Inline terminal
ILT DI 8/S0
IB IL DI 8/S0-PAC

Device Description

This manual is intended to provide support for installation and usage of the device. The information is believed to be accurate and reliable. However, SysMik GmbH Dresden assumes no responsibility for possible mistakes and deviations in the technical specifications. SysMik GmbH Dresden reserves the right to make modifications in the interest of technical progress to improve our modules and software or to correct mistakes.

We are grateful to you for criticism and suggestions. Further information (device description, available software) can be found on our homepage www.sysmik.de. Please ask for latest information.

SysMik disclaims all warranties in case of improper use or disassembly and software modifications not described in this document or when using improper or faulty tools. Commissioning and operation of the device by qualified personnel only. All applicable regulations have to be observed.

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1 Overview

The terminal ILT DI 8/S0 is a modular 8-channel digital input terminal with counter function for use with SysMik devices ICS-500 and Scalibur.

It is suitable to measure counter pulses of pulse output devices according to DIN 43864, and pulse output devices of Class A according to IEC 62053-31[1].

The counters can be used as impulse counter or operating hours counter. Counter values and configuration is saved non-volatile. All channels can be configured independently.

Features:

- eight inputs for digital sensors
- connection of S0-pulse output devices, dry contacs or low side outputs (open collector, open drain)
- connection of sensors in 2-, 3- or 4-wire technology
- counter range 32 bit
- maximum permissible load per sensor: 250 mA
- maximum permissible load current from the terminal: 2 A
- diagnostic- and status indicators

Impulse counter:

- max. 150 Hz counter frequency
- additional current period duration or pulse duration (ON or OFF) in 1 ms resolution (16 bit counter range)

Operating hours counter:

- 1 s resolution
- counting enabled by active or inactive input (configurable)

Note: This data sheet is only valid in association with the “SysMik User’s Guide Inline” (see [1]).

[1] Class B pulse output devices of IEC 62053-31 can be connected too (no danger of damaging the counter terminal or the pulse output device). Correct function is not guaranteed strictly by the standard, but very likely.

2 Order Information

Device	Part number
ILT DI 8/S0	1225-100253-05-0
IB IL DI 8/S0-PAC	2897020

Table 2.1: Order information

3 Connections

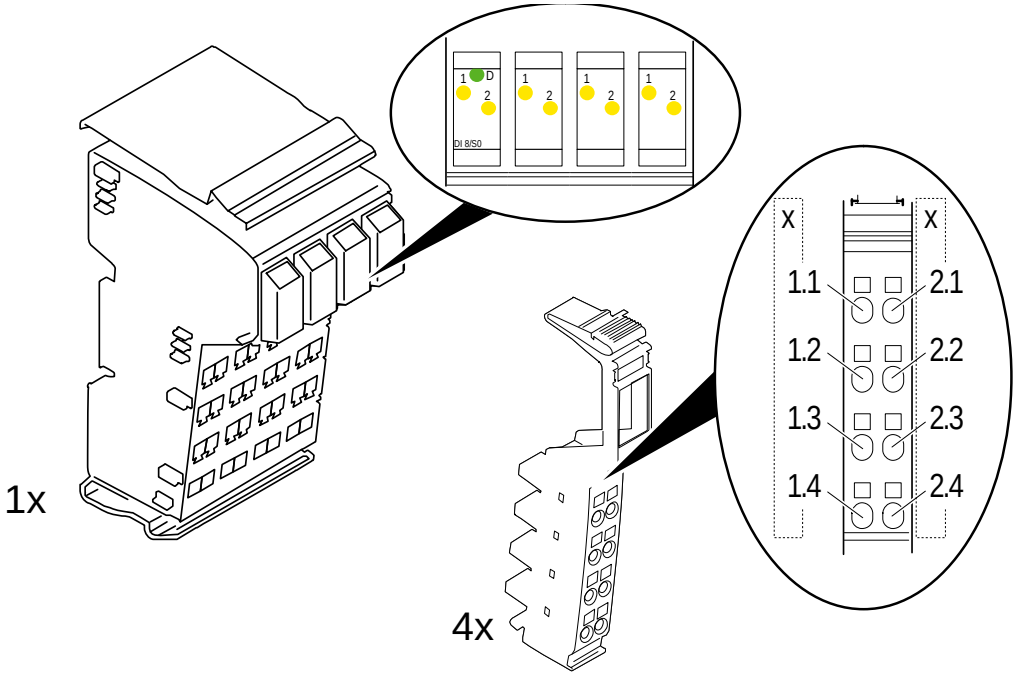


Fig. 3.1: Terminal connections

Indicator	Color	Description
D	green	bus diagnostics
Each connector		
1, 2	yellow	status indication of inputs

Table 3.1: Local diagnostic and status indicators

Terminal point	Signal	Assignment
x.1	IN	signal input
x.2	U_S	segment voltage 24 V DC, internally connected to potential routing contact U_S
x.3	GND	ground connection of segment voltage, internally connected to potential routing contact GND
x.4	FE	functional earth, internally connected to potential routing contact FE

Table 3.2: Terminal assignment

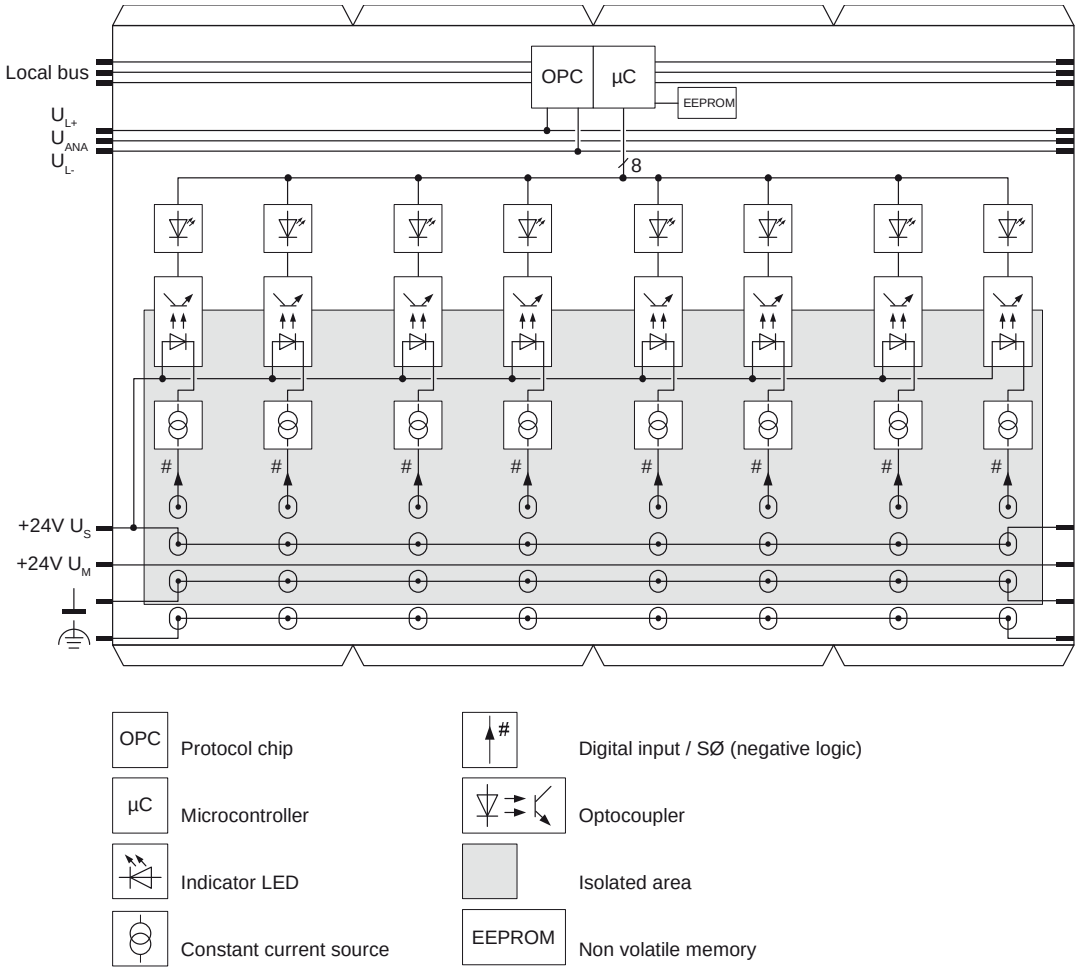


Fig. 3.2: Functional overview

3.1 Wiring Example

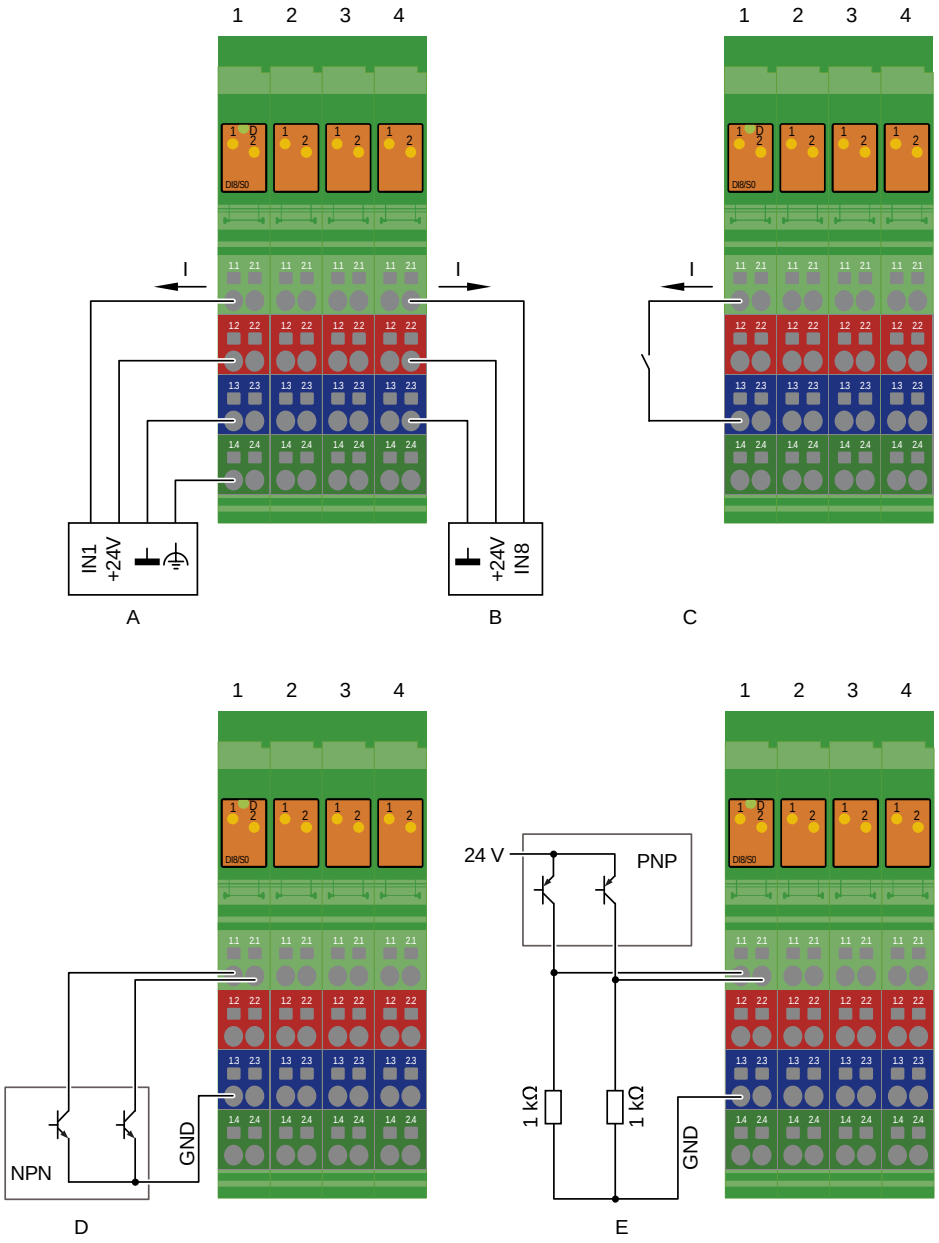


Fig. 3.1.1: Wiring example

A 4-wire connection

B 3-wire connection

C 2-wire connection (contact)

D 2-wire connection (NPN transistor output)

E 2-wire connection (PNP transistor output with external pull-down resistor)

The direction of current flow of these inputs with negative logic is indicated in Fig. 3.1.1.

4 Technical Data

General data		
Housing dimensions (width x height x depth)		48,8 mm x 120 mm x 71,5 mm
Weight	with connectors	183 g
	without connectors	123 g
Permissible temperature	operation	-25 °C to +55 °C (-13 °F to +131 °F)
	storage / transport	-25 °C to +85 °C (-13 °F to +185 °F)
Permissible humidity		75 % on average, 85 % occasionally (non condensing)
Permissible air pressure	operation	80 kPa to 106 kPa (up to 2000 m / 6562 ft. above sea level)
	storage / transport	70 kPa to 106 kPa (up to 3000 m / 9843 ft. above sea level)
Degree of protection		IP20 according to IEC 60529

Power consumption	
Communications power U_L	7,5 V DC
Current consumption at U_L	≤ 55 mA
Segment supply voltage U_S	24 V DC
Max. current consumption at U_S, including sensor supply	≤ 2 A
Max. current consumption at U_S, without sensor supply, all inputs active	≤ 70 mA

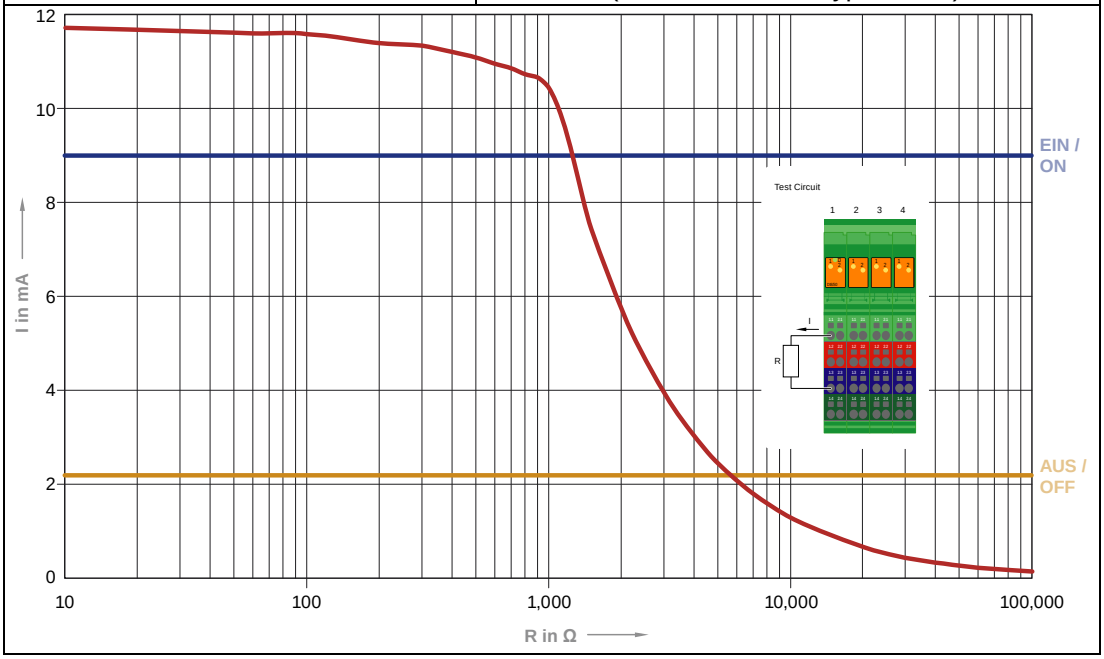
Supply of the module electronics through the bus coupler / power terminal	
Connection method	through potential routing

Error messages to higher-level control system
7.5 V supply U_L (bus logic) too low → peripheral error
Inconsistent nonvolatile memory (counter, configuration) → peripheral error

Digital inputs	
Number	8
Type	according to DIN 43864
Threshold	OFF: I < 2.2 mA ON: I > 9 mA
Common potentials	segment supply, ground
Permissible input voltage	$0 \le U_{IN} \le U_S$

The input voltage of the digital inputs is clamped by protective diodes to GND and U_S. Overloading the diodes can damage the terminal.

Max. open circuit voltage at the input	< 14 V
Max. input current at U_{IN} = 0	< 14 mA
Current flow	non linear (constant current, typ. 11 mA)



Power dissipation

Equation to calculate the power dissipation in the terminal

$P_{EL} = 0.6\ W + n * 0.2\ W$

Where

P_{EL}	total power dissipation of the terminal
n	number of active inputs, n = 0 to 8

Limitation of simultaneity, derating

No limitation of simultaneity, no derating over the whole operating temperature range.

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 / isolation of the voltage areas	
To provide electrical isolation between the logic level and the I/O area it is necessary to supply the station bus terminal and the digital input terminal via the bus terminal or a power terminal from separate power supply units. Interconnection of the power supply units in the 24 V area is not permitted.	
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	
Test distance	**test voltage**
7.5 V supply (bus logic) vs. 24 V supply (I/O)	500 V AC, 50 Hz, 1 min
24 V supply (I/O) vs. functional earth ground (FE)	500 V AC, 50 Hz, 1 min

Table 4.1: Technical data

5 Literature

[1] SysMik User's Guide Inline

[2] DIN 43864

[3] IEC 62053-31

[4] www.sysmik.de