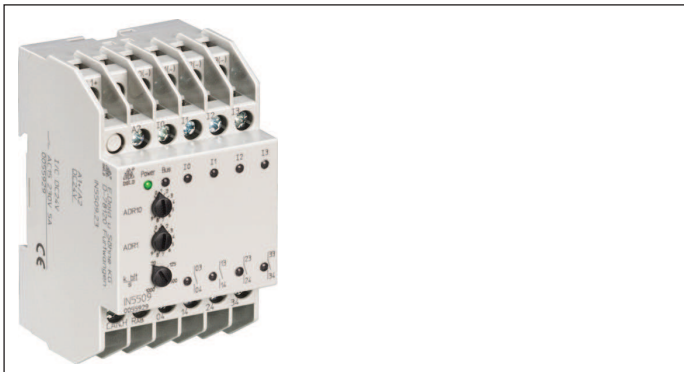


## MINIMASTER

### Input / Output Module for CANopen IN 5509



0247893



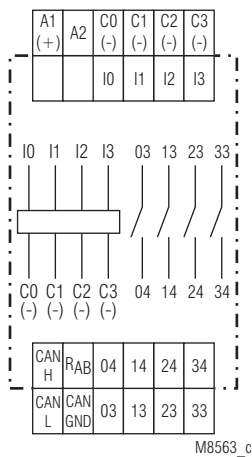
#### Your Advantages

- Compact structure
- Easy installation

#### Features

- According to IEC/EN 61 131-2
- CANopen interface according to DS 301 version 3.0, DS 401
- 4 digital inputs for DC 24 V
- 4 relay outputs
- LED indicators
- 52.5 mm width

#### Circuit Diagram



#### Approvals and Markings



#### Application

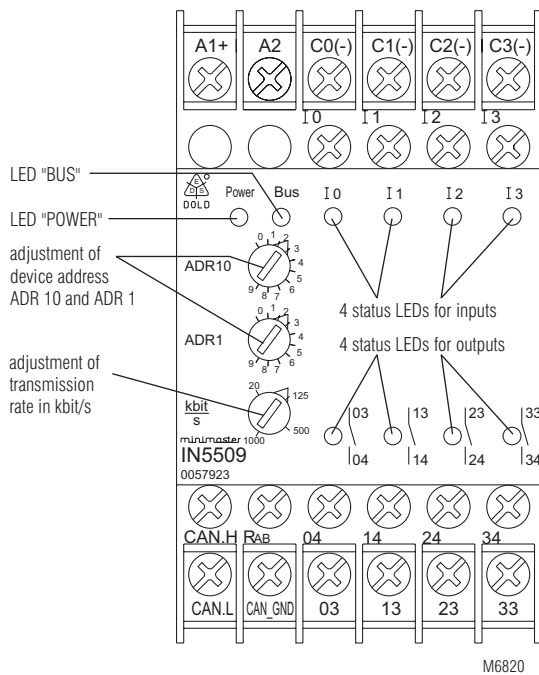
The digital input modules collect signals of a control circuit from limit switches, push buttons, sensors etc. With the relay outputs the signals for a control system are switched. The IN 5509 is used in industrial control circuits and building automation.

#### Indicators

- |   |  |
|---|--|
| yellow LED "Power":                                   | on, when supply connected                            |
| yellow LED "BUS":                                     | on, when BUS is aktive, pulsing when bus is inactive |
| green status LEDs I <sub>0</sub> ... I <sub>3</sub> : | on, when input active                                |
| red LEDs:   | on, when output relay active                         |

IN 5509.23

#### Setting and Adjustment



#### CANopen-mode

The configuration is made with the programming software PN 5501 in conjunction with minimaster IL 5504 / IN 5504 or e.g. with ProCANopen. The corresponding configuration file on CD can be ordered under order no. PN 5501, article no. 0052860

#### Set-up procedure

1. Connect device to CANopen-bus
2. Terminate bus on both ends with bridge between CAN-H and R<sub>ab</sub> on first and last module.
3. Adjust transmission speed (e. g. 20 K bit / s)
4. Adjust device addresses
5. Configure bus

## Technical Data

### Auxiliary voltage

**Auxiliary voltage  $U_H$  A1/A2:** DC 24 V  
**Voltage range:** 0.8 ... 1.1  $U_N$   
**Nominal consumption:** 0.5 W DC 24 V

### Input

**Inputs** galvanic separation  
IN 5509.23: 4 digital inputs IEC/EN 61 131-2  
**Input voltage**  
IN 5509.23/1\_ \_: DC 24 V  
according to ISO 11898-1, galvanic separated

### CANopen interface

**Wire:** screened twisted pair  
**Transmission speed:** adjustable 20 kbit/s, 125 kbit/s, 500 kbit/s, 1 Mbit/s,

	IN 5509.23	IN 5509.23/100
max. buslength:	20 kbit/s 2500 m	2500 m
	125 kbit/s 500 m	500 m
	500 kbit/s 100 m	90 m
	1 Mbit/s 25 m	15 m

### Attention:



Both ends of the 2-wire bus have to be terminated with a bridge between CAN\_H and R<sub>ab</sub>.

### Output

**Contacts**  
IN 5509.23: 4 NO contacts IEC/EN 61 131-2  
**Thermal current  $I_{th}$ :** 2 A  
**Switching capacity**  
to AC 15: 3 A / AC 230 V IEC/EN 60 947-5-1  
**Schaltleistung**  
at AC 230 V: 460 VA  
at DC 24 V: 48 W  
**Short circuit strength**  
max. fuse rating: 4 A gL IEC/EN 60 947-5-1  
**Mechanical life:** >10<sup>8</sup> switching cycles

### General Data

**Operating mode:** Continuous operation  
**Temperatur range:** - 20 ... + 60°C  
**Clearance and creepage distances**  
rated impulse voltage / pollution degree: 4 kV / 2 IEC 60 664-1  
**EMC**  
Electrostatic discharge: 8 kV (air) IEC/EN 61 000-4-2  
HF-irradiation: 10 V / m IEC/EN 61 000-4-3  
Fast transients: 2 kV IEC/EN 61 000-4-4  
Surge voltages between wires for power supply: 1 kV IEC/EN 61 000-4-5  
between wire and ground: 2 kV IEC/EN 61 000-4-5  
HF-wire guided: 10 V IEC/EN 61 000-4-6  
Interference suppression: Limit value class B EN 55 011  
**Degree of protection**  
Housing: IP 40 IEC/EN 60 529  
Terminals: IP 20 IEC/EN 60 529  
**Housing:** Thermoplast mit V0 behaviour according to UL subject 94  
**Vibration resistance:** Amplitude 0.35 mm frequency 10 ... 55 Hz IEC/EN 60 068-2-6  
**Climate resistance:** 20 / 060 / 04 IEC/EN 60 068-1  
**Terminal designation:** EN 50 005  
**Wire connection:** 2 x 2.5 mm<sup>2</sup> solid or 2 x 1.5 mm<sup>2</sup> stranded ferruled DIN 46 228-1/-2/-3/-4  
**Wire fixing:** Terminal screws M3.5, box terminals with wire protection  
**Mounting:** DIN rail IEC/EN 60 715  
**Weight:** 180 g

### Dimensions

**Width x height x depth:** 52.5 x 90 x 58 mm

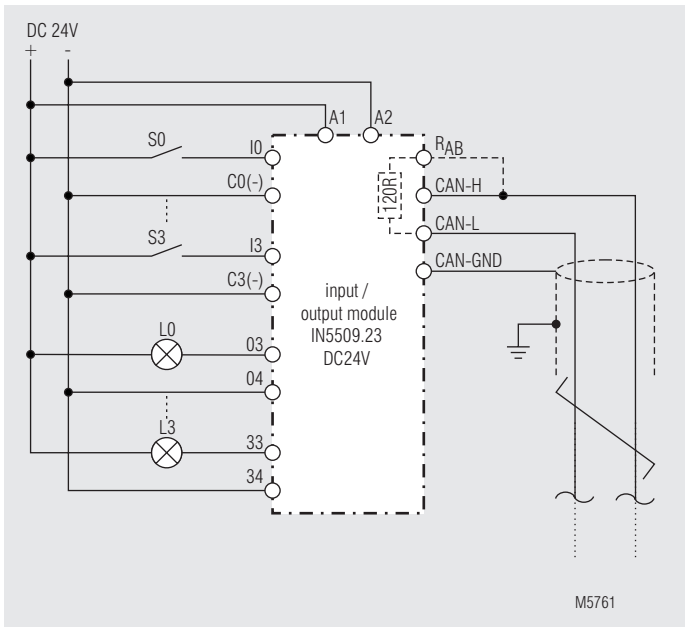
## Standard Type

IN 5509.23/100 DC 24 V  
Article number: 0055929  
• 4 Digital inputs  
• 4 Relay outputs  
• Nominal voltage  $U_N$ : DC 24 V  
• Width: 52.5 mm

## Accessories

- CANopen PLC IL 5504
- Input / Output Module IN 5509
- Input Module, Digital IP 5502
- Output Module, Digital IP 5503
- Input Module, Analogue IL 5508
- Output Module, Analogue IL 5507

## Application Example



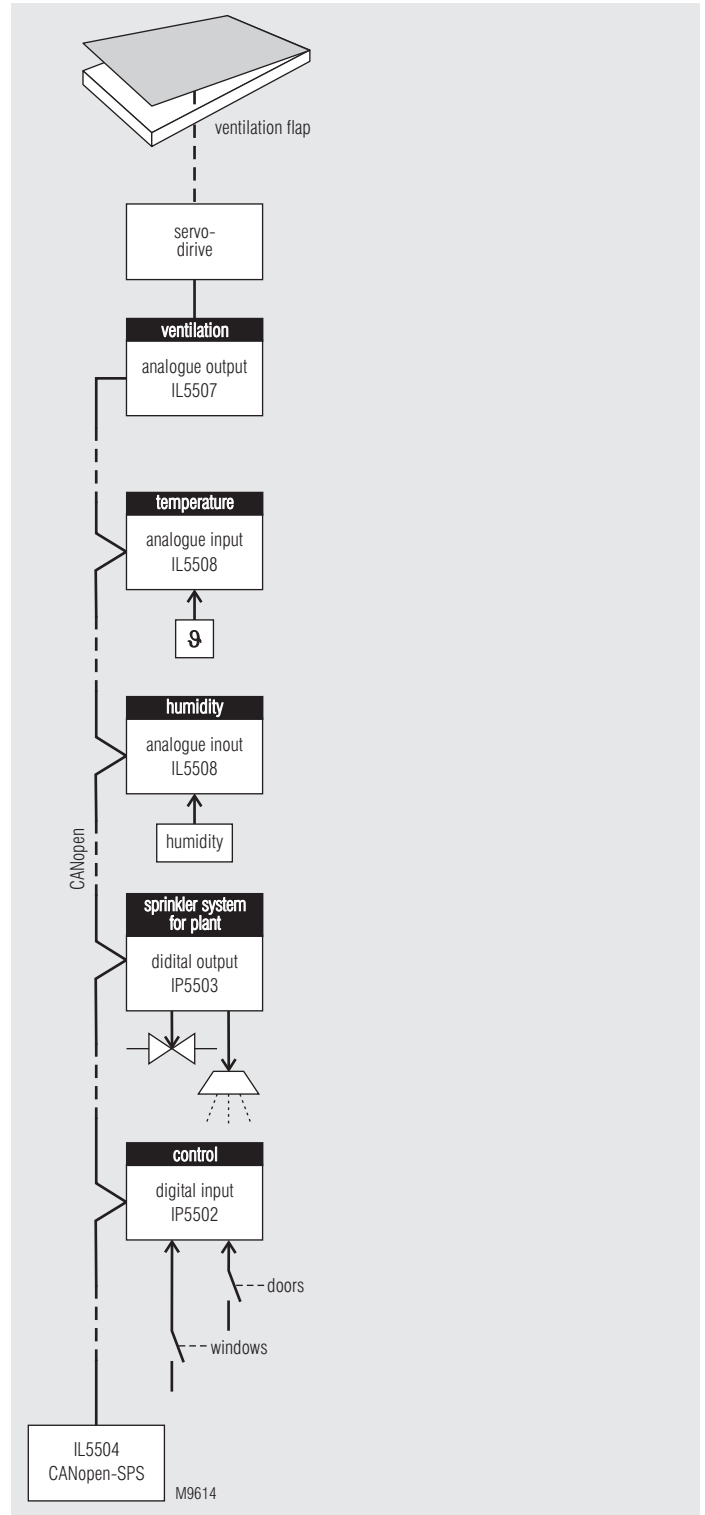
### CAN-signals

CAN-H:	CAN_H bus line (dominant high)
CAN-L:	CAN_L bus line (dominant high)
R <sub>AB</sub> :	Termination resistor 120 Ω
CAN-GND:	reference potential of CAN-transceiver

### Notes for wiring

- Mixed networks, or networks that are not galvanically separated
  - CAN-GND is connected between all devices (CIA DRP 303-1).
  - if no 3rd wire is available in the bus cable, the screen of the cable can be used. In this case the screen has to be connected to PE at one point.
- Galvanic separated networks
  - if the networks are completely separated CAN-GND must not be wired (CIA DRP 303-1). The screen is connected to PE.
- An equalisation of potentials between units in far distance has to be provided.
- The CAN-bus must be terminated at the first and last device on the bus with a 120 Ω resistor, e.g. insert a link on terminals R<sub>AB</sub> and CAN-H.

## Application Example



CANopen-application for greenhouses: dependend on temperature- and humidity ventilation flap applications and sprinkler systems for plants in a greenhouse.

