

HMI-Link G2 Device

PC 301-E8

Publisher: SIGMATEK GmbH & Co KG
A-5112 Lamprechtshausen
Tel.: 06274/4321
Fax: 06274/4321-18
Email: office@sigmatek.at
WWW.SIGMATEK-AUTOMATION.COM

Copyright © 2017
SIGMATEK GmbH & Co KG

Translation from German

All rights reserved. No part of this work may be reproduced, edited using an electronic system, duplicated or distributed in any form (print, photocopy, microfilm or in any other process) without the express permission.

We reserve the right to make changes in the content without notice. The SIGMATEK GmbH & Co KG is not responsible for technical or printing errors in the handbook and assumes no responsibility for damages that occur through use of this handbook.

HMI-Link G2 Device

PC 301-E8



Using the HMI-Link G2 Device, HMI-Link G2 terminals can be connected to the PC 3XX. USB and display signals can therewith be transmitted up to 100 m.

Contents

1 Technical Data 3

 1.1 Performance Data 3

 1.2 Electrical Requirements 3

 1.3 Environmental Conditions 3

 1.4 Miscellaneous 4

2 Mechanical Dimensions 5

3 Connector Layout 6

 3.1 Applicable Connectors 8

4 Status Displays 9

5 Mounting Options10

6 Wiring Guidelines11

 6.1 Ground 11

 6.2 Shielding 12

 6.3 ESD Protection 12

7 HMI-Link G2 Wiring13

 7.1 Ground 13

 7.2 HMI-Link G2 Cable Specifications 14

 7.3 HMI-Link G2 Wires in the Cable Strand 14

8 Disposal15

1 Technical Data

1.1 Performance Data

Interfaces	1x HMI Local OUT (HMI-Link G2) 1x USB 2.0 (Type B) 1x display port 1x +24 V
------------	--

In order to use the HMI interface, a SIGMATEK HMI display unit of the second generation (G2) is required on the remote station.

1.2 Electrical Requirements

Supply voltage	18-30 V DC
Current consumption at 24 V	maximum 170 mA

1.3 Environmental Conditions

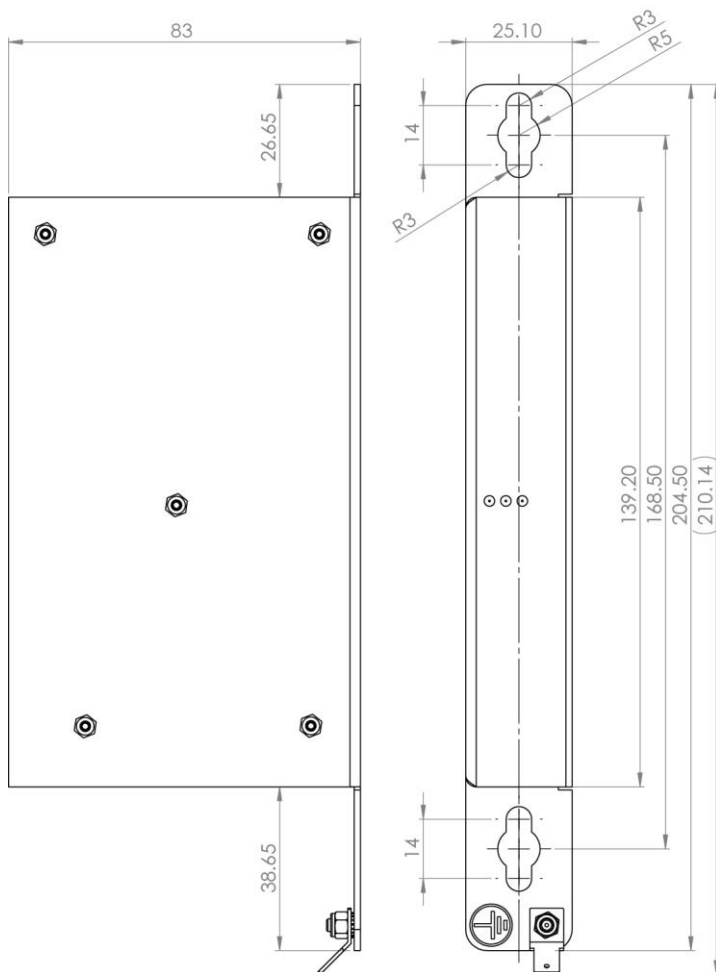
Storage temperature	-20 ... +60 °C	
Environmental temperature	0 ... +50 °C	
Humidity	10-90 %, non-condensing	
EMC tolerance	EN 61000-6-2 (industrial area): EMC resistance EN 61000-6-4: noise emission	
Vibration resistance	EN 60068-2-6	2-9 Hz: amplitude 3.5 mm 9-200 Hz: 1 g (10 m/s²)
Shock resistance	EN 60068-2-27	15 g (150 m/s²), duration 11 ms, 18 shocks

1.4 Miscellaneous

Article number	01-310-301-E8
Hardware version	1.x
Mechanical dimensions	25.1 x 210.1 x 83 mm (W x H x D)

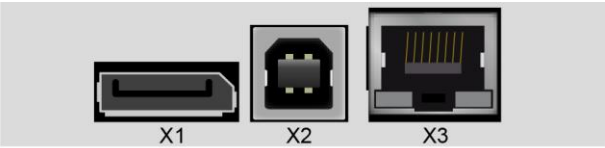
In order to use the HMI interface, a SIGMATEK HMI-Link of the second generation (G2) is required on the remote station.

2 Mechanical Dimensions

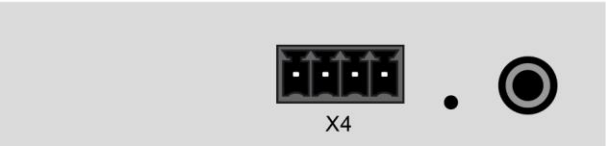


Mounting screws:	M5 – 8.8
Disks:	EN ISO 7089-5-200HV (when using ratchet screws, no washers)
Min. screw-in depth	5 mm in steel 10 mm in aluminum
Tightening torque:	6 Nm Use a screw-locking device (e.g. ratchet screws, thread-locking fluid, DIN 7980-compliant spring lock washer)

3 Connector Layout

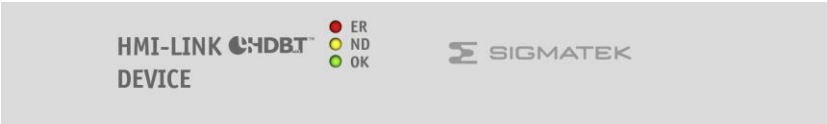


top

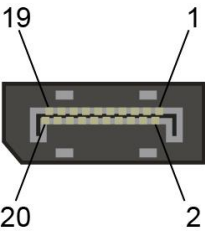


bottom

Side View



X1: Display port IN

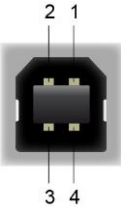


Pin	Function
1	Lane 3 (n)
2	GND
3	Lane 3 (p)
4	Lane 2 (n)
5	GND
6	Lane 2 (p)
7	Lane 1 (n)
8	GND
9	Lane 1 (p)
10	Lane 0 (n)
11	GND
12	Lane 0 (p)
13	Config1
14	Config2
15	AUX CH (p)
16	GND
17	AUX CH (n)
18	Hot Plug
19	Return
20	DP_VCC_3V3

n.c. = do not use

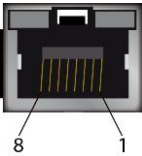
The respective display resolution is transmitted via AUX CH (p) and AUX CH (n) per i2C protocol.

X2: USB (Type B)



Pin	Function
1	+5 V
2	D0-
3	D0+
4	GND

X3: HMI local OUT (HMI-Link G2, RJ 45)



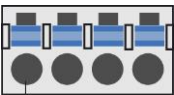
Pin	Function
1	DA+
2	DA-
3	DB+
4	DC+
5	DC-
6	DB-
7	DD+
8	DD-

X4: Supply voltage



1

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



1

3.1 Applicable Connectors

USB: Type B

Display port: 20-pin display port plug

HMI-Link: 8-pin RJ45 CAT5e / CAT6 (shielded)

Supply voltage: Phoenix Contact FK-FMC 1.5/ 4-ST-3.5

4 Status Displays

LED 1	Red	ON	No HMI-Link connection between PC and terminal Check HMI-Link cable
LED 2	Yellow	OFF	
LED 3	Green	OFF	

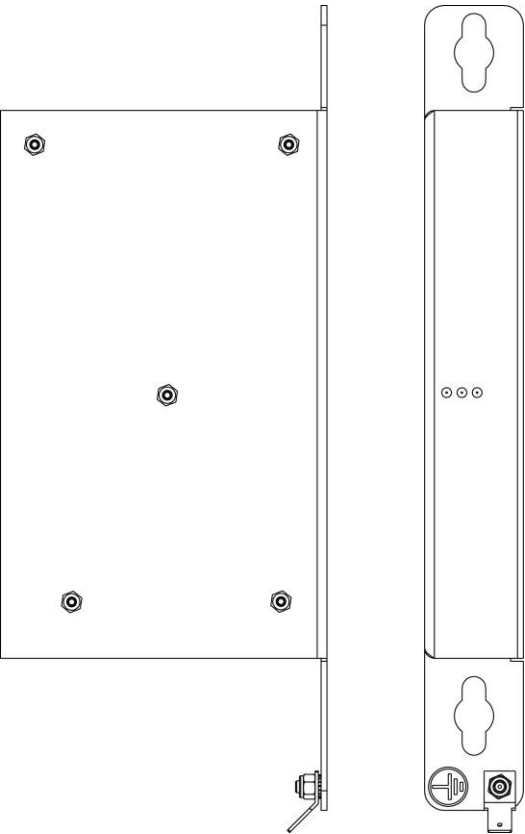
LED 1	Red	OFF	HMI-Link connection between PC and terminal available No video signal available Check display port cable
LED 2	Yellow	ON	
LED 3	Green	OFF	

LED 1	Red	ON	HMI-Link connection between PC and terminal available Video signal available No USB signal HMI-Link connection between PC and terminal available
LED 2	Yellow	OFF	
LED 3	Green	ON	

LED 1	Red	OFF	HMI-Link connection between PC and terminal available Video signal available No valid EDID data Restart PC and terminal
LED 2	Yellow	ON	
LED 3	Green	ON	

LED 1	Red	OFF	System ready
LED 2	Yellow	OFF	
LED 3	Green	ON	

5 Mounting Options

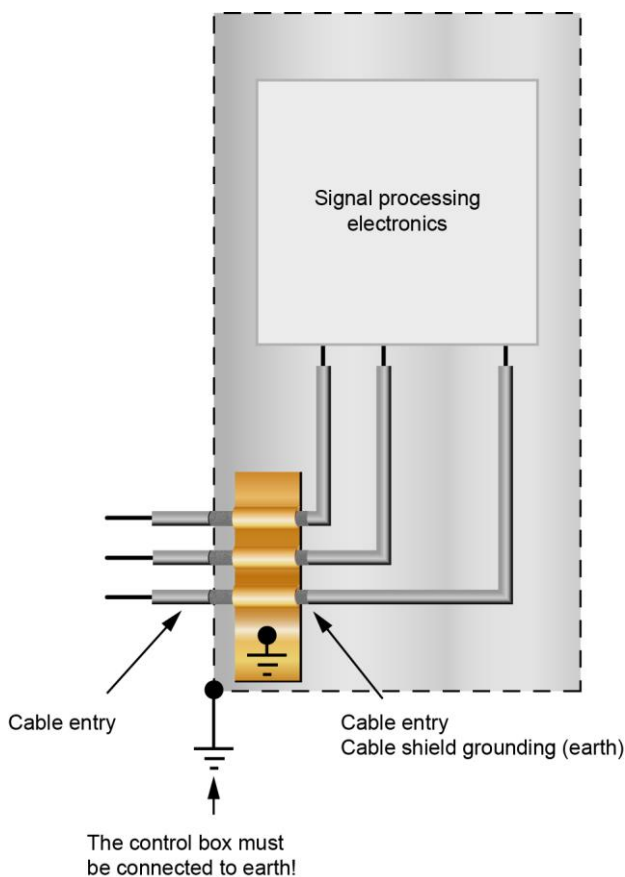


6 Wiring Guidelines

6.1 Ground

The signal-processing electronics must be connected to ground through the mounting on control cabinet or over the ground terminal provided. It is important to create a low-ohm ground connection, only then can error-free operation be guaranteed. The ground connection should have a maximum cross section and the largest (electrical) surface possible.

Any noise signals that reach the signal-processing electronics over external cables must be filtered through the ground connection. High frequency noise can also be dissipated with a large electrical surface (skin effect).



6.2 Shielding

The wiring for the COM1, display port, Ethernet, VGA, and DVI must be shielded. The low-ohm shielding is either connected at the entry to the control cabinet or directly before the PC 443 over a large, low-ohm surface (cable grommets, grounding clamps)!

Noise signals can therefore be prevented from reaching the electronics and affecting the function.

6.3 ESD Protection

Typically, the PS/2 devices (keyboard, mouse) are not equipped with shielded cables. The same applies to the USB keyboard and mouse. These devices are disrupted by ESD and in some instances, no longer function.

Before any device is connected to or disconnected from the PC 443, the potential should be equalized (by touching control cabinet or ground terminal). This will allow the dissipation of electrostatic loads (caused by clothing/shoes).

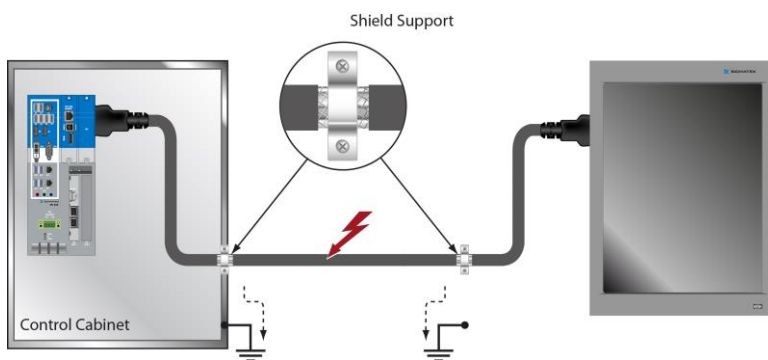
7 HMI-Link G2 Wiring

7.1 Ground

For the HM Link G2 line, CAT5e or CAT6 cables with shielded RJ45 connectors must be used.

The cable shielding must be connected to ground on both sides to prevent noise signals from reaching the electronics and affecting the function.

For CAT5e cables, the total allowable length is limited to 90 m. To utilize the maximum 100 m length of the Link system, at least a CAT6 cable must be used.



7.2 HMI-Link G2 Cable Specifications

The RJ45 cable must be wired 1:1 in accordance with the EIA568A standard.

Self-fabricated cables must be tested for compliance with the limit values corresponding to the cable class (CAT5e/CAT6...).



STANDARD PATCH CABLE (568A - 568A)



EIA 568A

Pin	Wire Color	Signal
1	White/green.	HMI_P0
2	green	HMI_N0
3	White/orange	HMI_P1
4	blue	HMI_P2
5	White/blue	HMI_N2
6	Orange	HMI_N1
7	White/brown	HMI_P3
8	Brown	HMI_N3

7.3 HMI-Link G2 Wires in the Cable Strand

To guarantee correct function, it is important to ensure that in the cable strand, the wires do not run parallel over long distances. This especially applies to fast data lines such as Ethernet, VARAN, as well as the HMI-Link. Here, it is recommended to use a cable that is equal to or better than the CAT6A standard.

When multiple HMI-Link cables run in parallel, the following limit values for the maximum length of the parallel wiring apply:

Cable type	30 m	50 m	70 m	100 m
CAT5e/CAT6	6	4	2	1
CAT6a/CAT7	6	6	6	6

Crosstalk between the data lines and the interference it causes, which are coupled between the wires should be monitored. The highest number of cables allowed in a cable strand with multiple HMI-Link cables, which are run over a defined distance, is specified.

8 Disposal

To dispose of the product, the respective, possibly country-dependent, guidelines must be met and followed.

Documentation Changes

Change date	Affected page(s)	Chapter	Note
27.07.2017	1		Text addition „G2“
	3	1.1 Performance Data	Table corrected, note added
	4	1.4 Miscellaneous	Table corrected, note added
	7	3 Connector Layout	Connector X3 name changed
	11 et seq	6 Wiring Guidelines et seq	Changed chapter order
	13 et seq	7 HMI-Link G2 Wiring et seq	Changed chapter order
	15	8 Disposal	Chapter added