HIMatrix

Safety-Related Controller

F30 01 Manual

HIMA Paul Hildebrandt GmbH + Co KG

Industrial Automation

Rev. 2.00

HI 800 145 E

3.5 Product Data

General	
User memory	Versions prior to 6.46: max. 500 kB user program, max. 500 kB user data Version 6.100: max. 2047 kB user program, max. 2047 kB user data Version 7 and higher: max. 1023 kB user program, max. 1023 kB user data
Response time	≥ 20 ms
Ethernet interfaces	4 x RJ-45, 10BASE-T/100BASE-Tx with integrated switch
Fieldbus interfaces	3 x 9-pole D-sub FB1 and FB2 with fieldbus submodule pluggable, FB3 with RS485 for Modbus (master or slave) or ComUserTask
Operating voltage	24 VDC, -15...+20 %, r_{PP} ≤ 15 %, from a power supply unit with safe insulation in accordance with IEC 61131-2
Current input	max. 8 A (with maximum load) Idle: 0.5 A
Fuse (external)	10 A time-lag (T)
Buffer for date/time	Gold capacitor
Operating temperature	0...+60 °C
Storage temperature	-40...+85 °C
Type of protection	IP20
Max. dimensions (without plug)	Width: 257 mm (with housing screws) Height: 114 mm (with fixing bolt) Depth: 66 mm (with earthing screw)
Weight	approx. 1.2 kg

Table 15: Product Data

Digital Inputs		
Number of inputs		20 (non-galvanically separated)
High level:	Voltage	15...30 VDC
	Current input	≥ 2 mA at 15 V
Low level:	Voltage	max. 5 VDC
	Current input	max. 1.5 mA (1 mA at 5 V)
Switching point		typ. 7.5 V
Supply		5 x 20 V / 100 mA (at 24 V), short-circuit-proof

Table 16: Specifications for Digital Inputs

Digital outputs	
Number of outputs	8 (non-galvanically separated)
Output voltage	≥ L+ minus 2 V
Output current	Channels 1...3 and 5...7: 0.5 A up to 60 °C The output current of the channels 4 and 8 depends on the ambient temperature. Ambient temperature / Output current: < 50 °C: 2 A 50…60 °C: 1 A
Minimum load	2 mA for each channel
Internal voltage drop	max. 2 V at 2 A
Leakage current (with low level)	max. 1 mA at 2 V
Behavior upon overload	The affected output is switched off and cyclically switched on again
Total output current	max. 7 A Upon overload, all outputs are switched off and cyclically switched on again

Table 17: Specifications for the Digital Outputs

3.5.1 Product Data F30 011 (-20 °C)

The F30 011 (-20 °C) model variant is intended for use at the extended temperature range of -20…+60 °C. The electronic components are coated with a protective lacquer.

F30 011	
Operating temperature	-20…+60 °C
Weight	approx. 1.2 kg

Table 18: Product Data F30 011 (-20 °C)

3.5.2 Product Data F30 014

The F30 014 model variant is intended for use in railway applications. The electronic components are coated with a protective lacquer.

F30 014	
Operating temperature	-25…+70 °C (temperature class T1)
Output current	Channels 1...3 and 5...7: 0.5 A The output current of the channels 4 and 8 depends on the ambient temperature. Ambient temperature / Output current: < 50 °C: 2 A 50…60 °C: 1 A > 60 °C: 0.5 A
Weight	approx. 1.2 kg

Table 19: Product Data F30 014

The controller F30 014 meets the conditions for vibrations and shock test according to EN 61373, category 1, class B.

3.6 Certified HIMatrix F30

HIMatrix F30	
CE	EMC, ATEX Zone 2
TÜV	IEC 61508 1-7:2000 up to SIL 3 IEC 61511:2004 EN ISO 13849-1:2008 up to Cat. 4 und PL e
TÜV ATEX	94/9/EG EN 1127-1 EN 61508
Lloyd's Register	Shipping certification ENV1, ENV2 and ENV3. Test Specification Number: 1 - 2002
UL Underwriters Laboratories Inc.	ANSI/UL 508, NFPA 70 – Industrial Control Equipment CSA C22.2 No.142 UL 1998 Software Programmable Components NFPA 79 Electrical Standard for Industrial Machinery IEC 61508
FM Approvals	Class I, DIV 2, Groups A, B, C and D Class 3600, 1998 Class 3611, 1999 Class 3810, 1989 Including Supplement #1, 1995 CSA C22.2 No. 142 CSA C22.2 No. 213
PROFIBUS Nutzerorganisation (PNO)	Test Specification for PROFIBUS DP Slave, Version 3.0 November 2005
TÜV CENELEC	Railway applications EN 50126: 1999 up to SIL 4 EN 50128: 2001 up to SIL 4 EN 50129: 2003 up to SIL 4

Table 20: Certificates