

TSY 031

Training System Extension HMI 7"

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Training System Extension HMI 7"**TSY 031**

The TSY 031 training system is an application assembly that is used for training. The TSY 031 is the extension for the basic application TSY 021.

The application consists of a 7 inch touch control panel, which is integrated in a device rack. The Ethernet interface serves for the data exchange between the TSY 031 and the basic module TSY 021.

Additionally the application has a low voltage connection cable for supplying the application. It is simply connected to the basic module TSY 021 and so needs no own desktop power supply.

Additionally a RJ45 network cable for establishing an online connection is part of the application.

The following system components are integrated in the TSY 031:

- 1x Low Volt Connection Cable (cable length: 2.5 m)
- 1x RJ45 to Tyco Mini I/O cable 1 m
- 1x Touch Operation Terminal ETT 732

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1 Technical Data

1.1 Performance Data

Processor	EDGE2 Technology
Processor cores	1
Internal cache	32-kbyte L1 Instruction Cache 32-kbyte L1 Data Cache 512-kbyte L2 Cache
Internal program and data memory (DDR3 RAM)	256 Mbyte
Internal remnant data memory	256-kbyte SRAM (battery buffered)
Internal storage device	512-Mbyte NAND Flash
Internal I/O	no
Interfaces	1x USB 2.0 (Type A) 1x Ethernet 10/100 (RJ45) 2x CAN bus (6-pin Weidmüller) 1x RS232 (9-pin D-Sub)
Internal interface connections and devices	1x TFT LCD color display 1x touch
Display	7" TFT color display
Resolution	800 x 480 Pixel
Control panel	touch screen (projective capacitive)
Signal generator	no
Status LEDs	no
Real-time clock	yes
Cooling	passive (fanless)

1.2 Electrical Requirements

Supply voltage	typically +24 V DC	
	minimum +18 V DC	maximum +30 V DC
Current consumption of power supply at +24 V	typically 180 mA (without externally connected devices)	maximum 290 mA (with external devices connected)
Current consumption of standby voltage at +24 V	typically 110 mA (without externally connected devices)	maximum 180 mA (with externally connected devices)
Inrush current	600 mA (1 ms)	

1.3 Terminal

Dimensions	183.6 x 138.8 x 41.9 mm (W x H x D)
Material	front plate: 4 mm Aluminum
Weight	circa 600 g

1.4 Environmental Conditions

Storage temperature	-10 ... +80 °C	
Environmental temperature	0 ... +60 °C	
Humidity	10-90 %, non-condensing	
EMC stability	in accordance with EN 60730-1	
Vibration resistance	EN60068-2-6	2-9 Hz: amplitude 3.5 mm 9-200 Hz: 1 g (10 m/s²)
Shock resistance	EN60068-2-27	15 g (150 m/s²) duration 11 ms, 18 Shocks
Protection type	EN 60529 protection through housing	front: IP54 cover: IP20

1.5 Display 7" WVGA incl. touch

Type	7" TFT LCD color display
Resolution	WVGA 800 x 480 pixels
Color depth	16 Bit RGB (65K colors)
LCD mode	normal white ⁽¹⁾
LCD Polarizer	transmissive ⁽²⁾
Pixel size	0.1926 x 0.1790 mm
Number of pixels	800*3 (RGB) x 480
Active surface	154.08 x 85.92 mm
Backlighting	LED
Contrast	500:1
Brightness	typically 280 cd/m ²
Visible field	left, right, below 70°, above 50°

⁽¹⁾ If there is no display data, the display is white (LED backlight visible)

⁽²⁾ Display technology, with which display backlighting is used.

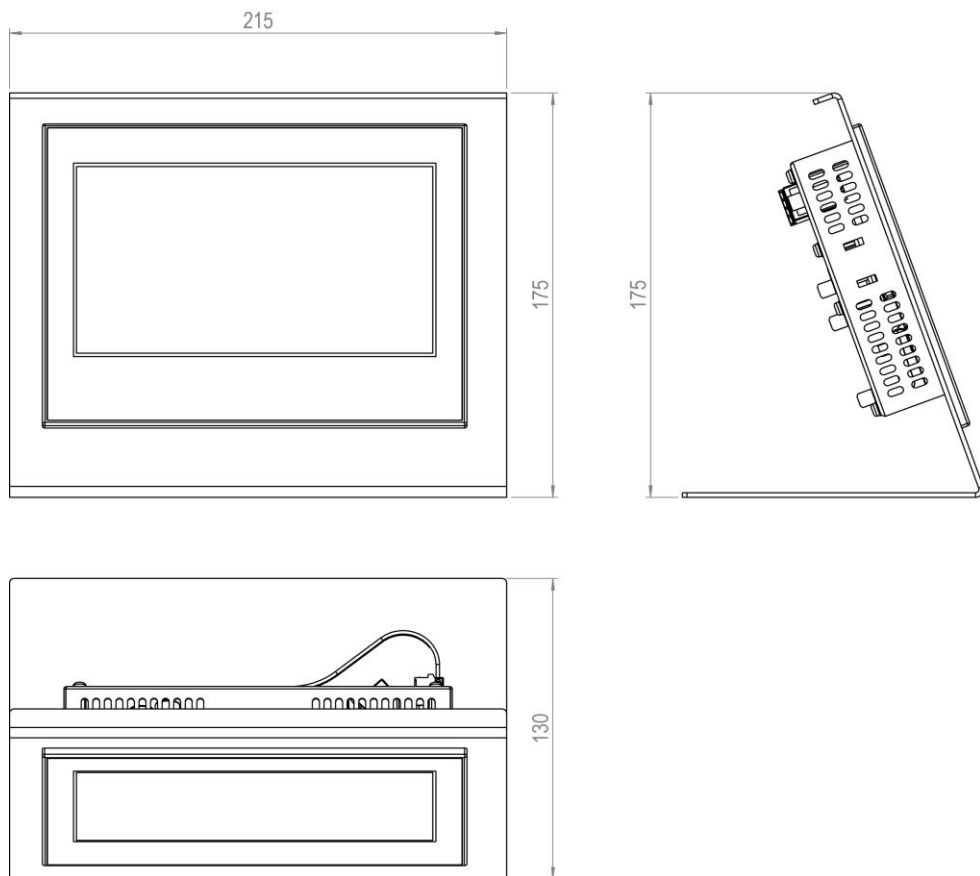
Touch panel	projective capacitive touch
Sensor type	glass-glass
Surface	1.0 mm hardened glass front with black frame
Surface hardness	7H pencil hardness according to JIS K5400
Transparency	≥ 85 %
Cleaning	see chapter: Cleaning the Touch Screen

For input to the touch screen, only the fingers, capacitive touch pens or suitable gloves can be used. No hard or pointed objects can be used. Visualization properties must be adapted to a projective capacitive touch screen.

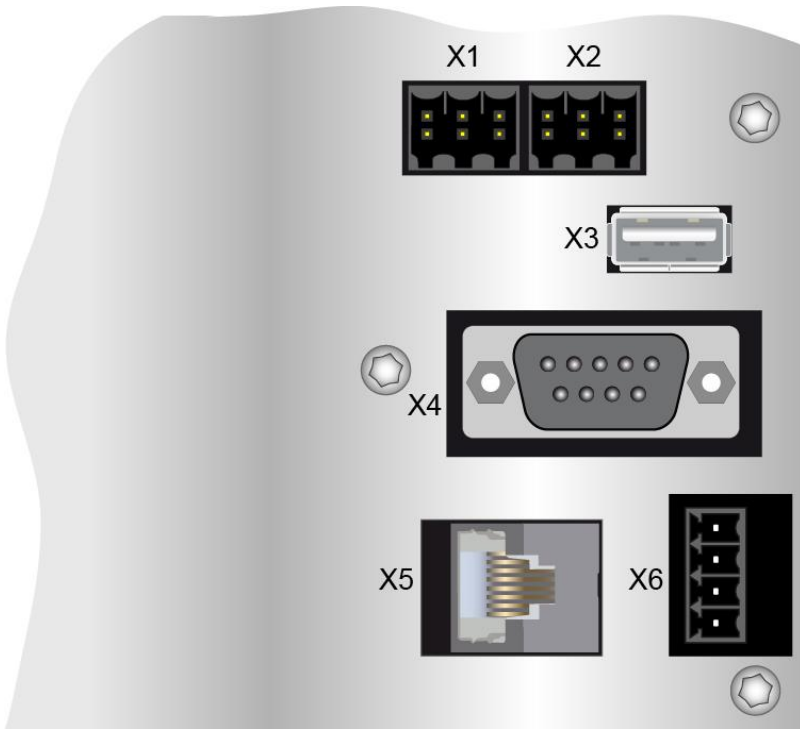
1.6 Miscellaneous

Article number	12-100-031
Hardware version	1.x

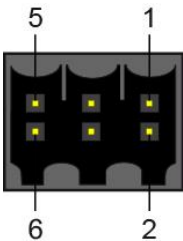
2 Mechanical Dimensions



3 Connector Layout

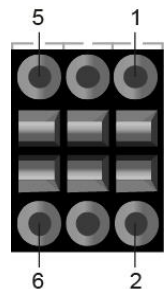


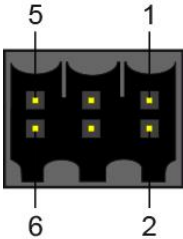
X1: CAN 1 (6-pin Weidmüller)



Pin	Function
1	CAN A (LOW)
2	CAN B (High)
3	CAN A (LOW)
4	CAN B (High)
5	GND
6	n.c.

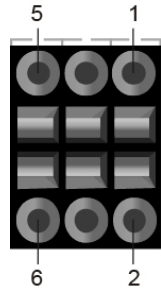
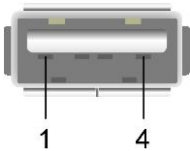
n.c. = do not use



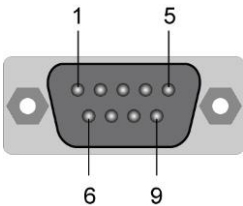
X2: CAN 2 (6-pin Weidmüller)


Pin	Function
1	CAN A (LOW)
2	CAN B (High)
3	CAN A (LOW)
4	CAN B (High)
5	GND
6	n.c.

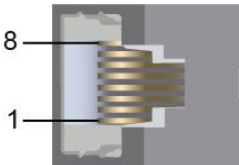
n.c. = do not use


X3: USB 2.0 (Type A)


Pin	Function
1	+5 V
2	D-
3	D+
4	GND

X4: RS232 (D-Sub)


Pin	Function
1	DCD
2	Rx
3	Tx
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

X5: Ethernet 10/100 (RJ45)


Pin	Function
1	Tx +
2	Tx -
3	Rx +
4	n.c.
5	n.c.
6	Rx -
7	n.c.
8	n.c.

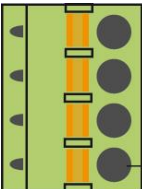
Problems can arise if a control is connected to an IP network, which contains modules that do not have a SIGMATEK operating system. With such devices, Ethernet packets could be sent to the control with such a high frequency (i.e. broadcasts), that the high interrupt load could cause a real-time runtime error or runtime error. By configuring the packet filter (Firewall or Router) accordingly however, it is possible to connect a network with SIGMATEK hardware to a third party network without triggering the error mentioned above.

Des problèmes peuvent survenir si un automate est connecté à un réseau IP contenant des modules qui ne fonctionnent pas sous un système d'exploitation SIGMATEK. Avec de tels dispositifs, les paquets Ethernet peuvent être envoyés à l'automate avec une fréquence tellement élevée (càd. diffusion), que les interruptions ainsi générées peuvent provoquer une erreur d'exécution. En configurant d'une façon appropriée le filtre de paquets (pare-feu ou un routeur) il est toutefois possible de connecter un réseau avec le matériel SIGMATEK à un réseau tiers sans déclencher l'erreur mentionnée ci-dessus.

X6: Power supply (4-pin Phoenix Contact)


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Pin	Function
1	+24 V DC
2	+24 V DC
3	GND
4	GND


1

Documentation Changes

Change date	Affected page(s)	Chapter	Note
28.11.2016	6	1.5 WVGA Display	Pixel size updated