Operating Instructions
Device platform Manta

IT-xx7

SERIES 400 Panel PC
SERIES 500 Thin Clients
SERIES 600 KVM Systems

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HW-Rev.	**IT-4x7:**	**01.02.00**
HW-Rev.	**IT-5x7:**	**01.02.00**
HW-Rev.	**IT-6x7:**	**01.02.00**
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Specific markings

The markings in these operating instructions refer to specific features that must be noted.

In detail, these are:

DANGER	This sign alerts users to hazards that **will** result in death or serious injury if ignored !
WARNING	This sign alerts users to hazards that **may** result in death or serious injury if ignored !
CAUTION	This sign alerts users to hazards that may damage machinery or equipment or result in injury if ignored !
ATTENTION	Information highlighted by this symbol indicates measures for the prevention of damage to machinery or equipment !
NOTICE	Information highlighted by this symbol indicates important information of which particular note should be taken !
DOCUMENTATION	Information highlighted by this symbol refers to a different chapter or section in this manual or other documentation or a web-page !

Table of contents

1 Preface

These Operating Instructions contain all relevant aspects for the IT-xx7 HMIs - device platform Manta - (SERIES 400 Open HMI - Panel PC´s, SERIES 500 Thin Clients und SERIES 600 KVM Systems). They also contain information on the connection and installation of these devices. Please also refer to additional documentation, such as the hardware manual, which contains further important information.

NOTICE	For the correct operation of all associated components please note, in addition to these operating instructions, all other operating instructions enclosed in this delivery as well as the operating instructions of the additional equipment to be connected !

2 Device function

The IT-xx7 HMIs - device platform Manta - are intelligent operating and monitoring devices for installation in industrial areas.
The devices are connected to a communication system via the serial interfaces (RS-232, Ethernet) which are routed outwards. Also the USB interfaces for the connection of various peripheral devices are routed outwards. Furthermore, the interfaces for keyboard, mouse, video and audio signals are located here.

2.1 Processor types

All devices of 400 and 500 SERIES are fitted with modern, powerful processors. Depending on the type of application, different processor types are used for the HMI devices (see Technical Data).
Starting in 2016, a new Intel® Atom™ processor type of the Bay Trail (BT) platform will gradually replace all previous processor types in the HMI devices. This new processor type processes data four times as fast as the previous processors.

2.2 IT-4x7 (SERIES 400 Panel PC)

The IT-4x7 HMIs are fitted with a Windows© operating system and can run any software. Thus made them easy to operate.
The devices are fitted with powerful processors and are thus able to process even large applications on-site. The devices have a back-up and recovery system which can be used to save complete images and load them onto new Panel PCs without requiring specific IT skills.

2.3 IT-5x7 (SERIES 500 Thin Clients)

The IT-5x7 HMIs of the 500 SERIES can be integrated into modern networks as Thin Clients or with a KVM-over-IP box. Digital Ethernet technology is used for the data transfer between the KVM-over-IP box and the Thin Client device.
Up to four Thin Client devices can access one KVM-over-IP box with one software license, thus cost-effectively communicating with several PCs - for example, when monitoring the production process and simultaneously applying Condition Monitoring.
Multi-monitoring with several on-site terminals can as easily be implemented as the application as Thin Client in a server environment with virtual work stations.

2.4 IT-6x7 (SERIES 600 KVM Systems)

The KVM Classic transfer technology is used for the point-to-point connection between a PC and an IT-6x7 HMI device.
There are three versions (DVI1, DVI2 and DVI3) of this transfer technology that have slightly different functionality.

3 Type allocation

Since the beginning of 2013, the T-series devices have been allocated new type names according to the following pattern:
To avoid the bother of having to re-write certifications, the names in the certificates remain the same, but the devices receive new names.
In the interest of a clear link between device type and certificate, both device names are listed on the type plate from 01.04.2013 onwards.

3.1 Type marking

Old (certificate)	New
T-Ind-##*-CAT7*-R2	IT-##7*-TX*
T-Ind-##*-CAT7*-R2	IT-##7*-CAT*
T-Ind-##*-MM*-R2	IT-##7*-MM*
T-Ind-##*-SM*-R2	IT-##7*-SM*

* = random alphanumeric or symbolic characters without relevance to explosion protection.
\# = random numeric character without relevance to explosion protection.

NOTICE	For the exact new device name and model please refer to the type code.

4 Technical Data

Function / Equipment	**IT-467 IT-567 IT-667**	**IT-477 IT-577 IT-677**	**IT-487 IT-587 IT-687**
Display type	TFT Color display 16.7 million colours		
Display size	56 cm (22")	61 cm (24")	61 cm (24"WU)
Resolution in pixels	WSXGA+ 1680 x 1050	Full HD 1920 x 1080	WUXGA 1920 x 1200
Format	16:10	16:9	16:10
Display	Glass		
Touch Screen (optional)	Membrane or glass surface 5-wire analogue resistive		
Backlight	LED background lighting		
Service life (MTBF) of backlight at 20 °C / 68 °F	typically 50,000 h		
Brightness	250 cd/m²	300 cd/m²	
Contrast	1000 : 1		
Additional keyboard (optional)	107 keys with integrated trackball / joystick / mouse pad or touch pad		
Power supply			
Rated operational voltage AC	230 V		
Voltage range AC	100 - 240 V		
Frequency range	50 - 60 Hz		
Rated operational voltage DC	24 V		
Voltage range DC	20 - 30 V		
Power	typically 35 W / max. 150 W (typically 119 BTU / max. 510 BTU)		
Current consumption AC	1 A		
Current consumption DC	3 A		
Connections	via standard plug		
AC	IEC plug (female)		
DC	STAK 200 (female)		
Recommended fuses	4 AT		
Max. operating voltage Um	250 VAC		
Only for IT-4x7 and IT-5x7 Real-time clock Data buffer Battery Capacitor	 Yes Lithium battery and capacitor buffered, maintenance-free > 5 years at least 4 days		
Interfaces			
Ethernet	Either copper or optical fibre		
at IT-4x7 and IT-5x7			
Copper (TX)	10/100Base-TX, 10/100 Mbit		
Optical fibre (FX) (MM / SM)	100Base-FX, 100 Mbit		
at IT-6x7			
Copper (CAT)	Direct connection Gigabit		
Optical fibre (FO) (MM / SM)	Direct connection		
USB	2 x Hub, 1 x Root		
USB	2 x Hub for keyboard and mouse		
Serial	RS-232		
Video In (optional)	FBAS		
Audio	Line out interface (Line in only for IT-6x7)		
Cable type Optical fibre MM Optical fibre SM	 Multi-mode optical fibre cable (50 µm core cross section and 125 µm external cross section) Multi-mode optical fibre cable (62.5 µm core cross section and 125 µm external cross section) Single mode optical fibre cable (9 µm core cross section and 125 µm external cross section)		

Data cable lengths	
Optical fibre MM	up to 550 m (1,804 ft) via 50 / 125 µm optical fibre cable, up to 300 m (985 ft) via 62.5 / 125 µm optical fibre cable
Optical fibre SM	up to 10,000 m (33,000 ft) via 9 / 125 µm optical fibre cable
Copper (TX)	up to 100 m (330 ft) via CAT7 installation cable AWG23
for DVI1 CAT	up to 140 m (460 ft) via CAT7 installation cable AWG23
for DVI2 CAT	up to 500 m (1,640 ft) via CAT7 installation cable AWG23
for DVI3 CAT	up to 150 m (492 ft) via CAT7 installation cable AWG23
Enclosure	Steel / aluminium
Enclosure protection type	Front IP66 / Back IP20
Permitted ambient temperature range	-30 °C … +60 °C / [-22 °F … +140 °F]
Operating temperature range	
Cold start temperature *	-10 °C … +50 °C / [+14 °F … +122 °F]
Operation	-20 °C … +60 °C ** / [-4 °F … +140 °F **]
Operation with heater version O30 ***	-30 °C … +60 °C ** / [-22 °F … +140 °F **]
Storage temperature range	-30 °C … +70 °C / [-22 °F … +158 °F]
* Note on cold start temperature	If the device is switched on in an ambient temperature of below -10 °C / [+14 °F], the display will require some time warming up before everything is clearly visible. Depending on how low the actual temperature is, this process may take up to 3 hours.
** Note	Operation at +60 °C / [+140 °F] for a maximum of 5 h, +50 °C / [+122 °F] for continuous operation (24/7)
*** Note on the O30 version	The O30 version is only available for the AC version devices !
Operating temperature range for DVI1	
Cold start temperature	+5 °C … +40 °C / [+41 °F … +104 °F]
Operation	+5 °C … +40 °C / [+41 °F … +104 °F]
Storage temperature range	-20 °C … +70 °C / [-4 °F … +158 °F]
Heat dissipation	About 40 % via the front plate and 60 % via the enclosure
Relative humidity	10 to 90 % at +40 °C / [+104 °F], non-condensing
for DVI1	20 to 80 % at +40 °C / [+104 °F], non-condensing
Dimensions	
Front (w x h)	660 mm x 475 mm (2.165 ft x 1.558 ft)
Cut-out (w x h) (+/- 0.5 mm) (+/- 0.0016 ft)	615 mm x 435 mm (2.018 ft x 1.427 ft")
Depth of cut-out	110 mm (0.361 ft)
Wall thickness	≤ 5 mm (0.016 ft)
Mounting position	vertical or horizontal
Weight	10.00 kg (22.05 lbs)

4.1 Additionally for IT-4x7 (Panel PC)

4.1.1 All devices up to hardware revision 01.02.00

Processor	Intel Atom N270; 1.6 GHz
RAM	1 or 2 GB
Data memory	4 or 16 GB
	128 GB MLC
	128 GB SLC
Type of data memory	Flash memory (SATA)
Operating system	Windows XP Embedded Windows XP Professional Windows 7 Ultimate (32 bit)
Global language support	Via Multi-Language interface of Windows XP Embedded (25 languages)

4.1.2 All devices starting from hardware revision 01.02.01

Processor	Intel Bay Trail (BT) Atom E3845 Quad Core; 1.91 GHz		
RAM	4 GB		
Data memory	Size	TBW	Test profile
	32 GB SLC	640	JESD218 Client profile
	128 GB MLC	37,5	
Type of data memory	Flash memory (Solid state drive - SSD)		
Graphics controller	Integrated Intel Gen. 7 HD Graphics		
Operating system	Windows Embedded Standard 7 (64 bit) Windows 7 Ultimate (64 bit)		
Global language support	Via Windows operating system		

4.2 Additionally for IT-5x7 (Thin Clients)

4.2.1 All devices up to hardware revision 01.02.00

Processor	AMD Geode LX 800; 266 MHz
RAM	512 MB
	2 GB *
Data memory	1 GB
	16 GB *
Operating system	Windows Embedded Standard 2009 and Remote Firmware
	Windows Embedded Standard 7, Remote Firmware and Delta V *

NOTICE	* The combination of 2 GB RAM with 16 GB data memory is only available for the operating system with Delta V !

4.2.2 All devices starting from hardware revision 01.02.01

Processor	Intel Bay Trail (BT) Atom E3815 Single Core; 1.46 GHz
RAM	2 GB
Data memory	16 GB
Type of data memory	Flash memory (SATA)
Graphics controller	Integrated Intel Gen. 7 HD Graphics
Operating system	Windows Embedded Standard 7 and Remote Firmware

5 Conformity to standards

The IT-xx7 operator interfaces comply with the following standards and directives:

Standard	Classification
Electromagnetic compatibility	
directive 2014/30/EU	
EN 61000-6-2 : 2005 + AC : 2005	Interference resistance
EN 61000-6-4 : 2007 + A1 : 2011	Interference emission
Low voltage directive	
directive 2014/35/EU	
EN 60950-1 : 2006 + A11 : 2009 + A12 : 2011 + A1 : 2010	General requirements
RoHS directive	
2011/65/EU	**Classification**
EN 50581 : 2012	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

6 Marking

Manufacturer	R. STAHL HMI Systems GmbH
Type code	IT-4x7 / IT-5x7 / IT-6x7
CE classification:	CE

7 Power supply

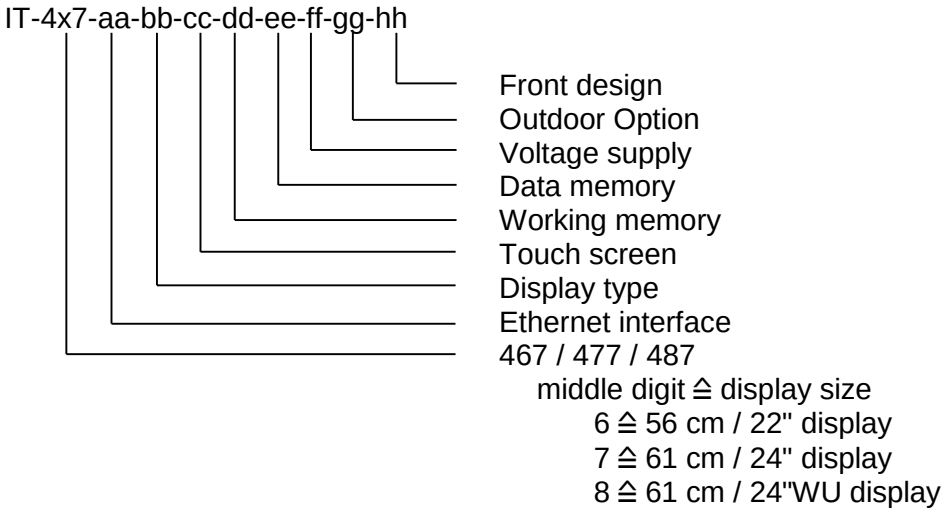
7.1 Operator interfaces

Power supply	24 VDC or 100 – 240 VAC, 50 – 60 Hz	
max. power consumption	at 24 VDC	3 A
	at 100 - 240 VAC	1 A

8 Type code

8.1 IT-4x7 (Panel PC)

NOTICE	These order versions apply to all Panel PC's up to hardware revision 01.02.00, with Atom N270 processor.



Product type:

Product key structure	Description
	Type with
IT-4x7-**FX**-bb-cc-dd-ee-ff-gg-hh	Optical fiber Ethernet interface 100Base-FX, multi-mode
IT-4x7-**TX**-bb-cc-dd-ee-ff-gg-hh	Copper Ethernet interface 10/100Base-TX
IT-4x7-aa-**TFT**-cc-dd-ee-ff-gg-hh	TFT display (standard)
IT-4x7-aa-bb-**T**-dd-ee-ff-gg-hh	Touch screen (membrane)
IT-4x7-aa-bb-**TG**-dd-ee-ff-gg-hh	Touch screen glass
IT-4x7-aa-bb-cc-**R1**-ee-ff-gg-hh	Working memory 1 GB
IT-4x7-aa-bb-cc-**R2**-ee-ff-gg-hh	Working memory 2 GB
IT-4x7-aa-bb-cc-dd-**4GB**-ff-gg-hh	4 GB Solid State Drive
IT-4x7-aa-bb-cc-dd-**16GB**-ff-gg-hh	16 GB Solid State Drive
IT-4x7-aa-bb-cc-dd-**128GBM**-ff-gg-hh	128 GB Solid State Drive MLC
IT-4x7-aa-bb-cc-dd-**128GBS**-ff-gg-hh	128 GB Solid State Drive SLC
IT-4x7-aa-bb-cc-dd-ee-**AC**-gg-hh	Power supply 100 - 240 VAC, 50 - 60 Hz
IT-4x7-aa-bb-cc-dd-ee-**DC**-gg-hh	Voltage supply 24 VDC
IT-4x7-aa-bb-cc-dd-ee-ff-**O30**-hh	Outdoor installation -30 °C [-22 °F] *
IT-4x7-aa-bb-cc-dd-ee-ff-gg-**AL**	Aluminium front plate
IT-4x7-aa-bb-cc-dd-ee-ff-gg-**RM**	Rear mount module

NOTICE	* The O30 option is only available for AC devices !

8.2 IT-4x7-*-BT (Panel PC)

NOTICE	These order versions apply to all Panel PC's starting from hardware revision 01.02.01, with Bay Trail Atom E3845 processor.

IT-4x7-aa-BT-bb-cc-dd-ee-ff-gg-hh

- Front design
- Outdoor option
- Voltage supply
- Data memory
- Working memory
- Touch screen
- Display type
- Processor type (fixed to BT = Bay Trail)
- Ethernet interface
- 467 / 477 / 487
  - middle digit ≙ display size
    - 6 ≙ 56 cm / 22" display
    - 7 ≙ 61 cm / 24" display
    - 8 ≙ 61 cm / 24"WU display

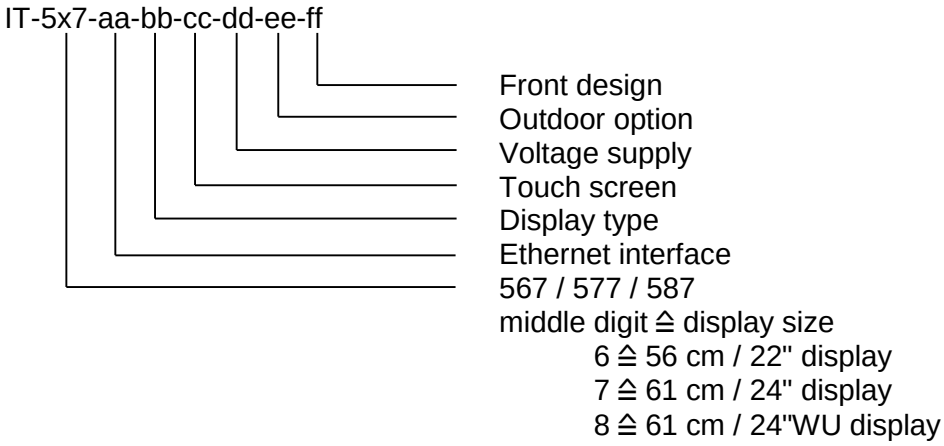
Product type:

Product key structure	Description
	Type with
IT-4x7-**FX**-BT-bb-cc-dd-ee-ff-gg-hh	Optical fiber Ethernet interface 100Base-FX, multi-mode
IT-4x7-**TX**-BT-bb-cc-dd-ee-ff-gg-hh	Copper Ethernet interface 10/100Base-TX
IT-4x7-aa-BT-**TFT**-cc-dd-ee-ff-gg-hh	TFT display (standard)
IT-4x7-aa-BT-bb-**T**-dd-ee-ff-gg-hh	Touch screen (membrane)
IT-4x7-aa-BT-bb-**TG**-dd-ee-ff-gg-hh	Touch screen glass
IT-4x7-aa-BT-bb-cc-**R3**-ee-ff-gg-hh	4 GB RAM
IT-4x7-aa-BT-bb-cc-dd-**32GB**-ff-gg-hh	32 GB Solid State Drive
IT-4x7-aa-BT-bb-cc-dd-**128GBM**-ff-gg-hh	128 GB Solid State Drive MLC
IT-4x7-aa-BT-bb-cc-dd-ee-**AC**-gg-hh	Power supply 100 - 240 VAC, 50 - 60 Hz
IT-4x7-aa-BT-bb-cc-dd-ee-**DC**-gg-hh	Voltage supply 24 VDC
IT-4x7-aa-BT-bb-cc-dd-ee-ff-**O30**-hh	Outdoor installation -30 °C [-22 °F] *
IT-4x7-aa-BT-bb-cc-dd-ee-ff-gg-**AL**	Aluminium front plate
IT-4x7-aa-BT-bb-cc-dd-ee-ff-gg-**RM**	Rear mount module

NOTICE	* The O30 option is only available for AC devices !

8.3 IT-5x7 (Thin Client)

NOTICE	These order versions apply to all Thin Client's up to hardware revision 01.02.00, with AMD Geode LX processor.



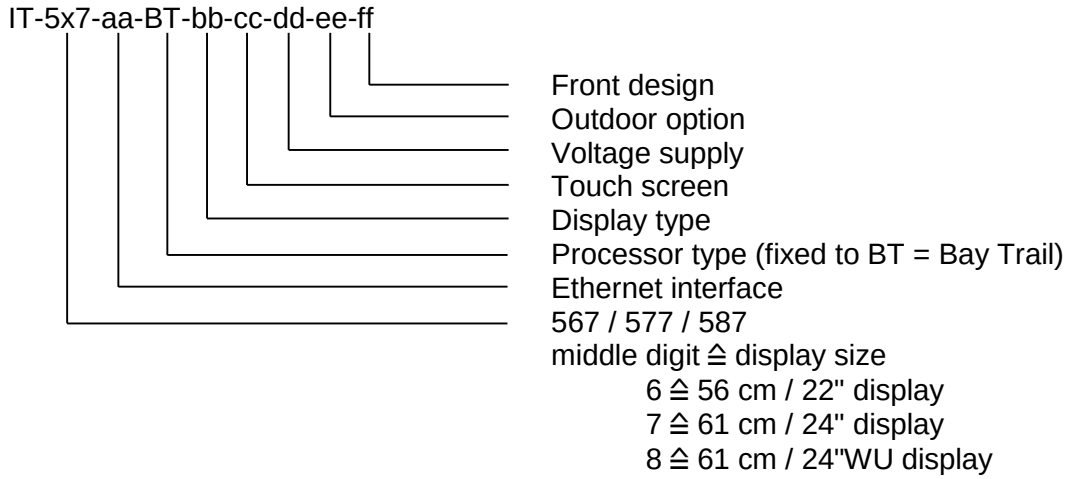
Product type:

Product key structure	Description
	Type with
IT-5x7-**FX**-bb-cc-dd-ee-ff	Optical fiber Ethernet interface 100Base-FX, multi-mode
IT-5x7-**TX**-bb-cc-dd-ee-ff	Copper Ethernet interface 10/100Base-TX
IT-5x7-aa-**TFT**-cc-dd-ee-ff	TFT display (standard)
IT-5x7-aa-bb-**T**-dd-ee-ff	Touch screen (membrane)
IT-5x7-aa-bb-**TG**-dd-ee-ff	Touch screen glass
IT-5x7-aa-bb-cc-**AC**-ee-ff	Power supply 100 - 240 VAC, 50 - 60 Hz
IT-5x7-aa-bb-cc-**DC**-ee-ff	Voltage supply 24 VDC
IT-5x7-aa-bb-cc-dd-**O30**-ff	Outdoor installation -30 °C [-22 °F] *
IT-5x7-aa-bb-cc-dd-ee-**AL**	Aluminium front plate
IT-5x7-aa-bb-cc-dd-ee-**RM**	Rear mount module

NOTICE	* The O30 option is only available for AC devices !

8.4 IT-5x7-*-BT (Thin Client)

NOTICE	These order versions apply to all Thin Client's starting from hardware revision 01.02.01, with Bay Trail Atom E3815 processor.

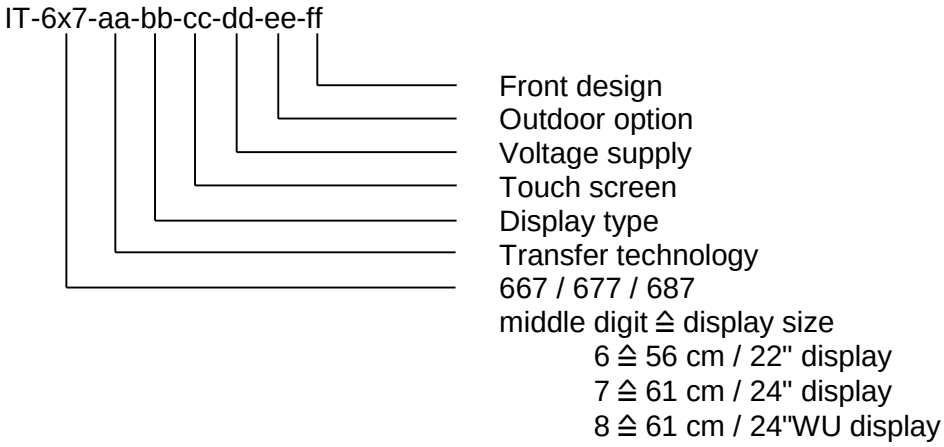


Product type:

Product key structure	Description
	Type with
IT-5x7-**FX**-BT-bb-cc-dd-ee-ff-gg-hh	Optical fiber Ethernet interface 100Base-FX, multi-mode
IT-5x7-**TX**-BT-bb-cc-dd-ee-ff-gg-hh	Copper Ethernet interface 10/100Base-TX
IT-5x7-aa-BT-**TFT**-cc-dd-ee-ff-gg-hh	TFT display (standard)
IT-5x7-aa-BT-bb-**T**-dd-ee-ff-gg-hh	Touch screen (membrane)
IT-5x7-aa-BT-bb-**TG**-dd-ee-ff-gg-hh	Touch screen glass
IT-5x7-aa-BT-bb-cc-**R2**-ee-ff-gg-hh	2 GB RAM
IT-5x7-aa-BT-bb-cc-dd-**16GB**-ff-gg-hh	16 GB Solid State Drive
IT-5x7-aa-BT-bb-cc-dd-ee-**AC**-gg-hh	Power supply 100 - 240 VAC, 50 - 60 Hz
IT-5x7-aa-BT-bb-cc-dd-ee-**DC**-gg-hh	Voltage supply 24 VDC
IT-5x7-aa-BT-bb-cc-dd-ee-ff-**O30**-hh	Outdoor installation -30 °C [-22 °F] *
IT-5x7-aa-BT-bb-cc-dd-ee-ff-gg-**AL**	Aluminium front plate
IT-5x7-aa-BT-bb-cc-dd-ee-ff-gg-**RM**	Rear mount module

NOTICE	* The O30 option is only available for AC devices !

8.5 IT-6x7 (KVM System)



Product type:

Product key structure	Description
	Type with
IT-6x7-**DVI1-CAT**-bb-cc-dd-ee-ff	DVI1 KVM, with direct copper connection, Gigabit
IT-6x7-**DVI1-MM**-bb-cc-dd-ee-ff	DVI1 KVM, with direct optical fibre connection, multi-mode
IT-6x7-**DVI1-SM**-bb-cc-dd-ee-ff	DVI1 KVM, with direct optical fibre connection, single mode
IT-667-**DVI2-CAT**-bb-cc-dd-ee-ff	DVI2 ** KVM, with direct copper connection, Gigabit
IT-6x7-**DVI3-CAT**-bb-cc-dd-ee-ff	DVI3 KVM, with direct copper connection, Gigabit
IT-6x7-**DVI3-MM-FO**-bb-cc-dd-ee-ff	DVI3 KVM, with direct optical fibre connection, multi-mode
IT-6x7-**DVI3-SM-FO**-bb-cc-dd-ee-ff	DVI3 KVM, with direct optical fibre connection, single mode
IT-6x7-aa-**TFT**-cc-dd-ee-ff	TFT display (standard)
IT-6x7-aa-bb-**T**-dd-ee-ff	Touch screen (membrane)
IT-6x7-aa-bb-**TG**-dd-ee-ff	Touch screen glass
IT-6x7-aa-bb-cc-**AC**-ee-ff	Power supply 100 - 240 VAC, 50 - 60 Hz
IT-6x7-aa-bb-cc-**DC**-ee-ff	Voltage supply 24 VDC
IT-6x7-aa-bb-cc-dd-**O30**-ff	Outdoor installation -30 °C [-22 °F] *
IT-6x7-aa-bb-cc-dd-ee-**AL**	Aluminium front plate
IT-6x7-aa-bb-cc-dd-ee-**RM**	Rear end module

NOTICE	* The O30 option is only available for AC devices !
	** The DVI2 KVM solution is only available together with the IT-667 HMI device !

9 Safety information

⚠ CAUTION	The notes listed below in section 9. must be heeded to avoid injury and damage to equipment !

9.1 General Safety Information

- All relevant accident prevention regulations and the rules for electric installations have to be observed during installation, maintenace and operations. All persons involved in installation, commission, maintenance and repairs of this device and its accessories must be qualified accordingly and must have familiarised themselves with this manual and any associated documentation.
- In case of non-compliance or contravention of the above protection is no longer guaranteed and all warranty claims shall be null and void.
- National safety and accident prevention rules apply.
- Use the device for its intended purpose only.
- No changes to the device are permitted. The enclosure may only be opened by R. STAHL HMI Systems GmbH.
- The first four digits of the serial number on the type plate stand for the year of manufacture.

9.2 Warning

ⓘ ATTENTION	This is an EN 55022 Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

9.3 Installation safety information

- The in each case valid national assembly and installation rules and the generally accepted technical rules must be observed. The device and its accessories must be connected and operated according to applicable standards, directives and installation guidelines. Only qualified personnel or personnel that has been instructed accordingly are allowed to install the device.
- The HMI device has been certified as a fixed installed device. It must be fixed with a bracket or be secured in another way at a specified position.
- The HMI device must be disconnected from the mains for a change of position. The EPL must be adhered to.
- Only appropriate tools must be used for the installation.
- The wire used for earthing must have a minimum cross section of 4mm² ! Make sure that there is equipotential bonding between the devices.
- We recommend you use screened cables with the device. Routing of the data cable may reduce performance.
- At the place of installation voltage must not exceed 250 V and short-circuit current must not exceed 1500 A.
- Before starting up the device you must ensure that it has been installed according to regulations and that neither the device nor its cables are damaged.

9.4 Safety information for operation

- Operate the device only if it is clean and undamaged. If the device is in any way damaged, do not touch it to avoid injury. In the case of any damage that may compromise ingress protection (e.g. cracks, holes or broken components) the device must be taken out of commission immediately. Before the device is recommissioned the damaged components must be replaced.
- In general, and particularly when opening and closing enclosures, users must take care not to get injured by getting caught / trapped.

10 Assembly and disassembly

10.1 General information

NOTICE	Assembly and disassembly are subject to general technical rules. Additional, specific safety regulations apply to electronic and pneumatic installations.

10.2 Cut-out IT-xx7

Make a cut-out with the following dimensions:

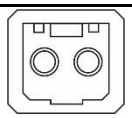
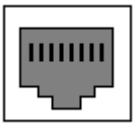
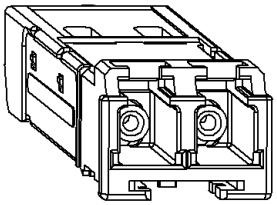
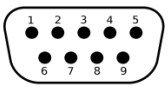
Width	Height	Depth of cut-out	Material thickness	Unit
615 ± 0.5	435 ± 0.5	110	up to 5	mm
24.21 ± 0.002	17.13 ± 0.002	4.33	up to 0.02	inch (")

11 Operation

11.1 General information

NOTICE	When operating the devices, particular care shall be taken that: • the HMI device has been properly installed according to instructions, • the device is undamaged, • all screws are tightened fast, • before switching the HMI device on, its external PE terminal is properly connected to the equipotential bonding system at its place of use.

11.2 Connections

Definition	View	Connection	Definition
PWR (Power)		IEC connector	Power supply of the HMI, variant AC *
PWR (Power)	 1…2	STAK socket	Power supply of the HMI, variant DC * 1 = +24 VDC 2 = 0 VDC
USB 3 x		USB-A connector	USB interface, connection type A 2 x Hub, 1 x Root
USB 2 x		USB-A connector	USB interface, connection type A for keyboard and mouse
CAT7 1 (Data)	 1……8	RJ-45 connector	Ethernet interface copper **
FO 1 (Data)	 TX RX	LC duplex connector	Ethernet optical fiber interface **
SER (serial)		Sub-D 9 pin socket (male)	Serial interface RS-232
AUD (Audio)		TRS socket (stereo) 2 x 3.5 mm	Audio Line in / out interface ***

NOTICE

* Please note that the power supply connection is designed **either** for AC **or** DC (depending on the version ordered) !

** Please note that the Ethernet connection is designed either for an optical fibre connection (FO) or for a copper connection (CAT7), depending on the version ordered.
In the case of an optical fibre connection the following cable is recommended:
- Multi-mode optical fibre cable
  - 50 µm core cross section and 125 µm external cross section
- Single mode optical fibre cable
  - 9 µm core cross section and 125 µm external cross section

Recommended cable length for USB, keyboard, mouse, RS-232 and Audio:
- max. 3 m (10 ft)

*** Audio Line in only functional for IT-6x7 devices.

12 Maintenance

Because the transmission of the devices remains reliable and stable over long periods of time, regular adjustments are not required.

Keep the units clean so that the enclosure locks and screws remain accessible. Maintenance may be required for the enclosure seal.

System maintenance should focus on the following:

a. Seal wear
b. Display damage
c. All screws are tightened fast
d. All cables and lines are properly connected and undamaged

13 Troubleshooting

13.1 Repairs / hazardous substances

An error description must be enclosed with any units returned to R. STAHL HMI Systems GmbH for repairs.

Remove all material residues. Please pay particular attention to the seal grooves and slits where material residues may be lodged. We have to ask you not to return a unit if you are unable to completely remove any hazardous substances. We shall bill you for any costs arising from insufficiently cleaned units, such as disposal or damage to persons (chemical burns, etc.).

14 Disposal

Disposal of packaging and used parts is subject to regulations valid in whichever country the device has been installed.
The disposal of devices sold after August 13th, 2005, and installed in countries under the jurisdiction of the EU is governed by directive (amendment) 2012/19/EU on waste electrical and electronic equipment (WEEE). Under this directive, operator interfaces are listed in category 9 (monitoring and control instruments).

We shall take back our devices according to our General Terms and Conditions.

14.1 RoHS directive 2011/65/EC

The revised version of the RoHS (restriction of hazardous substances) 2002/95/EC directive, directive 2011/65/EC, extends its area of application to all electric and electronic products.
In the case of HMI devices (category 9 – monitoring and controlling devices) a transitional period applies until 22.07.2017, after which the banned substances listed in RoHS 2011/65/EC directive apply to all devices newly put on the market.

15 Declaration of EC conformity

EU-Konformitätserklärung
EU Declaration of Conformity
Déclaration de Conformité UE

R. STAHL HMI Systems GmbH • Adolf-Grimme-Allee 8 • 50829 Köln, Germany
erklärt in alleiniger Verantwortung, *declares in its sole responsibility, déclare sous sa seule responsabilité,*

dass das Produkt: *that the product:* *que le produit:*	**Bedien- und Beobachtungsgeräte** ***Operating and Monitoring Devices*** ***Consoles de commande et de visualisation***
Typ(en), *type(s), type(s):*	**IT-467-..., IT-567-..., IT-667-...** **IT-477-..., IT-577-..., IT-677-...** **IT-487-..., IT-587-..., IT-687-...**

mit den Anforderungen der folgenden Richtlinien und Normen übereinstimmt.
is in conformity with the requirements of the following directives and standards.
est conforme aux exigences des directives et des normes suivantes.

Richtlinie(n) / *Directive(s) / Directive(s)*		**Norm(en)** / *Standard(s) / Norme(s)*
EMV-Richtlinie *EMC Directive* *Directive CEM*	**2014/30/EU** *2014/30/EU* *2014/30/UE*	EN 61000-6-2:2005 + AC:2005 EN 61000-6-4:2007 + A1:2011
Niederspannungsrichtlinie *Low Voltage Directive* *Directive Basse Tension*	**2014/35/EU** *2014/35/EU* *2014/35/UE*	EN 60950-1:2006 + A11:2009 + A12:2011 + A1:2010
Produktnormen nach RoHS-Richtlinie (2011/65/EU): *Product standards according to RoHS Directive:* *Normes des produit pour la Directive RoHS:*		EN 50581:2012

Köln, 2016-04-22
Ort und Datum
Place and date
Lieu et date

i.V. J. Düren
J. Düren
Technical Director

i.V. W. Bertges
W. Bertges
Quality Manager

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16 Release notes

The chapter entitled "Release Notes" contains all the changes made in every version of the operating instructions.

Version 01.02.04

- Combination of all information according to processor types Atom N270 and Bay Trail (BT)
- Addition of section "Processor types"
- Correction of cable length at FO MM
- Addition of "Note on cold start temperature" in "Technical data"
- Version O30 included
- Adaption of "Technical data" at 400 and 500 SERIES
- Removal of previous release notes

Version 01.02.05

- Addition of "on USB stick" in Disclaimer
- Changing of temperature definition in "Technical Data"
- Adaption of Conformity to standards
- Renew Declaration of EC conformity
- Text-, layout- and formal corrections

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