB L2 cache  OpenGL ES 2.0, OpenVG 1.  at 25°C  1 GB 64 bit DDR3L  DHC  st,  rnet (RJ-45) pe A) pe Micro-AB)  1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated /RTS)
HW Accelerators  RTC  Memory  eMMC Flash RAM Standard SD Card Slot  Operating Systems  Supported OS  Communication Interfaces  Digital I/O Network 1 USB 2.0 1 CAN Fieldbus / RS-485 1 RS-232 Synchronous Serial Interfaces  Video Video Output  Audio Speaker Output 1 Audio Internal Display and Touch	engine; L1 cache, 32 kg for data 512 KB L2 cache DenGL ES 2.0, OpenVG 1.1 Emulated on 3D GPU) Accuracy: +/- 30 ppm is GB eMMC Flash GB 32 bit DDR3L bit MMC/SDIO/SD/SI Windows EC on requestinux Yocto, Android Ex In, 2x Out [0.7 A] x 10/100 Mbit/s Ether x 480 Mbit/s Host [Ty x 480 Mbit/s OTG [Typ x CAN (ISO/DIS 1898) + 1x RS-485 EX RS-232 [RX/TX/CTS SPI up to 12 chip select	1 MB L2 cache OpenGL ES 2.0, OpenVG 1. at 25°C  1 GB 64 bit DDR3L DHC  st,  rnet (RJ-45) pe A) pe Micro-AB) 1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated /RTS)
HW Accelerators  RTC  Amemory  eMMC Flash RAM Standard SD Card Slot  Operating Systems  Supported OS  Communication Interfaces  Digital I/O Network USB 2.0  CAN Fieldbus / RS-485  RS-232 Synchronous Serial Interfaces  Video  Video  Video Output  Audio Speaker Output  Audio Internal Display and Touch	KB for data 512 KB L2 cache DenGL ES 2.0, OpenVG 1.1 Emulated on 3D GPU) Accuracy: +/- 30 ppm a GB eMMC Flash GB 32 bit DDR3L bit MMC/SDIO/SD/SI Windows EC on requestinux Yocto, Android XX In, 2x Out [0.7 A] x 10/100 Mbit/s Ether x 480 Mbit/s Host [Ty x 480 Mbit/s OTG [Typ x CAN (ISO/DIS 1898) + 1x RS-485 EX RS-232 [RX/TX/CTS SPI up to 12 chip select	1 MB L2 cache  OpenGL ES 2.0, OpenVG 1. at 25°C  1 GB 64 bit DDR3L DHC  st,  rnet (RJ-45) pe A) pe Micro-AB) 1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated /RTS)
HW Accelerators	in 2 KB L2 cache OpenGL ES 2.0, OpenVG 1.1 Emulated on 3D GPU) Accuracy: +/- 30 ppm in a second control of the	OpenGL ES 2.0, OpenVG 1. at 25°C  1 GB 64 bit DDR3L DHC  st,  Thet (RJ-45) pe A) pe Micro-AB) 1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated /RTS)
HW Accelerators 0 (II)  RTC AMemory  eMMC Flash 4 RAM Standard 1 SD Card Slot 4  Operating Systems  Supported OS V  Communication Interfaces  Digital I/O 2 Network 1 USB 2.0 1 CAN Fieldbus / RS-485 1  RS-232 2 Synchronous 5 Serial Interfaces N  Video Video Output Audio Speaker Output 1 Audio Internal 1 Display and Touch	OpenGL ES 2.0, OpenVG 1.1 Emulated on 3D GPU) Accuracy: +/- 30 ppm in the second of th	OpenGL ES 2.0, OpenVG 1. at 25°C  1 GB 64 bit DDR3L DHC  st,  Thet (RJ-45) pe A) pe Micro-AB) 1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated /RTS)
Memory  eMMC Flash RAM Standard SD Card Slot  Operating Systems  Supported OS  Communication Interfaces  Digital I/O Network USB 2.0  CAN Fieldbus / RS-485 1  RS-232 Synchronous Serial Interfaces Nideo Video Video Output Audio Speaker Output 1 Audio Internal Display and Touch	Emulated on 3D GPU) Accuracy: +/- 30 ppm a GB eMMC Flash GB 32 bit DDR3L bit MMC/SDIO/SD/SI Windows EC on requestinux Yocto, Android ax In, 2x Out [0.7 A] x 10/100 Mbit/s Ether x 480 Mbit/s Host [Ty x 480 Mbit/s OTG [Typ x CAN (ISO/DIS 1898) + 1x RS-485 EX RS-232 [RX/TX/CTS EPI up to 12 chip select	at 25°C  1 GB 64 bit DDR3L DHC  st,  rnet (RJ-45) pe A) pe Micro-AB)  1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated /RTS)
RTC AMemory  eMMC Flash 4 RAM Standard 1 SD Card Slot 4  Operating Systems  Supported OS V L  Communication Interfaces  Digital I/O 2 Network 1 USB 2.0 1 CAN Fieldbus / RS-485 1 RS-232 2 Synchronous 5 Serial Interfaces N  Video Video Output Audio Speaker Output 1 Audio Internal 1 Display and Touch	Accuracy: +/- 30 ppm of GB eMMC Flash GB 32 bit DDR3L bit MMC/SDIO/SD/SI Windows EC on requestinux Yocto, Android XX In, 2x Out (0.7 A) x 10/100 Mbit/s Ether x 480 Mbit/s Host (Ty) x 480 Mbit/s OTG (Typ) x CAN (ISO/DIS 1898) + 1x RS-485 EX RS-232 (RX/TX/CTS SPI up to 12 chip select	1 GB 64 bit DDR3L DHC st, enet (RJ-45) pe A) pe Micro-AB) 1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated /RTS)
Memory	GB eMMC Flash GB 32 bit DDR3L bit MMC/SDIO/SD/SI Vindows EC on requestinux Yocto, Android x In, 2x Out [0.7 A] x 10/100 Mbit/s Ether x 480 Mbit/s Host [Ty x 480 Mbit/s OTG [Typ x CAN (ISO/DIS 1898) + 1x RS-485 EX RS-232 [RX/TX/CTS EPI up to 12 chip select	1 GB 64 bit DDR3L DHC st, enet (RJ-45) pe A) pe Micro-AB) 1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated /RTS)
eMMC Flash 4 RAM Standard 1 SD Card Slot 4 Operating Systems Supported OS V L Communication Interfaces Digital I/O 2 Network 1 USB 2.0 1 CAN Fieldbus / RS-485 1 RS-232 2 Synchronous Serial Interfaces N Video Video Output Audio Speaker Output 1 Audio Internal 1 Display and Touch	GB 32 bit DDR3L bit MMC/SDIO/SD/SI Vindows EC on requestinux Yocto, Android x In, 2x Out [0.7 A] x 10/100 Mbit/s Ether x 480 Mbit/s Host [Ty x 480 Mbit/s OTG [Typ x CAN (ISO/DIS 1898) + 1x RS-485 EX RS-232 [RX/TX/CTS EPI up to 12 chip select	onet (RJ-45) pe A) the Micro-AB) 1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated /RTS)
RAM Standard 1 SD Card Slot 4 Operating Systems Supported OS V L Communication Interfaces Digital I/O 2 Network 1 USB 2.0 1 CAN Fieldbus / RS-485 1 RS-232 2 Synchronous Serial Interfaces N Video Video Output Audio Speaker Output 1 Audio Internal 1 Display and Touch	GB 32 bit DDR3L bit MMC/SDIO/SD/SI Vindows EC on requestinux Yocto, Android x In, 2x Out [0.7 A] x 10/100 Mbit/s Ether x 480 Mbit/s Host [Ty x 480 Mbit/s OTG [Typ x CAN (ISO/DIS 1898) + 1x RS-485 EX RS-232 [RX/TX/CTS EPI up to 12 chip select	onet (RJ-45) pe A) the Micro-AB) 1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated /RTS)
SD Card Slot 4 Operating Systems Supported OS V L Communication Interfaces Digital I/O 2 Network 1 USB 2.0 1 CAN Fieldbus / RS-485 1 RS-232 2 Synchronous Serial Interfaces N Video Video Output Audio Speaker Output 1 Audio Internal 1 Display and Touch	Windows EC on requestinux Yocto, Android  Xx In, 2x Out [0.7 A]  x 10/100 Mbit/s Ether  x 480 Mbit/s Host [Tyr  x 480 Mbit/s OTG [Tyr  x CAN (ISO/DIS  1898) + 1x RS-485  Ex RS-232 [RX/TX/CTS  EPI up to 12 chip select	onet (RJ-45) pe A) the Micro-AB) 1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated /RTS)
Operating Systems Supported OS V L Communication Interfaces Digital I/O 2 Network 1 USB 2.0 1 CAN Fieldbus / RS-485 1 RS-232 2 Synchronous Serial Interfaces N Video Video Output Audio Speaker Output 1 Audio Internal 1 Display and Touch	Vindows EC on requestinux Yocto, Android  Ex In, 2x Out [0.7 A]  x 10/100 Mbit/s Ether  x 480 Mbit/s Host [Tyr  x 480 Mbit/s OTG [Tyr  x CAN (ISO/DIS  1898) + 1x RS-485  Ex RS-232 [RX/TX/CTS  EPI up to 12 chip select	rnet (RJ-45) pe A) pe Micro-AB) 1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated /RTS)
Supported OS L  Communication Interfaces  Digital I/O 2  Network 1  USB 2.0 1  CAN Fieldbus / RS-485 1  RS-232 2  Synchronous Serial Interfaces N  Video  Video Output Audio  Speaker Output 1  Audio Internal 1  Display and Touch	inux Yocto, Android  Ix In, 2x Out (0.7 A)  x 10/100 Mbit/s Ether  x 480 Mbit/s Host (Ty  x 480 Mbit/s OTG (Typ  x CAN (ISO/DIS  1898) + 1x RS-485  Ix RS-232 (RX/TX/CTS  EVER IN EXTENDED IN THE SELECT IN THE SELE	rnet (RJ-45) pe A) pe Micro-AB) 1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated /RTS)
L   Communication Interfaces	inux Yocto, Android  Ix In, 2x Out (0.7 A)  x 10/100 Mbit/s Ether  x 480 Mbit/s Host (Ty  x 480 Mbit/s OTG (Typ  x CAN (ISO/DIS  1898) + 1x RS-485  Ix RS-232 (RX/TX/CTS  EVEN IN TO THE RESERT OF THE	rnet (RJ-45) pe A) pe Micro-AB) 1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated /RTS)
Digital I/O   2	2x In, 2x Out [0.7 A] x 10/100 Mbit/s Ether x 480 Mbit/s Host (Ty x 480 Mbit/s OTG (Typ x CAN (ISO/DIS 1898) + 1x RS-485 2x RS-232 (RX/TX/CTS	pe A) be Micro-AB) 1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated /RTS)
Digital I/O 2 Network 1 USB 2.0 1 CAN Fieldbus / RS-485 1 RS-232 2 Synchronous Serial Interfaces N Video Video Output Audio Speaker Output 1 Audio Internal 1 Display and Touch	x In, 2x Out (0.7 A) x 10/100 Mbit/s Ether x 480 Mbit/s Host (Ty x 480 Mbit/s OTG (Typ x CAN (ISO/DIS 1898) + 1x RS-485 ex RS-232 (RX/TX/CTS	pe A) pe Micro-AB) 1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated /RTS)
Network 1 USB 2.0 1 CAN Fieldbus / RS-485 1 RS-232 2 Synchronous Serial Interfaces N Video Video Output Audio Speaker Output 1 Audio Internal 1 Display and Touch	x 10/100 Mbit/s Ether x 480 Mbit/s Host (Ty x 480 Mbit/s OTG (Typ x CAN (ISO/DIS 1898) + 1x RS-485 ex RS-232 (RX/TX/CTS	pe A) pe Micro-AB) 1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated /RTS)
USB 2.0 1 CAN Fieldbus / RS-485 1 RS-232 2 Synchronous Serial Interfaces N Video Video Output Audio Speaker Output 1 Audio Internal 1 Display and Touch	x 480 Mbit/s Host (Ty x 480 Mbit/s 0TG (Typ x CAN (ISO/DIS 1898) + 1x RS-485 ex RS-232 (RX/TX/CTS FPI up to 12 chip selec	pe A) pe Micro-AB) 1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated /RTS)
CAN Fieldbus / RS-485 1  RS-232 2 Synchronous Serial Interfaces N Video Video Output Audio Speaker Output 1 Audio Internal 1 Display and Touch	x 480 Mbit/s 0TG (Typ x CAN (ISO/DIS 1898) + 1x RS-485 x RS-232 (RX/TX/CTS FPI up to 12 chip selec	e Micro-AB)  1x CAN (ISO/DIS  11898) + 1x RS-485 galvanic isolated /RTS)
CAN Fieldbus / RS-485 1  RS-232 2 Synchronous Serial Interfaces N Video Video Output Audio Speaker Output 1 Audio Internal 1 Display and Touch	x 480 Mbit/s 0TG (Typ x CAN (ISO/DIS 1898) + 1x RS-485 x RS-232 (RX/TX/CTS FPI up to 12 chip selec	e Micro-AB)  1x CAN (ISO/DIS  11898) + 1x RS-485 galvanic isolated /RTS)
CAN Fieldbus / RS-485 1 1 RS-232 2 Synchronous Serial Interfaces N Video Video Video Output Audio Speaker Output 1 Audio Internal 1 Display and Touch	x CAN (ISO/DIS 1898) + 1x RS-485 ex RS-232 (RX/TX/CTS FPI up to 12 chip selec	1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated /RTS)
RS-232 2 Synchronous S Serial Interfaces N Video Video Output Audio Speaker Output 1 Audio Internal 1 Display and Touch	2x RS-232 (RX/TX/CTS GPI up to 12 chip selec	galvanic isolated /RTS)
Synchronous Serial Interfaces  Video Video Output  Audio Speaker Output  Audio Internal Display and Touch	SPI up to 12 chip selec	/RTS)
Synchronous Serial Interfaces  Video Video Output  Audio Speaker Output  Audio Internal Display and Touch	SPI up to 12 chip selec	/RTS)
Synchronous Serial Interfaces  Video Video Output  Audio Speaker Output  Audio Internal Display and Touch	SPI up to 12 chip selec	
Serial Interfaces  Video  Video Output  Audio  Speaker Output  Audio Internal  Display and Touch		
Video Video Output Audio Speaker Output 1 Audio Internal 1 Display and Touch	71	
Audio Speaker Output 1 Audio Internal 1 Display and Touch		
Audio Speaker Output 1 Audio Internal 1 Display and Touch		Full HD micro HDMI
Speaker Output 1 Audio Internal 1 Display and Touch		
Audio Internal 1  Display and Touch	x speaker (connector	1 5W RMS (80)
Display and Touch	x speaker 0.3 W RMS	
	x speaker 0.5 W INMS	(017)
Size 1	0.1 inch/255.85 mm	
	280 x 800 pixel	
	Typ. 850 cd/m <sup>2</sup>	
J	Min. 50 000 h	1
	85°,85°,85°,85° (UDRL	
	24 bit (16.7 Mio. colors	
	projected capacitive m	ulti touch
	ptical bonded	
Housing		
Metal Parts 1	.4016 high quality ste	el 0.8 mm
	mm chemically strer	ngthened
Device Dimensions		
WxHxD 2	264.3 x 181.1 x 37.7 m	m
Weight 1	420 g	
Power Supply		
	Nom. 13 to 32 V DC	
	yp. 28.3 W; max. 42.1	W
Typical Environmental Con		
	101110115	
Humidity 5	20 to +70 °C	

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

#### **SANTOKA DIN RAIL**

## M2M DIN Rail Computer

































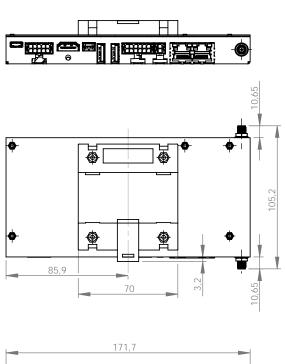


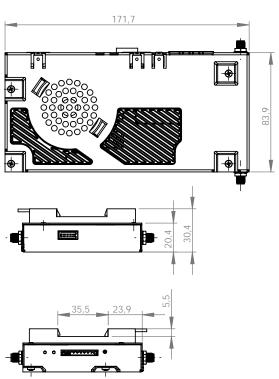




#### **TECHNICAL SPECIFICATION**

#### **SANTOKA DIN Rail Series**





CPU	x1	x2
СРИ Туре	i.MX6Solo	i.MX6Dual
Core Class	ARM Cortex - A9	1.IMV0Nnqf
Core Class	1 GHz	
Core Clock		a acceleration and VFP
Features	operations; Multi-forr	nat HD 1080p video de- deo encoder hardware
HW Accelerators	OpenGL ES 2.0, OpenVG 1.1 (Emulated on 3D GPU)	
RTC	Accuracy: +/- 30 ppm	at 25°C
Memory		
eMMC Flash	4 GB MLC eMMC	
RAM Standard	1 GB 32 bit DDR3L	1 GB 64 bit DDR3L
SD Card Slot	4 bit MMC/SDIO/SD/S	DHC
Operating Systems		
Supported OS	Linux Yocto	
Communcation Interface	:s	
Network	2x 10/100 Mbit/s Ethe	rnet (RJ-45)
	2x 480 Mbit/s Host (Ty	
USB 2.0	1x 480 Mbit/s OTG (Ty	
CAN Fieldbus / RS-485	1x CAN (ISO/DIS 11898) + 1x RS-485	1x CAN (ISO/DIS 11898) + 1x RS-485 galvanic isolated
RS-232	2x RS-232 (RX/TX/CTS	S/RTS)
Synchronous	SPI up to 12 chip sele	cts; I <sup>2</sup> C; Matrix keypad
Serial Interfaces	up to 8 x 8	
Wireless Communication	n	
Wireless	Wifi 802.11 b/g/n; Blu For available mPCIe n	
Video		
Video output		Full HD HDMI
Audio		
Speaker output	1x speaker (connector	-), 1.5W RMS (8Ω)
Speaker output Audio Internal	1x speaker (connector 1x speaker connector	
Audio Internal		
	1x speaker connector output	parallel to external
Audio Internal  Device Dimensions  W x H x D	1x speaker connector output  171.7 x 105.2 x 30.4 m	parallel to external
Audio Internal  Device Dimensions  W x H x D  Weight	1x speaker connector output	parallel to external
Audio Internal  Device Dimensions  W x H x D	1x speaker connector output  171.7 x 105.2 x 30.4 m	parallel to external
Audio Internal  Device Dimensions  W x H x D  Weight	1x speaker connector output  171.7 x 105.2 x 30.4 m	parallel to external
Audio Internal  Device Dimensions  W x H x D  Weight  Power Supply	1x speaker connector output 171.7 x 105.2 x 30.4 m 354 g	parallel to external
Device Dimensions W x H x D Weight Power Supply Supply	1x speaker connector output 171.7 x 105.2 x 30.4 m 354 g Nom. 9 to 32 V DC Typ. 3.3 W; max. 21.2 V	parallel to external
Audio Internal  Device Dimensions  W x H x D  Weight  Power Supply  Supply  Consumption	1x speaker connector output 171.7 x 105.2 x 30.4 m 354 g Nom. 9 to 32 V DC Typ. 3.3 W; max. 21.2 V	parallel to external
Audio Internal  Device Dimensions  W x H x D  Weight  Power Supply  Supply  Consumption  Typical Environmental C	1x speaker connector output  171.7 x 105.2 x 30.4 m 354 g  Nom. 9 to 32 V DC  Typ. 3.3 W; max. 21.2 onditions	parallel to external
Audio Internal  Device Dimensions  W x H x D  Weight  Power Supply  Supply  Consumption  Typical Environmental C  Storage Temp.  Operating Temp.  Humidity	1x speaker connector output  171.7 x 105.2 x 30.4 m 354 g  Nom. 9 to 32 V DC  Typ. 3.3 W; max. 21.2 v  onditions  -20 to +70 °C	parallel to external
Audio Internal  Device Dimensions  W x H x D  Weight  Power Supply  Supply  Consumption  Typical Environmental C  Storage Temp.  Operating Temp.	1x speaker connector output  171.7 x 105.2 x 30.4 m 354 g  Nom. 9 to 32 V DC  Typ. 3.3 W; max. 21.2 v  onditions  -20 to +70 °C 0 to +60 °C	parallel to external
Audio Internal  Device Dimensions  W x H x D  Weight  Power Supply  Supply  Consumption  Typical Environmental C  Storage Temp.  Operating Temp.  Humidity	1x speaker connector output  171.7 x 105.2 x 30.4 m 354 g  Nom. 9 to 32 V DC  Typ. 3.3 W; max. 21.2 v  onditions  -20 to +70 °C 0 to +60 °C	parallel to external m
Audio Internal  Device Dimensions  W x H x D  Weight  Power Supply  Supply  Consumption  Typical Environmental C  Storage Temp.  Operating Temp.  Humidity  Expansion Slot	1x speaker connector output  171.7 x 105.2 x 30.4 m 354 g  Nom. 9 to 32 V DC  Typ. 3.3 W; max. 21.2 v  onditions  -20 to +70 °C 0 to +60 °C 5 to 90 % RH	parallel to external m
Audio Internal  Device Dimensions  W x H x D  Weight  Power Supply  Supply  Consumption  Typical Environmental C  Storage Temp.  Operating Temp.  Humidity  Expansion Slot  mPCle	1x speaker connector output  171.7 x 105.2 x 30.4 m 354 g  Nom. 9 to 32 V DC  Typ. 3.3 W; max. 21.2 v  onditions  -20 to +70 °C 0 to +60 °C 5 to 90 % RH	parallel to external m
Audio Internal  Device Dimensions  W x H x D  Weight  Power Supply  Supply  Consumption  Typical Environmental C  Storage Temp.  Operating Temp.  Humidity  Expansion Slot  mPCle  Housing	1x speaker connector output  171.7 x 105.2 x 30.4 m 354 g  Nom. 9 to 32 V DC  Typ. 3.3 W; max. 21.2 v  onditions  -20 to +70 °C 0 to +60 °C 5 to 90 % RH  mPCle connector (for	parallel to external m
Audio Internal  Device Dimensions  W x H x D  Weight  Power Supply  Supply  Consumption  Typical Environmental C  Storage Temp.  Operating Temp.  Humidity  Expansion Slot  mPCle  Housing  Front	1x speaker connector output  171.7 x 105.2 x 30.4 m 354 g  Nom. 9 to 32 V DC  Typ. 3.3 W; max. 21.2 v  onditions  -20 to +70 °C  0 to +60 °C  5 to 90 % RH  mPCle connector (for	m  W  half size card)

### **SANVITO 10.1 IPS**

#### ARM Cortex-A9 Wall Mount





























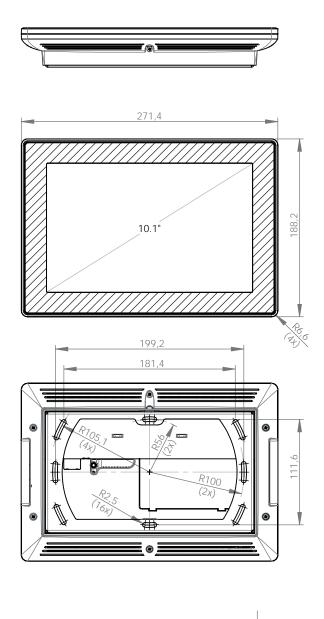






#### **TECHNICAL SPECIFICATION**

### **SANVITO 10.1 IPS**



CPU	x2l
CPU Type	i.MX6 DualLite
Core Class	ARM Cortex - A9
Core Clock	1 GHz
Features	NEON for SIMD media acceleration and VFP operations; Multi-format HD 1080p video decoder and HD 720p video encoder hardware engine; L1 cache, 32 KB for instruction, 32 KB for data
	512 KB L2 cache
HW Accelerators	OpenGL ES 2.0, OpenVG 1.1
RTC	Accuracy: +/- 30 ppm at 25°C
Memory	
eMMC Flash	4 GB eMMC Flash
RAM Standard	1 GB 32 bit DDR3L
Operating Systems	
Supported OS	Linux Yocto, Android
Communication Interfac	
Network	1x 10/100 Mbit/s Ethernet (RJ-45)
USB	1x 480 Mbit/s Host (Type A)
RS-485	1x RS-485 galvanic isolated
Miscellaneous	•
Sensors	Ambient Light Sensor Proximity Sensor
LED	2 colour status LEDs
Audio	
Audio Internal	1x speaker 0.3 W RMS (8Ω) (optional) 1x microphone (optional)
Display and Touch	
Size	10.1 inch/255.85mm
Resolution	1280 x 800 pixel
Brightness	Typ. 420 cd/m <sup>2</sup>
Backlight Lifetime	Min. 50 000 h
Viewing Angle	85°,85°,85°,85° (UDRL)
Color	24 bit (16.7 Mio. colors)
Touch	projected capacitive multi touch
Housing	
Front	3.0 mm toughened glass "anti-glare", RAL 9005, optical bonded with touch and display
Frame	Fine zinc alloy, matt chrome
Rear	ABS-PC black
Ingress Protection	IP30
Device Dimensions	
WxHxD	271.4 x 188.2 x 41.7 mm
Weight	1820g
Power Supply	
Supply Voltage	Nom. 24 V DC or PoE+ (802.3at)
Consumption	Typ. 10.2 W; max. 26.4 W
Typical Environmental C	
Storage Temp.	-20 to +70 °C
Operating Temp.	0 to +40 °C
Humidity	5 to 90 % RH

Expansion Card	
Network	1x additional 10/100 Mbit/s Ethernet (RJ-45) 1x KNX (on request)
Wireless	1x WLAN 1x Bluetooth 5 (PCIe module)

<sup>&</sup>quot;This product can be modified by alternative assembly. Please contact us for available options."

#### SBC and HMI Accessories

#### For extended functionality

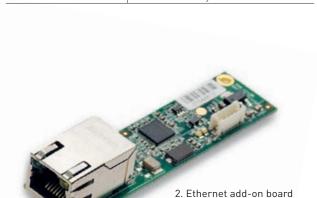
#### Internal Add-On Boards



On SANTARO, Power-over-Ethernet (PoE+) is available as an option. The add-on module can be installed under the hood beside the single board computer

PoE Power over Ethernet	
Standard	802.3at
Outputpower [W]	max. 25
W x H x D [mm]	20.0 x 80.0 x 16.0
Weight [g]	15
Available for	VINCELL, SANTARO

50-Watt-supply	
Power-In	Norm. 12/24 V DC +-15% max. 836 V DC
Power-Out	12 V DC / 50 W
Topology	Step-down (no galvanic isolation) Overvoltage Protection (Surge/Burst) Reverse Polarity Protection



Some applications require a second Ethernet interface for security or just for service reasons. Besides the main Ethernet connection, the additional port is available through a USB-to-Ethernet adaptor. The small adaptor PCB fits into the housing besides the main board.



50-Watt-supply

The on-board power supply is limited to 24 watts for single board computers and display. For applications that require more than that, the optional power adaptor provides up to 50 watts .

Second Ethernet	
Standard	802.3/802.3u (10/100 Mbit)
W x H x D [mm]	20.0 x 80.0 x 16.0
Weight [g]	12
Connection	internal USB Connector
Available for	CUPID, VINCELL, SANTARO

#### **USB Adapter**

Some appliances require a wireless network connection. An external USB dongle is recommended for greater flexibility with different industrial standards and to achieve the optional wireless solution. Our USB dongles provide certified modules for WiFi only, WiFi & Bluetooth and cellular. Drivers are included in the related operating systems.



	WiFi only	WiFi only	WiFi only	WiFi & Bluetooth	Cellular
Manufacturer	LM Technologies	LM Technologies	LM Technologies	LM Technologies	Huawai
Тур	LM808	LM007	LM816	LM817	MS2131i-8
Standards	IEEE 802.11ac/a/b/g/ n/d/e/h/i	802.11 b/g/n	802.11 b/g/n	IEEE 802.11 b/g/n/d/e/h/ Bluetooth v2.1+EDR/ v3.0+HS/v4.0	HSPA+, HSUPA, HSDPA, WCDMA, EDGE, GPRS, GSM
Data rate	Up to 433.3 Mbps	Up to 150 Mbps	Up to 150 Mbps	Up to 54 Mbps	Up to 21.6 Mbits (HSPA+)
Frequency band	2.4 GHz and 5 GHz	2.4 GHz	2.4 GHz	2.4 GHz	EDGE: 850/900/ 1800/1900 MHz GSM/GPRS: 850/900/ 1800/1900 MHz
Operating temperature	-10 °C to +70 °C	-20 °C to +85 °C	-10 °C to +60 °C	0 °C to +50 °C	-20 °C to +55 °C
Supported OS	Linux Yocto, Android	Linux Yocto, Android	Linux Yocto, Android	Linux Yocto, Android	on request

Please contact you sales partner for detailed information, availability and driver support



#### mPCIe Modules

Our new SANTOKA offers a high flexibility with its mPCIe slot. The extension module fits into the housing which offers up to three SMA jacks for the antenna. To achieve the optimal wireless solution, Garz & Fricke offer pre-certified modules for cellular, Bluetooth and/or WiFi. Drivers are included for the respective operating systems.

	WiFi only	WiFi & Bluetooth	Cellular	
Manufacturer	Silex	Sparklan	Quectel	
Тур	SX-PCEAN2i	WPEA-152GN(BT)	EC21-E	
Standards	IEEE 802.11a/b/g/n	IEEE 802.11 b/g/n Bluetooth V4.0 LE; V3.0+HS; V2.1+EDR	LTE category 1	
Data rate	Up to 300 Mbps	Up to 54 Mbps (Wifi) Up to 3 Mpbs (BT EDR)	10Mbit/s downlink and 5Mbit/s uplink	
Frequency band	2.4 GHz and 5 GHz	2.4 GHz	LTE FDD: B1/B3/B5/B7/B8/B20 WCDMA: B1/B5/B8 GSM: B3/B8	
Operating temperature	-40 °C to +85 °C	0 °C to +75 °C	-40 °C to +85 °C	
Supported OS	Linux Yocto, Android	Linux Yocto, Android	Linux Yocto, Android	

Please contact you sales partner for detailed information, availability and driver support

#### Wireless Adapter Compatibility

	SANTINO LT	SANTINO	SANTARO	SANTOKA	SANTVEND
WiFi	USB	USB	USB	USB, mPCle	USB
WiFi & BT	USB	USB	USB	USB, mPCle	not required
ВТ	USB	USB, onboard on request	USB	USB, mPCle	onboard
Cellular	USB	USB	USB	USB, mPCle	onboard



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#### **General Information**

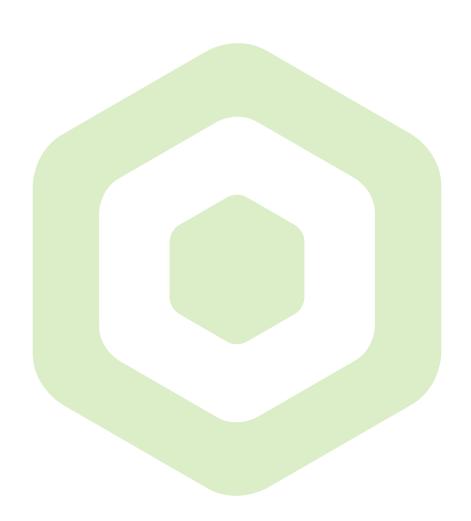
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#### Drawings

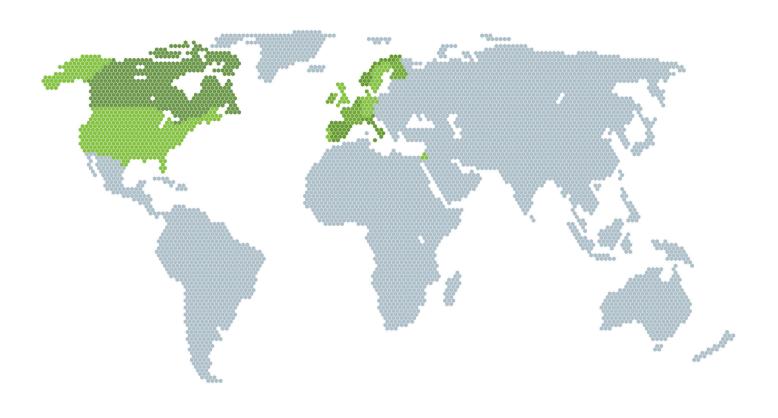
All drawings shown in this catalogue are schematic drawings. For exact technical drawings pleasecontact our sales team or product manager.

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## **PARTNER NETWORK**

Territories as per end of 2017





#### **Cynetis Embedded**

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