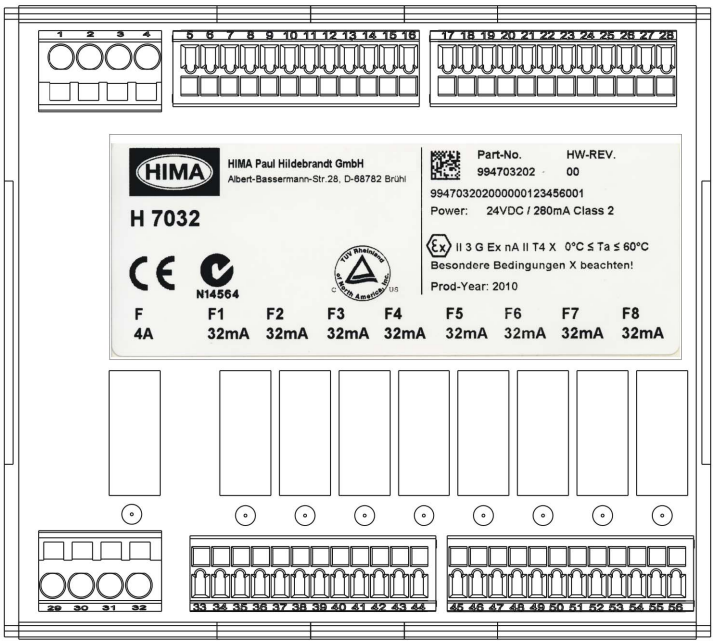
Industrial Automation

HIMatrix System

Manual

H 7032

Two-Wire Transmitter Supply



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For further information, refer to the CD-ROM and our website at: www.hima.com.

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Table of Contents

1 HIMatrix Two-Wire Transmitter Supply H 7032 with HART Filter 4
1.1 Introduction 4
1.1.1 Terminal Description for H 7032 5
1.1.2 PIN Assignment for Two-Wire Transmitter Supply 6
1.2 Operation 7
1.2.1 Monitoring of the transmitter supply voltage U_{TM} 7
1.3 Specifications H 7032 8
1.4 Mounting the H7032 in Zone 2 9

1 HIMatrix Two-Wire Transmitter Supply H 7032 with HART Filter

HIMA Part no.: 99 4703202

1.1 Introduction

H 7032 is a series connection unit for the modular MI 24 01 module of the HIMatrix F60 and supplies the connected two-wire transmitters with external supply voltage.

H 7032 has the following characteristics:

- It protects the MI 24 01 inputs.
- 8 external transmitter supplies for two-wire transmitters S1...S8.
- Low pass filter for HART signals.
- It can be used with transmitter supply voltage monitoring.
- It can be used up to SIL 3.
- DIN rail mounting.

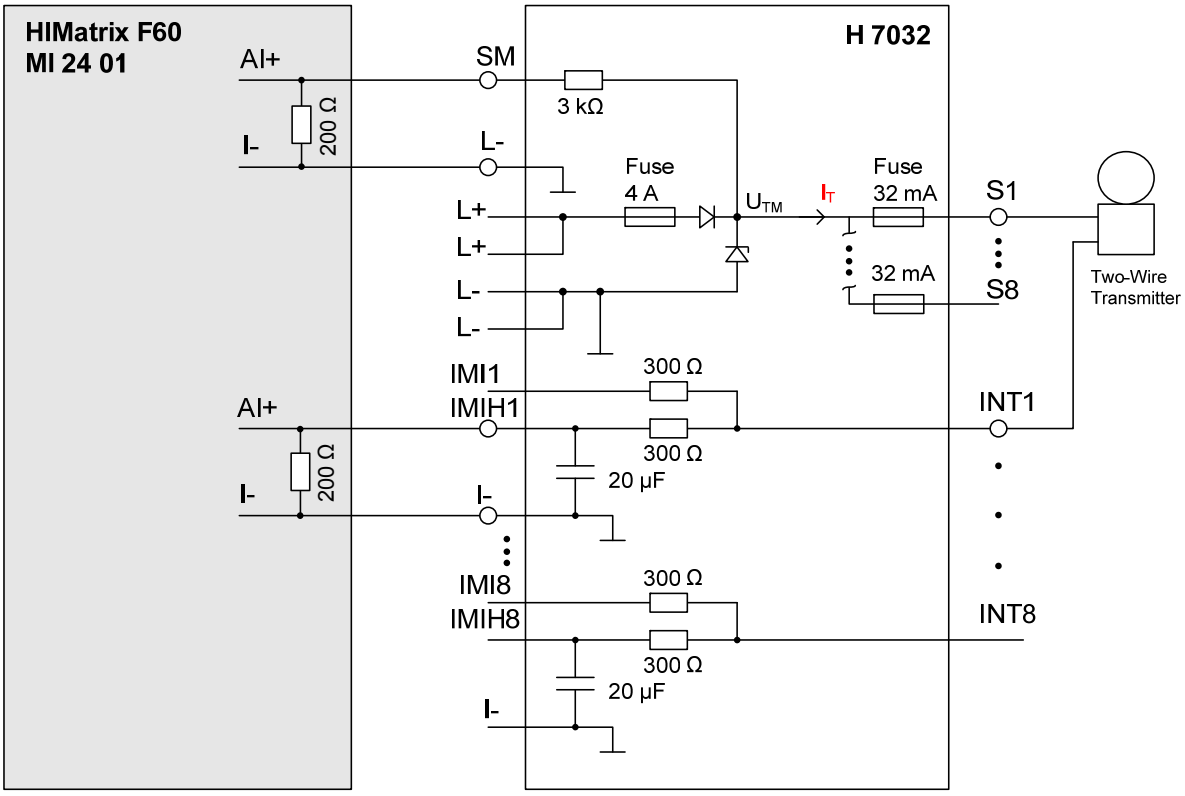

Figure 1: Block Diagram H 7032

1.1.1 Terminal Description for H 7032

Designation	Function	Cross-section
L+, L-	Power supply H 7032	2.5 mm²
S1...S8	Transmitter supply two-wire transmitter	1.5 mm²
INT1...INT8	Analog transmitter input	1.5 mm²
SM	Monitoring of transmitter supply voltage (U_{TM}), connection on the MI 24 01 analog input	2.5 mm²
L-	Ground Connection on the MI 24 01 ground	2.5 mm²
IMI1...IMI8	Series connection unit analog output Connection on the analog MI 24 01 input	1.5 mm²
IMIH1...IMIH8	Series connection unit analog output, filtered signal Connection on the analog MI 24 01 input	1.5 mm²
I-	Ground Connection on the MI 24 01 ground	1.5 mm²

Table 1: Terminal Description for Two-Wire Transmitter Supply

1.1.2 PIN Assignment for Two-Wire Transmitter Supply

PIN	Signal	PIN	Signal
1	SM	29	L+
2	SM	30	L+
3	L-	31	L-
4	L-	32	L-
5	IMI1	33	S1
6	IMIH1	34	INT1
7	I-	35	not used
8	IMI2	36	S2
9	IMIH2	37	INT2
10	I-	38	not used
11	IMI3	39	S3
12	IMIH3	40	INT3
13	I-	41	not used
14	IMI4	42	S4
15	IMIH4	43	INT4
16	I-	44	not used
17	IMI5	45	S5
18	IMIH5	46	INT5
19	I-	47	not used
20	IMI6	48	S6
21	IMIH6	49	INT6
22	I-	50	not used
23	IMI7	51	S7
24	IMIH7	52	INT7
25	I-	53	not used
26	IMI8	54	S8
27	IMIH8	55	INT8
28	I-	56	not used

Table 2: PIN Assignment for Two-Wire Transmitter Supply

1.2 Operation

To operate the H 7032, set the following parameters:

- In ELOP II Factory/SILworX, set transmitter supply of the module MI 24 01 MI[xx].Transmitter Used to "FALSE".
- Set the power supply (L+) of H 7032 to the following value:
  L+ = U_{Tmin} + 16 V at 23 mA, U_{Tmin} = minimum transmitter supply voltage
- Use the IMIH terminal if the filtered input signal of the two-wire transmitter should be used.

1.2.1 Monitoring of the transmitter supply voltage U_{TM}

To monitor the transmitter supply voltage U_{TM}, connect the analog input of the MI 24 01 module to the SM and L- terminals. The transmitter supply voltage U_{TM} is monitored via the current I_{MI24}, see the following formulas:

$$I_{MI24} = U_{TM} / 3200\ \Omega$$

$$U_{TM} = U_{Tmin} + I_T \times 500\ \Omega + I_T \times R_{wire} + U_{Fuse\ 32\ mA} + \text{Tolerance}$$

Example:

U_{Tmin} = 12 V, I_T = 22 mA, R_{wire}= 40 Ω, $U_{Fuse\ 32\ mA}$ = 0.6 V, Tolerance = 0.9 V

I_{MI24} = (12 V + 11 V + 0.88 V + 0.6 V + 0.9 V) / 3200 Ω

I_{MI24} = 7.93 mA

The input current of MI 24 01 must not fall below 7.93 mA.

The module MI 24 01 checks the transmitter supply voltage U_{TM}. If U_{TM} is less than the minimum transmitter operating voltage U_{Tmin}, the signals from the connected transmitter may no longer be classified as safe.

1.3 Specifications H 7032

Two-Wire Transmitter Supply	
Supply voltage (L+) regulated	20...30 VDC, PELV, SELV, Class 2
Current consumption	max. 280 mA
Transmitter supply (two-wire transmitter)	
Transmitter supply U_T	Voltage between S and INT
Supply voltage U_S	Voltage between S and L-
Current (transmitter supply) I_{TC}	max. 32 mA
Transmitter supply voltage monitoring.	Observe the minimum transmitter supply voltage U_{Tmin} of the connected transmitter!
Monitoring of the transmitter supply voltage (SM)	
Monitored transmitter supply voltage U_{TM}	$U_{TM} = U_{Tmin} + I_T \times 500\ \Omega + I_T \times R_{wire} + U_{Fuse\ 32\ mA}$ + Tolerance
Fuse	
G-fuse cartridge 32 mA	Part no. 57 0174327
Filter	
Time constant τ	τ = 6 ms
Filter impedance	300 Ω
Signal oscillation caused by HART signal	±0,3 % at 20 mA; 1200...2200 Hz
Mounting H 7032	
Mounting	On DIN rail 35 mm
Mounting position	Horizontally or vertically, no mounting distance required
Special mounting conditions for USA/Canada	Mount in Type 3 control cabinet or in Type 3 assembly housing
General	
Type of protection	IP20
Weight	approx. 220 g
Operating temperature	0...+60 °C
Storage temperature	-40...+85 °C
Dimensions (H x W x D)	approx. 112 x 125 x 40 mm

Table 3: Specifications

1.4 Mounting the H7032 in Zone 2

(EC Directive 94/9/EC, ATEX)

If the special conditions X are observed, the H 7032 device may be installed in Zone 2.
The corresponding EC declaration of conformity is available on the HIMA website.

Special Conditions X

Mount the device in an enclousure (cabinet) that meets the EN / IEC 60079-15 requirements and achieves a type of protection of at least IP54 (category 1) in accordance to EN / IEC 60529.
This enclosure (control cabinet) must be labelled as follows:

WARNUNG – NICHT UNTER SPANNUNG ÖFFNEN

WARNING – DO NOT OPEN WHEN ENERGIZED

Note: If a potentially explosive atmosphere has been precluded, work can be also performed when the device is under voltage.

The enclosure (control cabinet) in use must be able to safely dissipate the generated heat.
The H 7032 device has a power dissipation of **4 W**.

Since the device is equipped with exchangeable fuses, an additional warning must be placed on the front plate of the enclosure (control cabinet). The warning should have following text:

WARNUNG –	**SICHERUNGEN NICHT UNTER SPANNUNG HERAUSNEHMEN ODER WECHSELN**
WARNING –	**DO NOT REMOVE OR REPLACE FUSES WHEN ENERGIZED**

The EC Directives and the following standards must be observed when installing and operating the device:

DIN EN 60079-15 (VDE 0170/0171 Part 16)
DIN EN 60079-0 (VDE0170-1)
DIN EN 60079-11 (VDE0170-7)
DIN EN 60079-14 (VDE 0165 Part 1)

The H 7032 device is labelled with the following special product marking:

Ⓔx II 3 G Ex nA II T4 X 0°C ≤ Ta ≤ 60°C
Special conditions X must be regarded!

HIMA
...the safe decision.

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