Inline terminal: 4 digital inputs
ILT 24 DI 4-ME
IB IL 24 DI 4-ME

Device description

SysMik® GmbH Dresden

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Contents

1 Description

Note: This device description is only valid in association with the IL SYS INST UM user manual.

Make sure you always use the latest documentation – it can be downloaded at www.sysmik.de.

This terminal is designed for use within an Inline station. It is used to acquire digital signals.

Features

- Connections for four digital sensors
- Connection of sensors in 2 and 3-wire technology
- Maximum permissible load current per sensor: 250 mA
- Maximum permissible load current from the terminal: 1.0 A
- Diagnostic and status indicators

2 Order information

Description	Type	Part number
Terminal with four digital inputs; including connector and labeling field	ILT 24 DI 4-ME	1225-100488-01-8
Alternatively the terminal IB IL 24 DI 4-ME (four digital inputs; including connector and labeling field) can be used.	IB IL 24 DI 4-ME	28 63 92 8

3 Technical data

General data	
Housing dimansions (width x height x depth)	12,2 mm x 119,8 mm x 71,5 mm
Weight	44 g (without connectors)
Operating mode	Process data mode with two words
Ambient temperature (operation)	-25 °C to +55 °C (-13 °F to +13 °F)
Ambient temperature (storage / transport)	-25 °C to +85 °C (-13 °F to +185 °F)
Permissible humidity (operation)	75 % on average, 85 % occasionally
Note: In the range from -25 °C to +55 °C (-13 °F to +131 °F) appropriate measures against increased humidity (> 85%) must be taken.	
Permissible humidity (storage / transport)	75 % on average, 85 % occasionally
Note: For a short period, slight condensation may appear on the outside of the housing if, for example, the terminal is brought into a closed room from a vehicle.	
Permissible air pressure (operation)	80 kPa to 106 kPa (up to 2000 m [6562 ft.] above sea level)
Permissible air pressure (storage/transport)	70 kPa to 106 kPa (up to 3000 m [9843 ft.] above sea level)
Degree of protection	IP20 according to IEC 60529
Class of protection	Class 3 according to VDE 0106, IEC 60536

Interface	
Local bus	Through data routing

Power consumption	
Communications power	7,5 V DC
Current consumption from the local bus	40 mA maximum
Power consumption from the local bus	0,3 W maximum
Segment supply voltage U_S	24 V DC (nominal value)
Nominal current consumption at U_S	1.0 A, maximum

Supply of the Module Electronics and I/O Through Bus Terminal/Power Terminal	
Connection method	Through potential routing

Digital inputs	
Number	4
Input design	According to EN 61131-2, Typ 1
Definition of switching thresholds	
Maximum low level voltage	U_{Lmax} < 5 V
Minimum high level voltage	U_{Hmin} > 15 V
Common potentials	Segment supply, ground
Nominal input voltage U_{IN}	24 V DC
Permissible range	-30 V < U_{IN} < +30 V DC
Nominal input current for U_{IN}	3 mA, minimum
Delay time	none
Permissible cable length to the sensor	30 m (98.43 ft.) (to ensure conformance with EMC Directive 89/336/EEC)
Use of AC sensors	AC sensors in the voltage range < U_{IN} are limited in application (corresponding tot he input design)

Characteristic curve: Current depending on the input voltage and the ambient temperature T_A

Supply voltage	**Input current**	**Input current according to t >= 20 s**	
		with T_A = 25 °C	**with T_A = 55 °C**
18 V	3,0 mA	2,9 mA	2, mA
24 V	3,9 mA	3,8 mA	3,5 mA
30 V	4,5 mA	4,2 mA	3,0 mA

The current is reduced depending on the ambient temperature T_A and the number of inputs that are switched on (internal module temperature).

Power dissipation	
Formula to calculate the power dissipation of the electronics	$P_{EL} = 0{,}24\ W + \sum_{n=1}^{4} [U_{INn} \times 0{,}003\ A]$
Where: P_{EL} Total power dissipation in the terminal n Index of the number of set inputs n (n = 1 to 4) U_{INn} Input voltage of the input n	
Power dissipation of the housing P_{HOU}	0,6 W, maximum (within the permissible operating temperature)

Limitation of Simultaneity, Derating	No limitation, no derating

Safety equipment	
Overload in segment circuit	No
Surge voltage	Protective circuits of the power terminal
Polarity reversal	Protective circuits of the power terminal

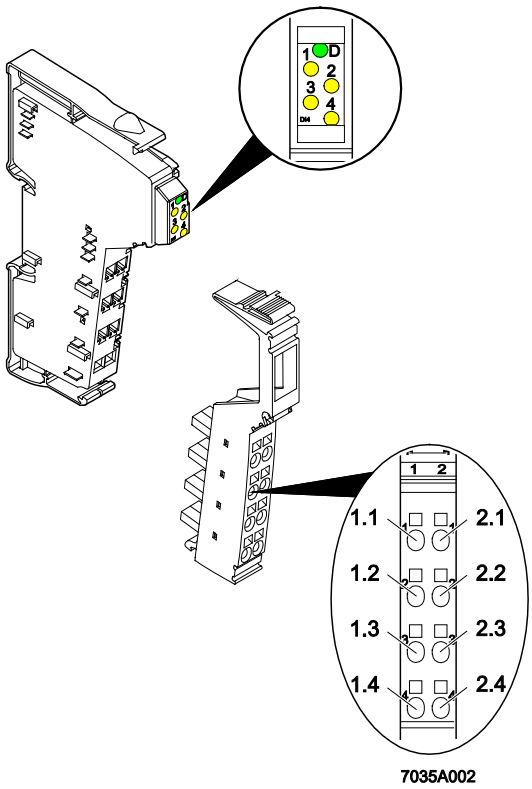
Electrical isolation
Note: To achieve electrical isolation between the logic level and the I/O area, supply these areas from separate power supply units. Interconnection of the power supply units in the 24 V area is not permitted (see also application description)!
Common potentials
The 24 V main voltage, 24 V segment voltage and GND have the same potential. FE is a separate potential area.
Separate Potentials in the System Consisting of Bus Terminal/Power Terminal and I/O Terminal

Test distance	Test voltage
5 V supply incoming remote bus / 7.5 V supply (bus logic)	500 V AC, 50 Hz, 1 min.
5 V supply outgoing remote bus / 7.5 V supply (bus logic)	500 V AC, 50 Hz, 1 min.
7.5 V supply (bus logics) / 24 V supply (I/O)	500 V AC, 50 Hz, 1 min.
24 V supply (I/O) / functional earth ground	500 V AC, 50 Hz, 1 min.

Error messages for the higher-level control or computer system
none

Approvals
Fort he latest approvals please visit www.sysmik.de.

4 Local diagnostic and status indicators and terminal point assignment



Des.	Color	Meaning
D	green	Diagnostics
1, 2, 3, 4	yellow	Status indicators of the inputs

Terminal points	Assignment
1.1	Signal input 1 (IN 1)
2.1	Signal input 2 (IN 2)
1.2, 2.2	Segment voltage U_S for 2 and 3-wire termination
1.3, 2.3	Ground contact (GND) for 3-wire termination
1.4	Signal input 3 (IN 3)
2.4	Signal input 4 (IN 4)

Functionial identification: blue

Fig. 1: Local status and diagnostic indicators / terminal point assignment

5 Internal circuit

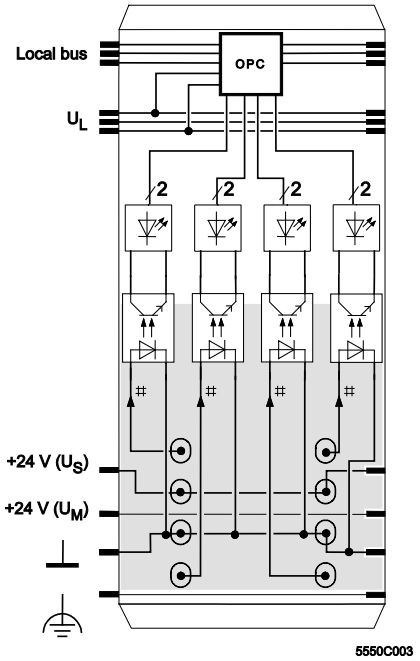
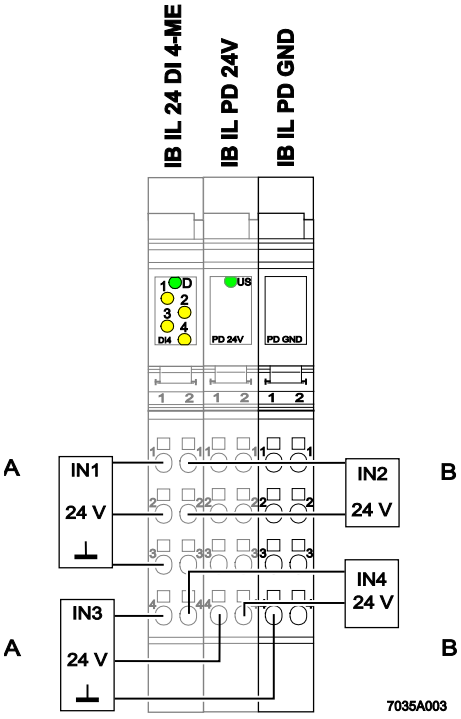


Fig. 2: Internal wiring of the inputs

OPC	Protocol chip (bus logic including voltage conditioning)		Digital input
	LED (status indicator)		Electrically isolated area
	Optocoupler		

Note: Explanation for other used symbols is provided in the IL SYS INST UM E manual.

6 Connection notes and examples



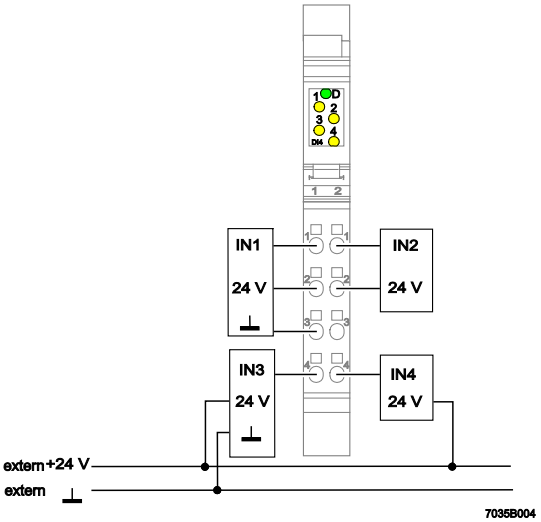
A 3-Leiteranschluss

B 2-Leiteranschluss

Note: When connecting the sensors observe the assignment of the terminal points to the process data (see terminal point assignment).

Fig. 3: Typical connection of sensors when terminals for potential distribution are used

The sensors can also be connected via external bus bars. -Ensure that the sensors and U_S are supplied from the same voltage- supply.



Note: Ensure that the Inline system ground is reference for at least the ground when using external bus bars.

Fig. 4: Typical connection of sensors when using external busbars