SIGMATEK

VISUALIZE AND **OPERATE: HMI**

EN

CONTENTS

HMI PHILOSOPHY

For the human-machine interface, the following applies: it should be modern, clear and above all, user-friendly.

Depending on the scope and complexity of your application, you can choose between built-in operating panels, HMIs for swing arm mount and mobile panels – naturally in different display sizes, with different processors and interfaces. The LASAL SCREEN HMI tool and our web-based LASAL VISUDesigner (HTML5, CSS3, JavaScript) offer you flexibility when creating the visualization.

In view of networked, intelligent factories, we focus on flexible two and multi-CPU solutions, in which visualization and sequence control are separated. Our operating panels with single or multi-touch screen format, combined with the compact S-DIAS control and I/O system, offer an efficient, high-performance solution for adaptive production machines and systems 4.0.

The ergonomically designed mobile panels provide you with high freedom of movement for visualization, operation and monitoring directly on-site – with cable or wireless. Additionally, our wireless HMIs are also available, with safety functions (SIL 3, PL e).

All SIGMATEK operating panels are produced in Austria. They are designed for long-term operation in harsh environments. Before our HMIs are delivered, they are fully tested to ensure the highest quality.

OPERATING COMFORT MEETS „ZEITGEIST“

GET IN MULTI-TOUCH

Multi-touch operating panels give machines and systems a modern „Face“ and enable smart visualization and operating concepts, which provide a positive user experience.

Multi-finger inputs enable intuitive operation of machines and systems. In SIGMATEK multi-touch HMIs, projective capacitive touch (PCT) technology is used. Sensors are protected behind robust, solid glass fronts.

PCT can be used for added safety in handling machines and equipment, as when two buttons must be pressed at the same time.

The widescreen panels cut a good figure in both portrait and landscape format.

WIDESCREEN PANELS: EVERYTHING IN VIEW

For demanding and modern visualizations, our widescreen HMIs are the best choice. The widescreen format provides great clarity and freedom when configuring operating elements and contents.

The thin HMIs are available in seven display sizes from 10.1 to 23.8 inches. Whether in vertical or horizontal format – the widescreen panels are equipped for any situation. You can also find variants for swing arm mounting.

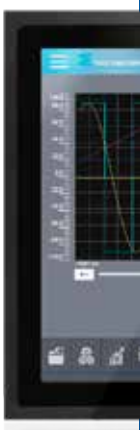
HIGHEST FLEXIBILITY

Our widescreen HMIs are available with different processors: EDGE2 Technoloy for simpler visualization projects, EDGE3 Technology and x86 processors for higher requirements and for web visualizations. In combination with our lean, Linux-based real-time operating system, fluid page loading is guaranteed. With web panels, the integrated web browser or server enhances user operability.

The widescreen panels are also available with HMI-Link so that they can be located up to 100 m away from the control cabinet PC (details on page 6).

Communication standards such as OPC UA Client/Server and MQTT are supported. The numerous standard interfaces are positioned for easy user access.

Customer-specific HMI designs are also possible (e.g. housing, protection type).



HOT FACTS

MODERN
projective capacitive multi-touch (PCT technology), wide screen

HIGH PERFORMANCE
the right processor for any visualization task

OPEN
simple system integration thanks to many interfaces, OPC UA connectivity

7 inches	1024 x 600	px
10.1 inches	1280 x 800	px
12.1 inches	1280 x 800	px
15.6 inches	1366 x 768	px
18.5 inches	1366 x 768	px
21.5 inches	1920 x 1080	px
23.8 inches	1080 x 1920	px

FIT FOR THE CHALLENGES OF INDUSTRY 4.0

MULTI-CPU SOLUTIONS

With Smart Factories and Industry 4.0 in sight, we focus – especially for complex applications – on modular, decentralized control solutions that make your machines future-proof.

With a single-CPU solution, the danger exists that in the course of its life cycle, the CPU may reach its performance limits as applications are expanded. Through a clean separation of sequence control and visualization, optimal software design is achieved.

MODULAR INTO THE FUTURE

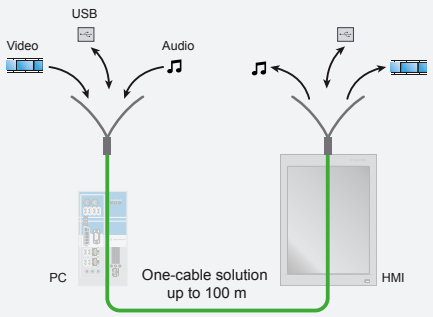
With modular, decentralized automation solutions, application computing power can be scaled as required. The system can be flexibly expanded and adapted to new requirements. In SIGMATEK standard solutions, economic ARM-based processors are used so that the price of the multi-CPU solution is comparable to that of a single-CPU solution yet superior in terms of flexibility.

SOFTWARE AS A SUCCESS FACTOR

LASAL, our object-oriented engineering tool, combines the most modern programming technology with high efficiency and supports modern communication standards such as OPC UA and MQTT. Manufacturer and platform-independent data exchange in an intelligent control network of machines and systems is therewith ensured. Modern object-oriented programming concepts simplifiy software code modularity, reusability, and improve diagnostics. Application development time and maintenance downtime are significantly reduced.

DATA FLOW REDEFINED

When several distributed machines and system components interact with one another, data flow between the networked control intelligences must be perfectly managed. In the LASAL engineering environment, the "Machine Manager" is therefore responsible. It enables the clearly organized display of individual software projects in a machine or system and regulates the communication of distributed intelligences: Who can exchange which data with whom. Data exchange with external installation components and the connection of managing systems can also be clearly implemented with the help of the Machine Manager.



REMOTE SOLUTIONS FOR UP TO 100 M: HMI-LINK:

One cable, more power and long distances – those are the advantages of HMI-Link technology, which was developed for remote solutions. With a standard Cat5e or Cat6 cable, video (full HD), touch, audio and USB signals can be transmitted loss-free up to 100 meters between operating panels and SIGMATEK's 400-series industrial PCs or CP 851/951 CPU units.

HMI-Link is based on a pure harware solution and is operating system-independent. The HMI-Link panels have no internal main processor and are therefore more mechanically robust and economic. A possible increase of computing power occurs in the control unit in the cabinet.

OPERATING PANELS WITH RESISTIVE TOUCH SCREENS

THE CLASSIC

While developing our resistive operating panels, we focused on a compact design and usability.

The selection of our operating panels, with resistive TFT color touch screens range from 3.5-inch small format to 19 inches in portrait format. Interfaces such as Ethernet, CAN, USB, HMI-Link, display port and RS232 ensure that the operating panels find the right connection.

COMFORTABLE EXTRAS

For extensive visualization tasks, operating panels with wide screen and EDGE2 Technology processors provide the user with added operating comfort. The application can be conveniently created with prefabricated visualization elements in the HMI tool LASAL SCREEN.

All resistive panels are fanless. HMI solutions for special environmental conditions and industry-specific requirements (food processing and pharmaceutical industry), are also available. Customer-specific panel configurations are possible – from special front foils to individual HMI solutions.

HOT FACTS

VERSATILITY
in sizes and interfaces

COMFORTABLE
simple screen design with the all-in-one engineering tool LASAL

ADAPTABLE
the right operating panel for any task – customer-specific configurations also possible

HOT FACTS

OPERATING FREEDOM
with cable or wireless (WLAN)

WORK FATIGUE-FREE
ergonomic design and
low weight (950 g - 1,390 g)

RELIABLE OPERATION
Safety elements integrated

The wireless operating panel HGW 1033-3 with safety and a multi-touch screen redefines operating freedom.

FREEDOM DIRECTLY ON-SITE

MOBILE PANELS

If operating and monitoring demands mobility, our handheld operating panels are the right choice.

Equipped with an 8.4, 10.1 or 10.4-inch color touch display, our mobile HMIs offer machine operation, visualization and monitoring directly on site. The compact panels with their robust housing concept are available in different configurations.

- HGT panels with EDGE2 or EDGE3 (web visualization) Technology processor and interfaces such as Industrial Ethernet VARAN, Ethernet and USB

- HBG panel with integrated HMI-Link (loss-free data transfer up to a 100 m distance – see page 6)

Both versions have a 3-stage confirmation button, emergency stop button and key switch, so that nothing stands in the way of safe operation of robots, machines or systems (SIL 3, PL e, Cat. 4).

WITH WLAN & SAFETY

The wireless panel series HGW 1033 brings a new measure of operating freedom. All HGW panels are equipped with an EDGE2 Technology processor and a 10.1 inch multi-touch screen. Despite the integrated battery pack they only weigh between 1,270 and 1,390 g.

Our wireless HGW family offers a wide range of variants: with or without Safety functions, with or without encoders at the front, in portrait or landscape format. For extensive systems, the „Wireless Roaming Feature“ enables a reliable WLAN connection.

Lightweight and ergonomically designed, all our mobile HMIs offer a comfortable user experience.

With the web-based LASAL VISUDesigner, hardware-independent, high-performance visualizations can be easily configured.

HMI-TOOLS: INTEGRATED, MODERN AND USER-FRIENDLY

STRONG VISUALIZATION

Modern operating concepts and visualization tasks can be implemented conveniently, flexibly and quickly with the LASAL HMI tools.

The HMI tools SCREEN and the web-based VISUDesigner are a part of the object-oriented engineering environment LASAL. Modern and complete visualizations can be created in the graphic editor without programming knowledge.

In both, SCREEN and the VISUDesigner, pre-constructed templates and versatile operating, graphic and design elements enable you to comfortably create your visualization in your corporate design. Scalable vector graphics (.svg) can be implemented in LASAL VISUDesigner.

Naturally, features such as alarm and event management, trend display, text and recipe management, as well as language and unit conversion are integrated into both HMI tools.

WEB-VISUALIZATION

The LASAL VISUDesigner is based on current web technologies: HTML5, CSS3 and JavaScript. For you, the advantage is that visualization, largely independent of hardware, can run on a wide variety of HMIs. Logic and optics are separated from each other and can therefore be easily changed and reused.

HOT FACTS

COMFORTABLE
extensive graphic library

EFFICIENT
direct access to variables,
alarm, event and file management,
recipe manager etc.

ANY NUMBER OF LANGUAGES
in one project, input of text
information in ASCII and Unicode

FROM 3.5 TO 23.8 INCHES

HMI PARADE

The TT 1564 is a 15.6 inch multitouch web HMI for the swing arm mount.

The TAE 2343 operating panel offers a 23.8-inch multi-touch screen in portrait format with HMI-Link technology.

Small panels for operating and monitoring are already available from 3.5 inches - here the ETT 312.

3.5 INCHES

PRODUCT NAME ARTICLE NUMBER	Operating Panel **ETT 312** | 01-230-312	Operating Panel **ETT 352** | 01-230-352-1	Operating Panel **ETT 353** | 01-230-353
TOUCH	resistive – 3.5“	resistive – 3.5“	resistive – 3.5“
PROCESSOR	–	–	–
INTERFACES	1x CAN	1x CAN	1x CAN
RESOLUTION	320 x 240 pixels (RGB)	320 x 240 pixels (RGB)	320 x 240 pixels (RGB)
FRONT PROTECTION TYPE	IP65	IP30	IP54
FRONT MATERIAL	aluminium	plastic	plastic
SPECIALS	–	–	–
DIMENSIONS (WxHxD)	104 x 100 x 38 mm	93 x 93 x 12 mm	110 x 157 x 59 mm

4.3 INCHES

PRODUCT NAME ARTICLE NUMBER	Operating Panel **ETT 412** | 01-230-412
TOUCH	capacitive (single-touch) – 4.3“
PROCESSOR	–
INTERFACES	1x CAN
RESOLUTION	480 x 272 pixels (RGB)
FRONT PROTECTION TYPE	IP65
FRONT MATERIAL	glass/aluminium
SPECIALS	–
DIMENSIONS (WxHxD)	132 x 94 x 35.5 mm

7 INCHES

PRODUCT NAME ARTICLE NUMBER	Operating Panel **ETT 731** | 01-230-731	Operating Panel **ETT 732** | 01-230-732	Operating Panel **ETT 7321** | 01-230-7321
TOUCH	resistive – 7“	capacitive (multi-touch PCT) – 7“	capacitive (multi-touch PCT) – 7“
PROCESSOR	EDGE2 Technology (1x 800 MHz)	EDGE2 Technology (1x 800 MHz)	EDGE2 Technology (1x 800 MHz)
INTERFACES	1x Ethernet, 2x CAN, 2x USB 2.0, 1x RS232	1x Ethernet, 2x CAN, 1x USB 2.0, 1x RS232	1x Ethernet, 1x CAN, 1x USB 2.0 Typ A
RESOLUTION	800 x 480 pixels (WVGA)	800 x 480 pixels (WVGA)	800 x 480 pixels (WVGA)
FRONT PROTECTION TYPE	IP54	IP54	IP65
FRONT MATERIAL	aluminium	glass/aluminium	glass/aluminium
SPECIALS	–	–	Support arm mounting
DIMENSIONS (WxHxD)	180 x 135 x 41 mm	184 x 139 x 42 mm	184 x 139 x 46.5 mm

PRODUCT NAME ARTICLE NUMBER	Operating Panel **ETT 736** | 01-230-736	Operating Panel **ETT 771** | 01-230-771	Operating Panel **ETT 775** | 01-230-775
TOUCH	resistive – 7“	resistive – 7“	resistive – 7“
PROCESSOR	EDGE2 Technology (2x 800 MHz)	EDGE2 Technology (1x 800 MHz)	EDGE2 Technology (1x 800 MHz)
INTERFACES	2x Ethernet, 1x CAN, 1x USB-OTG, 1x USB 2.0	1x Ethernet, 1x CAN, 1x RS232, 1x RS485/Modbus RTU	1x Ethernet, 1x CAN, 1x USB 2.0, 1x USB 1.1, 1x RS232, 1x RS485/Modbus RTU, 1x TTY
RESOLUTION	800 x 480 pixels (WVGA)	800 x 480 pixels (WVGA)	800 x 480 pixels (WVGA)
FRONT PROTECTION TYPE	IP65	IP54	IP54
FRONT MATERIAL	front foil with underlying touch sensor in glass-beaded stainless steel frame	aluminium	aluminium
SPECIALS	8 digital inputs/outputs each	USB-OTG for service purposes	–
DIMENSIONS (WxHxD)	208 x 163 x 43 mm	180 x 135 x 50 mm	180 x 135 x 50 mm

PRODUCT NAME **ARTICLE NUMBER**	Operating Panel **ETT 764** | 01-230-764
TOUCH	capacitive (multi-touch PCT) – 7“
PROCESSOR	EDGE3 Technology (4x 1.6 GHz)
INTERFACES	2x Ethernet, 1x USB-OTG, 2x USB
RESOLUTION	1024 x 600 pixels (WSVGA)
FRONT PROTECTION TYPE	IP65
FRONT MATERIAL	glass/aluminium
SPECIALS	–
DIMENSIONS (WxHxD)	191 x 128 x 33 mm

8.4 + 10.4 INCHES

PRODUCT NAME **ARTICLE NUMBER**	Mobile Panel **HGT 835** | 01-245-835	Mobile Panel **HGT 1035** | 01-245-1035
TOUCH	resistive – 8.4“	resistive – 10.4“
PROCESSOR	EDGE2 Technology (2x 800 MHz)	EDGE2 Technology (2x 800 MHz)
INTERFACES	1x Ethernet, 1x VARAN, 1x USB 2.0	1x Ethernet, 1x VARAN, 1x USB 2.0
RESOLUTION	800 x 600 pixels	1024 x 768 pixels
FRONT PROTECTION TYPE	IP54	IP54
FRONT MATERIAL	PC/ASA	PC/ASA
SPECIALS	emergency stop, confirmation button, key switch	emergency stop, confirmation button, key switch
DIMENSIONS (WxHxD)	217 x 188 x 72 mm	264 x 226 x 73 mm

10.1 INCHES

PRODUCT NAME ARTICLE NUMBER	Mobile Operating Panel **HGT 1053** | 01-245-1053 EDGE3 **HGT 1051** | 01-245-1051 EDGE2	Wireless Panel with Safety **HGW 1033** 12-246-1033-3 12-246-1033-32 Rotary encoder	Wireless Panel without Safety **HGW 1033** 12-246-1033 Portrait format 12-246-1033-01 Landscape format
TOUCH	capacitive (multi-touch PCT) – 10.1“	capacitive (multi-touch PCT) – 10.1“	capacitive (multi-touch PCT) – 10.1“
PROCESSOR	see above list of variants	EDGE2 Technology (2x 800 MHz)	EDGE2 Technology (2x 800 MHz)
INTERFACES	see info box „Technology“	1x USB 2.0 Typ-A, 1x USB 2.0 Typ-C DRP	1x USB 2.0 Typ-A, 1x USB 2.0 Typ-C DRP
RESOLUTION	800 x 1280 pixels	800 x 1280 pixels	800 x 1280 pixels
FRONT PROTECTION TYPE	IP54	IP54	IP54
FRONT MATERIAL	glass - PC/ASA	glass - PC/ASA	glass - PC/ASA
SPECIALS	emergency stop, confirmation button, key switch	emergency stop, confirmation button, key switch	
DIMENSIONS (WxHxD)	226 x 264 x 76 mm (without emergency stop)	226 x 264 x 76 mm (without emergency stop)	226 x 264 x 76 mm

PRODUCT NAME ARTICLE NUMBER	Mobile Operating Panel **HBG 1012** | 12-245-1012	Operating Panel **ETT 1044** | 01-230-1044 x86 **ETT 1054-W** | 01-230-1054-W x86 **ETT 1064** | 01-230-1064 EDGE3 **ETT 1034** | 01-230-1034 EDGE2 **TAE 1044** | 12-200-1044 HMI-LINK
TOUCH	capacitive (multi-touch PCT) – 10.1“	capacitive (multi-touch PCT) – 10.1“
PROCESSOR	–	see above list of variants
INTERFACES	1x USB 2.0, 1x HMI-Link Gen 2.1	see info box „Technology“
RESOLUTION	1280 x 800 pixels	1280 x 800 pixels (WXGA)
FRONT PROTECTION TYPE	IP54	IP65
FRONT MATERIAL	glass - PC/ASA	glass/aluminium
SPECIALS	emergency stop, confirmation button, key switch	Windows variant
DIMENSIONS (WxHxD)	264 x 226 x 76 mm (without emergency stop)	264 x 183 mm - variable depth

12.1 INCHES

PRODUCT NAME **ARTICLE NUMBER**	Operating Panel **ETT 1244** | 01-230-1244 x86 **ETT 1264** | 01-230-1264 EDGE3 **ETT 1234** | 01-230-1234 EDGE2 **TAE 1244** | 12-200-1244 HMI-LINK
TOUCH	capacitive (multi-touch PCT) – 12.1“
PROCESSOR	see above list of variants
INTERFACES	see info box „Technology“
RESOLUTION	1280 x 800 pixels (WXGA)
FRONT PROTECTION TYPE	IP65
FRONT MATERIAL	glass/aluminium
SPECIALS	–
DIMENSIONS (WxHxD)	313 x 215 mm - variable depth

TECHNOLOGY

x86

x86 processor (Intel® Celeron®), dual core, 2.0 GHz (2.7 GHz)
Memory (RAM): 2 GByte DDR4
Storage drive: 64 GB SATA M.2 SSD
Interfaces: 2x Ethernet, 4x USB 2.0, 1x Displayport
OS: Gecko, for HMIs with ending -W: Windows 10 IoT

EDGE3

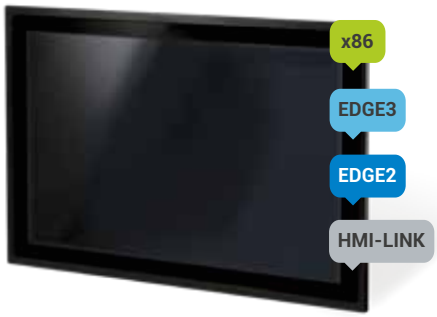
EDGE3 Technology processor (I.MX8), quad-core, 1.6 GHz
Memory (RAM): 2 GB (DDR4)
Storage drive: 2 GByte
Remanent data storage: 128 kByte FRAM
Interfaces: 2x Ethernet, 2x USB 2.0, 1x USB-OTG
OS: Gecko

EDGE2

EDGE2 Technology processor (I.MX6), dual core, 800 MHz
Memory (RAM): 1 GByte
Storage drive: 1 GByte microSD card
Remanent data storage: 512 kByte SRAM
Interfaces: 2x Ethernet, 1x USB 2.0, 1x USB Online
OS: Salamander

HMI-LINK

HMI-LINK Generation 2/2.1: Transmission of display and USB signals via standard Ethernet cable (CAT-5e or CAT-6) from a PC up to 100 m away to the panel Interfaces: 2x USB 2.0, 1x HMI-Link Gen. 2/2.1



15 + 15.6 INCHES

PRODUCT NAME **ARTICLE NUMBER**	Operating Panel **TT 1533** | 01-270-1533	Operating Panel **ETT 1544** | 01-230-1544 x86 **ETT 1564*** | 01-230-1564 EDGE3 **ETT 1534** | 01-230-1534 EDGE2 **TAE 1544** | 12-200-1544 HMI-LINK	Operating Panel **TT 1564** | 01-270-1564
TOUCH	capacitive (multi-touch PCT) – 15“	capacitive (multi-touch PCT) – 15.6“	capacitive (multi-touch PCT) – 15.6“
PROCESSOR	EDGE2 Technology (2x 800 MHz)	see above list of variants	EDGE3 Technology (4 x 1.6 GHz)
INTERFACES	2x Ethernet, 1x CAN, 4x USB 2.0	see info box „Technology“	3x USB 2.0 Typ A, 1x USB 2.0 Typ Mini-B OTG, 2x Ethernet, 1x microSD Kartenhalter (SD 3.0)
RESOLUTION	1024 x 768 pixels (XGA)	1366 x 768 pixels (WXGA)	1920 x 1080 pixels (Full HD)
FRONT PROTECTION TYPE	IP54	IP65	IP54
FRONT MATERIAL	glass/aluminium	glass/aluminium	glass/aluminium
SPECIALS	swing arm mount (VESA 75)	–	swing arm mount (VESA 100)
DIMENSIONS (WxHxD)	358 x 342 x 48 mm	398 x 248 mm - variable depth	401 x 300 x 47 mm

*in preparation

18.5 INCHES

PRODUCT NAME ARTICLE NUMBER	Operating Panel **TT 1933-S** | 01-270-1933-S	Operating Panel **ETT 1844** | 01-230-1844 x86 **ETT 1864*** | 01-230-1864 EDGE3 **ETT 1834** | 01-230-1834 EDGE2 **TAE 1844** | 12-200-1844 HMI-LINK
TOUCH	capacitive (multi-touch PCT) – 18.5“	capacitive (multi-touch PCT) – 18.5“
PROCESSOR	EDGE2 Technology (2x 800 MHz)	See above list of variants
INTERFACES	2x Ethernet, 3x USB 2.0	See info box „Technology“
RESOLUTION	1366 x 768 pixels	1366 x 768 pixels
FRONT PROTECTION TYPE	IP54	IP65
FRONT MATERIAL	glass/aluminium	glass/aluminium
SPECIALS	swing arm mount (VESA 75/100)	–
DIMENSIONS (WxHxD)	472 x 345 x 44 mm	464 x 285 mm - variable depth

19 INCHES

PRODUCT NAME ARTICLE NUMBER	Operating Panel **ETT 1962** | 01-230-1962	Operating Panel **TAE 1941** | 12-200-1941	Operating Panel **TAE 1931** | 12-200-1931
TOUCH	resistive – 19“	resistive – 19“	resistive – 19“
PROCESSOR	EDGE2 Technology (2x 800 MHz)	–	–
INTERFACES	2x Ethernet, 2x USB 2.0	2x USB 2.0, 1x HMI-Link G2	3x USB 2.0, 1x Displayport
RESOLUTION	1024 x 1280 pixels	1024 x 1280 pixels	1024 x 1280 pixels
FRONT PROTECTION TYPE	IP54	IP54	IP54
FRONT MATERIAL	PC/ASA	PC/ASA	PC/ASA
SPECIALS	–	–	–
DIMENSIONS (WxHxD)	360 x 462 x 57 mm	360 x 462 x 57 mm	360 x 462 x 57 mm

21.5 + 23.8 INCHES

PRODUCT NAME ARTICLE NUMBER	Operating Panel **ETT 2144** | 01-230-2144 x86 **ETT 2154-W** | 01-230-2154-W x86 **ETT 2164*** | 01-230-2164 EDGE3 **ETT 2134** | 01-230-2134 EDGE2 **TAE 2144** | 12-200-2144 HMI-LINK	Operating Panel **TAE 2343** | 12-200-2343
TOUCH	capacitive (multi-touch PCT) – 21.5“	capacitive (multi-touch PCT) – 23.8“
PROCESSOR	see above list of variants	–
INTERFACES	see info box „Technology“	1x HMI-Link G2, 1x USB 2.0, 1x RFID-Leser
RESOLUTION	1920 x 1080 pixels (Full HD)	1080 x 1920 pixels (Full-HD)
FRONT PROTECTION TYPE	IP65	IP54
FRONT MATERIAL	glass/aluminium	glass
SPECIALS	Windows variant	swing arm mount (VESA 75)
DIMENSIONS (WxHxD)	539 x 331 mm - variable depth	385 x 665 x 49 mm

TECHNOLOGY

x86

x86 processor (Intel® Celeron®), dual core, 2.0 GHz (2.7 GHz)
Memory (RAM): 2 GByte DDR4
Storage drive: 64 GB SATA M.2 SSD
Interfaces: 2x Ethernet, 4x USB 2.0, 1x Displayport
OS: Gecko, for HMIs with ending -W: Windows 10 IoT

EDGE3

EDGE3 Technology processor (I.MX8), quad-core, 1.6 GHz
Memory (RAM): 2 GB (DDR4)
Storage drive: 2 GByte
Remanent data storage: 128 kByte FRAM
Interfaces: 2x Ethernet, 2x USB 2.0, 1x USB-OTG
OS: Gecko

EDGE2

EDGE2 Technology processor (I.MX6), dual core, 800 MHz
Memory (RAM): 1 GByte
Storage drive: 1 GByte microSD card
Remanent data storage: 512 kByte SRAM
Interfaces: 2x Ethernet, 1x USB 2.0, 1x USB Online
OS: Salamander

HMI-LINK

HMI-LINK Generation 2/2.1: Transmission of display and USB signals via standard Ethernet cable (CAT-5e or CAT-6) from a PC up to 100 m away to the panel Interfaces: 2x USB 2.0, 1x HMI-Link Gen. 2/2.1

*in preparation

WEB VISUALIZATION	ARTICLE DESCRIPTION	BUILD-IN PANELS	MOUNTABLE PANELS	MOBILE PANELS	DISPLAY SIZE	DISPLAY RESOLUTION (PIXELS)	TOUCH	FRONT PROTECTION	PROCESSOR	CORES	CLOCK FREQUENCY	USB DEVICE	USB HOST FRONT	USB HOST BACK	ETHERNET	CAN
Widescreen Operating Panels - capacitive multi-touch																
	ETT 412	x			4,3"	480 x 272	capacitive	IP65								x
	ETT 732	x			7"	800 x 480	capacitive	IP54	EDGE2	1	800 MHz			x	x	2x
	ETT 7321		x		7“	800 x 480	capacitive	IP65	EDGE2	1	800 MHz			x	x	x
5	**ETT 764**	x			7“	1024 x 600	capacitive	IP65	EDGE3	4	1.6 GHz	OTG		2x	2x	
	ETT 1034	x			10.1"	1280 x 800	capacitive	IP65	EDGE2	2	800 MHz	OTG		x	2x	
5	**ETT 1044**	x			10.1"	1280 x 800	capacitive	IP65	x86	2	2.0-2.7 GHz			4x	2x	
	TAE 1044	x			10.1"	1280 x 800	capacitive	IP65						2x		
5	**ETT 1054-W**	x			10.1“	1280 x 800	capacitive	IP65	x86	4	1.5-2.8 GHz			4x	2x	
5	**ETT 1064**	x			10.1“	1280 x 800	capacitive	IP65	EDGE3	4	1,6 GHz	OTG		2x	2x	
	ETT 1234	x			12.1"	1280 x 800	capacitive	IP65	EDGE2	2	800 MHz	OTG		x	2x	
5	**ETT 1244**	x			12.1"	1280 x 800	capacitive	IP65	x86	2	2.0-2.7 GHz			4x	2x	
	TAE 1244	x			12.1"	1280 x 800	capacitive	IP65						2x		
5	**ETT 1264**	x			12.1“	1280 x 800	capacitive	IP65	EDGE3	4	1.6 GHz	OTG		2x	2x	
	TT 1533		x		15"	1024 x 768	capacitive	IP54	EDGE2	2	800 MHz		2x	2x	2x	x
	ETT 1534	x			15.6"	1366 x 768	capacitive	IP65	EDGE2	2	800 MHz	OTG		x	2x	
5	**ETT 1544**	x			15.6"	1366 x 768	capacitive	IP65	x86	2	2.0-2.7 GHz			4x	2x	
	TAE 1544	x			15.6"	1366 x 768	capacitive	IP65						2x		
5	**ETT 1564***	x			15.6“	1366 x 768	capacitive	IP65	EDGE3	4	1.6 GHz	OTG		2x	2x	
5	**TT 1564**	x			15.6"	1920x1080	capacitive	IP54	EDGE3	4	1,6 GHz	OTG	x	2x	2x	
	ETT 1834	x			18.5"	1366 x 768	capacitive	IP65	EDGE2	2	800 MHz	OTG		x	2x	
5	**ETT 1844**	x			18.5"	1366 x 768	capacitive	IP65	x86	2	2.0-2.7 GHz			4x	2x	
	TAE 1844	x			18.5"	1366 x 768	capacitive	IP65						2x		
5	**ETT 1864***	x			18.5“	1366 x 768	capacitive	IP65	EDGE3	4	1.6 GHz	OTG		2x	2x	
	TT 1933-S		x		18.5"	1366 x 768	capacitive	IP54	EDGE2	2	800 MHz		2x	x	2x	
	ETT 2134	x			21.5"	1920 x 1080	capacitive	IP65	EDGE2	2	800 MHz	OTG		x	2x	
5	**ETT 2144**	x			21.5"	1920 x 1080	capacitive	IP65	x86	2	2.0-2.7 GHz			4x	2x	
	TAE 2144	x			21.5"	1920 x 1080	capacitive	IP65						2x		
5	**ETT 2154-W**	x			21.5“	1920 x 1080	capacitive	IP65	x86	4	1.5-2.8 GHz			4x	2x	
5	**ETT 2164***	x			21.5“	1920 x 1080	capacitive	IP65	EDGE3	4	1.6 GHz	OTG		2x	2x	
	TAE 2343		x		23.8"	1080 x 1920	capacitive	IP54					x			

*in preparation

HMI-LINK	DISPLAY PORT	RS232	RS485 / MODBUS RTU	RAM	FLASH	REMNANT DATA	CHARACTERISTICS	ARTICLE NUMBER	PAGE
							single-touch	01-230-412	13
		x		256 MB DDR3	512 MB (NAND)	256 kB SRAM		01-230-732	14
				256 MB DDR3	512 MB (NAND)	256 kB SRAM		01-230-7321	14
				2 GB DDR4	2 GB (EMMC)	128 kB FRAM		01-230-764	15
				1 GB DDR3	1 GB microSD	512 kB SRAM		01-230-1034	16
	x			2 GB DDR4				01-230-1044	16
x							HMI-Link G2.1	12-200-1044	16
	x			4 GB DDR4			Windows 10 IoT operating system	01-230-1054-W	16
				2 GB DDR4	2 GB (EMMC)	128 kB FRAM		01-230-1064	16
				1 GB DDR3	1 GB microSD	512 kB SRAM		01-230-1234	17
	x			2 GB DDR4				01-230-1244	17
x							HMI-Link G2.1	12-200-1244	17
				2 GB DDR4	2 GB (EMMC)	128 kB FRAM		01-230-1264	17
				512 MB DDR3	1 GB microSD	512 kB MRAM	swing arm mount	01-270-1533	17
				1 GB DDR3	1 GB microSD	512 kB SRAM		01-230-1534	17
	x			2 GB DDR4				01-230-1544	17
x							HMI-Link G2.1	12-200-1544	17
				2 GB DDR4	2 GB (EMMC)	128 kB FRAM		01-230-1564	17
				2 GB DDR4	2 GB (EMMC)	128 kB FRAM	swing arm mount, full HD	01-270-1564	17
				1 GB DDR3	1 GB microSD	512 kB SRAM		01-230-1834	18
	x			2 GB DDR4				01-230-1844	18
x							HMI-Link G2.1	12-200-1844	18
				2 GB DDR4	2 GB (EMMC)	128 kB FRAM		01-230-1864	18
				512 MB DDR3	1 GB microSD	512 kB MRAM	swing arm mount	01-270-1933-S	18
				1 GB DDR3	1 GB microSD	512 kB SRAM		01-230-2134	19
	x			2 GB DDR4				01-230-2144	19
x							HMI-Link G2.1	12-200-2144	19
	x			4 GB DDR4			Windows 10 IoT operating system	01-230-2154-W	19
				2 GB DDR4	2 GB (EMMC)	128 kB FRAM		01-230-2164	19
x							HMI-Link G2, swing arm mount, full HD, RFID-Reader	12-200-2343	19

WEB VISUALIZATION	ARTICLE DESCRIPTION	BUILD-IN PANELS	MOUNTABLE PANELS	MOBILE PANELS	DISPLAY SIZE	DISPLAY RESOLUTION (PIXELS)	TOUCH	FRONT PROTECTION	PROCESSOR	CORES	CLOCK FREQUENCY	USB DEVICE	USB HOST FRONT	USB HOST BACK	ETHERNET	VARAN	CAN
OPERATING PANELS - resistive single-touch																	
	ETT 312	x			3.5"	320 x 240	resistive	IP65									x
	ETT 352	x			3.5"	320 x 240	resistive	IP30									x
	ETT 353		x		3.5"	320 x 240	resistive	IP54									x
	ETT 731	x			7"	800 x 480	resistive	IP54	EDGE2	1	800 MHz		x	x	x		2x
	ETT 736	x			7“	800 x 480	resistive	IP65	EDGE2	2	800 MHz			1x	2x		x
	ETT 771	x			7"	800 x 480	resistive	IP54	EDGE2	1	800 MHz				x		x
	ETT 775	x			7"	800 x 480	resistive	IP54	EDGE2	1	800 MHz	OTG	x		x		x
	ETT 1962	x			19"	1024 x 1280	resistive	IP54	EDGE2	2	800 MHz		x	x	2x		
	TAE 1931	x			19"	1024 x 1280	resistive	IP54					x	2x			
	TAE 1941	x			19"	1024 x 1280	resistive	IP54					x	x			
MOBILE PANELS - capacitive multi-touch & resistive single-touch																	
	HGT 835			x	8.4"	800 x 600	resistive	IP54	EDGE2	2	800 MHz			x	x	x	
	HBG 1012			x	10.1"	1024 x 768	capacitive	IP54							x		
	HGW 1033			x	10.1"	800 x 1280	capacitive	IP54	EDGE2	2	800 MHz	DRP		x			
	HGW 1033-01			x	10.1"	1280 x 800	capacitive	IP54	EDGE2	2	800 MHz	DRP		x			
	HGW 1033-3			x	10.1"	800 x 1280	capacitive	IP54	EDGE2	2	800 MHz	DRP		x			
	HGW 1033-32			x	10.1"	800 x 1280	capacitive	IP54	EDGE2	2	800 MHz	DRP		x			
	HGT 1035			x	10.4"	1024 x 768	resistive	IP54	EDGE2	2	800 MHz			x	x	x	
	HGT 1051			x	10.1"	800 x 1280	capacitive	IP54	EDGE2	2	800 MHz			x	2x		
5	**HGT 1053**			x	10.1"	800 x 1280	capacitive	IP54	EDGE3	4	1.6 GHz			x	x		

HMI-LINK	DISPLAY PORT	RS232	RS485 / MODBUS RTU	RAM	FLASH	REMNANT DATA	CHARACTERISTICS	ARTICLE NUMBER	PAGE
				8 MB SDRAM	8 MB (NOR)			01-230-312	13
				8 MB SDRAM	1 MB (NOR)			01-230-352-1	13
				8 MB SDRAM	8 MB (NOR)			01-230-353	13
		x		256 MB DDR3	512 MB (NAND)	256 kB SRAM		01-230-731	14
				512 MB DDR3	512 MB microSD	512 kB SRAM	8 digital inputs/outputs each	01-230-736	14
		x	x	256 MB DDR3	512 MB microSD	256 kB SRAM		01-230-771	14
		x	x	256 MB DDR3	1 GB microSD	256 kB SRAM	TTY	01-230-775	14
				512 MB DDR3	1 GB microSD	512 kB SRAM		01-230-1962	18
	x						Displayport	12-200-1931	18
x							HMI-Link G2	12-200-1941	18
				256 MB DDR3	1 GB microSD	128 kB MRAM	emergency stop, confirmation button, key switch	01-245-835	15
x	x						HMI-Link G2.1, emergency stop, confirmation button, key switch	12-245-1012	16
				2 GB DDR3	1 GB microSD	512 kB MRAM	WLAN	12-246-1033	16
				2 GB DDR3	1 GB microSD	512 kB MRAM	WLAN, landscape format	12-246-1033-01	16
				2 GB DDR3	1 GB microSD	512 kB MRAM	WLAN, emergency stop, confirmation button, key switch	12-246-1033-3	16
				2 GB DDR3	1 GB microSD	512 kB MRAM	WLAN, emergency stop, confirmation button, key switch, 3 rotary encoders	12-246-1033-32	16
				256 MB DDR3	1 GB microSD	128 kB MRAM	emergency stop, confirmation button, key switch	01-245-1035	15
				512 MB DDR3	1 GB microSD	128 kB MRAM	emergency stop, confirmation button, key switch	01-245-1051	16
				2 GB DDR4	2 GB (EMMC)	128 kB FRAM	emergency stop, confirmation button, key switch	01-245-1053	16

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