

IL 5504

IN 5504

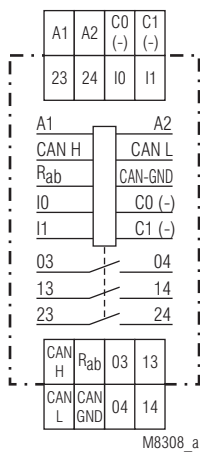
### Your Advantages

- Compact CAN-operation
- Graphical programming
- Quick and easy installation
- Various input- / output module digital / analogue available

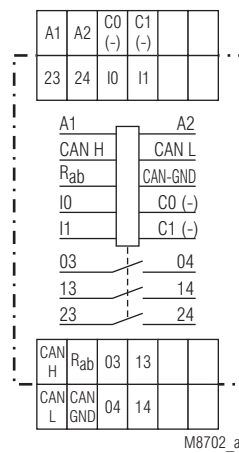
### Features

- According to IEC/EN 61 131-2, EN 50 178
- Operation as master
  - Operation as slave
  - Transfer rate up to 1 Mb/s
  - Interface according to DS301 version 3.0
- IN 5504 locally extendable with digital and analogue in- / output modules
- 2 digital inputs for DC 24 V
- 2 relay outputs
- LED indicators
- Standard programming software CODESYS® under Windows according to IEC/EN 61131-3:
  - Instruction set
  - Ladder diagram
  - Function block diagram
  - Sequential function chart
  - Structured text (similar to Pascal)
- 128 KB Flash memory for user program
- 128 KB RAM for user data
- 16 KB battery buffered RAM for no-voltage safe data
- Battery buffered real time clock
- Monitoring contact for RUN status of the PLC
- IL 5504: 35 mm width
- IN 5504: 52.5 mm width

### Circuit Diagrams



IL 5504



IN 5504

### Additional Information

- Data sheet Input Module IP 5502
- Data sheet Output Module IP 5503
- Data sheet Emergency Stop Monitor BH 5922
- Data sheet Power Supply IR 5592
- Data sheet Analogue Output Module IL 5507
- Data sheet Analogue Input Module IL 5508
- Data sheet Input- / Output Module IN 5509

### Approvals and Markings

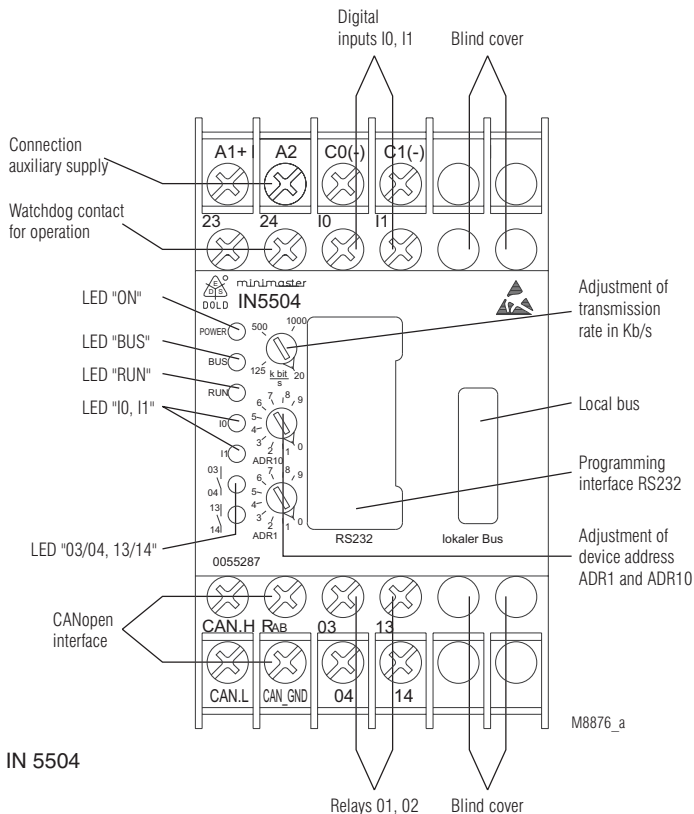
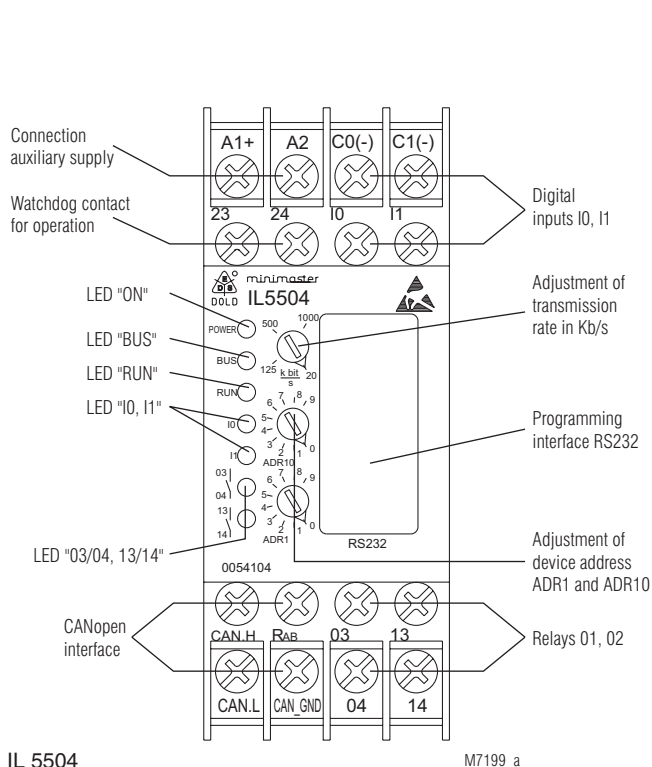


### Application

The PLC runs a user program edited with the programming software PN 5501. The program can process local I/Os on the PLC as well as remote I/Os via the CANopen bus.

### Indicators

- |                     |                                                                 |
|---------------------|-----------------------------------------------------------------|
| green LED „ON“:     | on, when supply connected                                       |
| yellow LED „BUS“:   | on, when bus is active                                          |
| yellow LED „RUN“:   | on, when PLC in RUN state<br>flashing, when failure             |
| green LED „I0, I1“: | on, when corresponding input is active<br>(I0/C0-, I1/C1-)      |
| red LED „O1, O2“:   | on, when corresponding output relay is active<br>(O3/O4, 13/14) |



**Adjustment of address:**

To allow communication on the CANopen-Bus the device address has to be set with the 2 rotational switches between 1 ... 99.

**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>
- 3.) Adjust transmission speed
- 4.) Set knot address
- 5.) Transmit program form PC to PLC IL 5504 with programming software and store it.

**Technical Data**

**Auxiliary voltage**

**Auxiliary voltage U<sub>H</sub> A1/A2:** DC 24 V  
**Voltage range:** 0.8 ... 1.1 U<sub>N</sub>  
**Nominal consumption:** 1.4 W

**Input**

**Inputs:** 2 digital inputs according to IEC/EN 61131-2 galvanic separated by optocouplers  
**Input voltage:** DC 24 V  
**Signalverzögerung:** approx. 2 ms

**Output**

**Contacts:** IL 5504.22: 2 relay outputs  
 1 monitoring contact 23-24  
**Thermal current I<sub>th</sub>:** 2 A  
**Switching capacity to AC 15:** 3 A / AC 230 V IEC/EN 60 947-5-1  
**Switching capacity:** at DC 24 V: 48 W  
 at AC 230 V: 460 VA  
**Short circuit strength max. fuse rating:** 4 AgL IEC/EN 60 947-5-1  
**Mechanical life:** > 10<sup>6</sup> switching cycles

**Technical Data**

**Programming interface RS232**

**Wire:** Null Modem wire link  
**Transmission parameter:** 57.6 KBaud, 8N1  
 The auxiliary voltage U<sub>H</sub> is not galvanically separated from the programming interface.

**CANopen interface**

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

**Attention:** Both ends of the 2-wire bus have to be terminated with a bridge between CAN<sub>H</sub> and R<sub>ab</sub>. The auxiliary voltage U<sub>H</sub> is not galvanically separated from the CANopen interface.

**General Data**

**Buffer for RAM and Realtime clock:** 3 years  
**Cycle time:** approx. 10 ms + (0.4 ms per translated 1 Kb user program)  
**Immunity against phase failure:** 20 ms  
**Operating mode:** Continuous operation  
**Temperature range:** - 20 ... + 60°C  
**Clearance and creepage distances**

|                                                         |            |              |
|---------------------------------------------------------|------------|--------------|
| overvoltage category / pollution degree                 |            |              |
| auxiliary voltage, CANopen interface to digital inputs: | 1.5 kV / 2 | IEC 60 664-1 |
| digital inputs to digital inputs:                       | 1.5 kV / 2 | IEC 60 664-1 |
| auxiliary voltage, CANopen interface to relay outputs:  | 4 kV / 2   | IEC 60 664-1 |
| relay outputs to relay outputs:                         | 4 kV / 2   | IEC 60 664-1 |

| Technical Data                                                                                                                            |                     |                   |
|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------|
| <b>EMC</b>                                                                                                                                |                     |                   |
| 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 |
| Interference suppression:                                                                                                                 | Limit value class B | EN 55 011         |
| <b>Degree of protection</b>                                                                                                               |                     |                   |
| Housing:                                                                                                                                  | IP 30               | IEC/EN 60 529     |
| Terminals:                                                                                                                                | IP 20               | IEC/EN 60 529     |
| <b>Housing:</b><br>Thermoplastic with V0-behaviour according to UL subject 94                                                             |                     |                   |
| <b>Vibration resistance:</b><br>amplitude 0.35 mm<br>frequency 10 ... 55 Hz, IEC/EN 60 068-2-6                                            |                     |                   |
| <b>Climate resistance:</b><br>20 / 060 / 04 IEC/EN 60 068-1                                                                               |                     |                   |
| <b>Terminal designation:</b><br>EN 50 005                                                                                                 |                     |                   |
| <b>Wire connection:</b><br>2 x 2.5 mm <sup>2</sup> solid or<br>2 x 1.5 mm <sup>2</sup> stranded wire with sleeve<br>DIN 46 228-1/-2/-3/-4 |                     |                   |
| <b>Wire fixing:</b><br>Flat terminals with self-lifting clamping piece IEC/EN 60 999-1                                                    |                     |                   |
| <b>Mounting:</b><br>DIN rail IEC/EN 60 715                                                                                                |                     |                   |
| <b>Weight:</b><br>150 g                                                                                                                   |                     |                   |

#### Dimensions

##### Width x height x depth:

|          |                   |
|----------|-------------------|
| IL 5504: | 35 x 90 x 58 mm   |
| IN 5504: | 52.5 x 90 x 58 mm |

#### Standard Types

##### IL 5504.22 DC 24 V

Article number: 0054104

- 2 relay outputs
- 1 monitoring contact
- 2 digital inputs DC 24 V
- CANopen interface
- Auxiliary supply U<sub>H</sub>:
- Width:

DC 24 V  
35 mm

##### IN 5504.22 DC 24 V

Article number: 0055287

- 2 relay outputs
- 1 monitoring contact
- 2 digital inputs DC 24 V
- CANopen interface
- Auxiliary supply U<sub>H</sub>:
- Width:

DC 24 V  
52.5 mm

#### Accessories

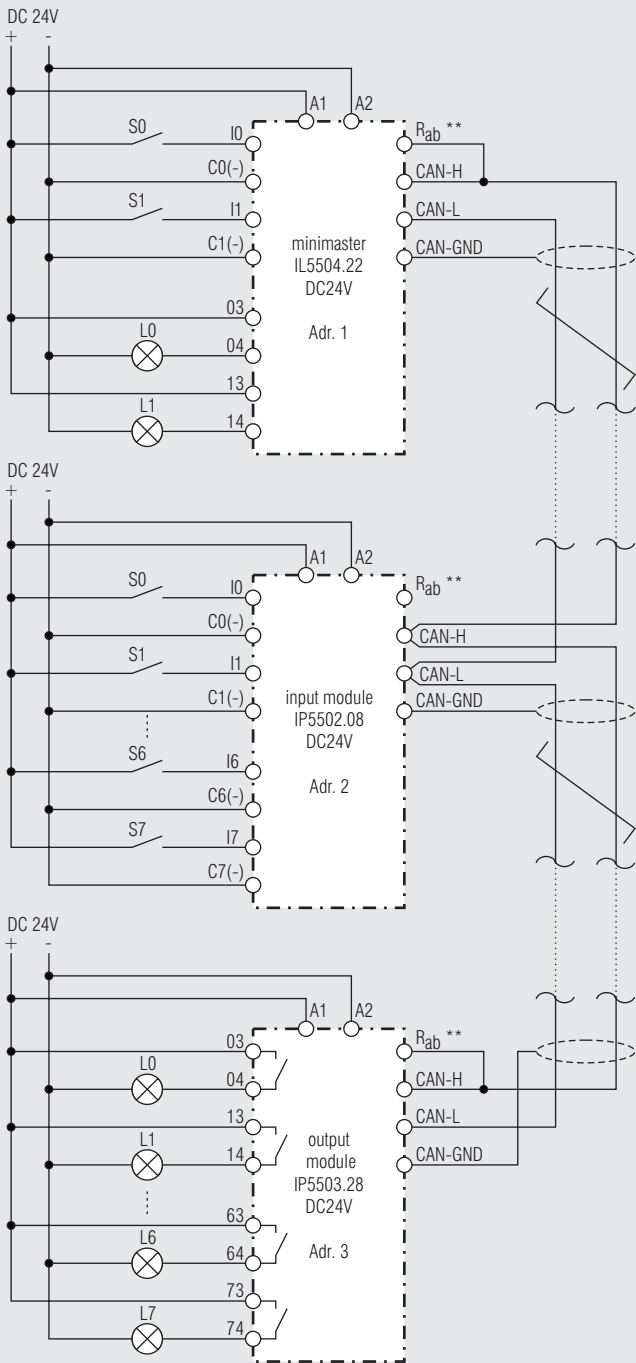
|                 |                                                                                                               |
|-----------------|---------------------------------------------------------------------------------------------------------------|
| PN 5501:        | Programming software<br>Article number: 0052860                                                               |
| OA 5529/180:    | Programming cable<br>Article number: 0054950                                                                  |
| IP 5502.08:     | CANopen module with 8 binary inputs<br>DC 24 V<br>Article number: 0050911                                     |
| IP 5503.28:     | CANopen module with 8 relay outputs<br>Article number: 0050912                                                |
| IN 5509.23:     | CANopen in- / output module with 4<br>binary inputs DC 24 V und 4 relay<br>outputs<br>Article number: 0055929 |
| IL 5507.90/100: | Analogue output modul; 0 ... 10 V; DC 24 V<br>Article number: 0060372                                         |
| IL 5507.90/110: | Analogue output modul; 0 ... 20 V; DC 24 V<br>Article number: 0060373                                         |
| IL 5508.90/100: | CANopen module with 2 analogue inputs<br>0 ... 10 V<br>Article number: 0056431                                |
| IL 5508.90/110: | CANopen module with 2 analogue inputs<br>0 ... 20 mA<br>Article number: 0056807                               |
| IL 5508.90/121: | CANopen module with 2 analogue inputs,<br>PT100<br>Article number: 0056957                                    |
| IR 5592:        | Power supply for PLC and modules<br>Article number: 0041650                                                   |
| IL 5504:        | CANopen PLC                                                                                                   |

#### Accessories

Extension modules for extension bus of IN 5504

| Module type   | Type       | Article no. | Configuration |
|---------------|------------|-------------|---------------|
| Input module  | IP 5513.25 | 0041124     | 8E DC 24 V    |
| Output module | IP 5513.29 | 0041128     | 8A relays     |
| Input module  | IL 5513.24 | 0041121     | 4E DC 24 V    |
| Output module | IL 5513.28 | 0041127     | 4A relays     |

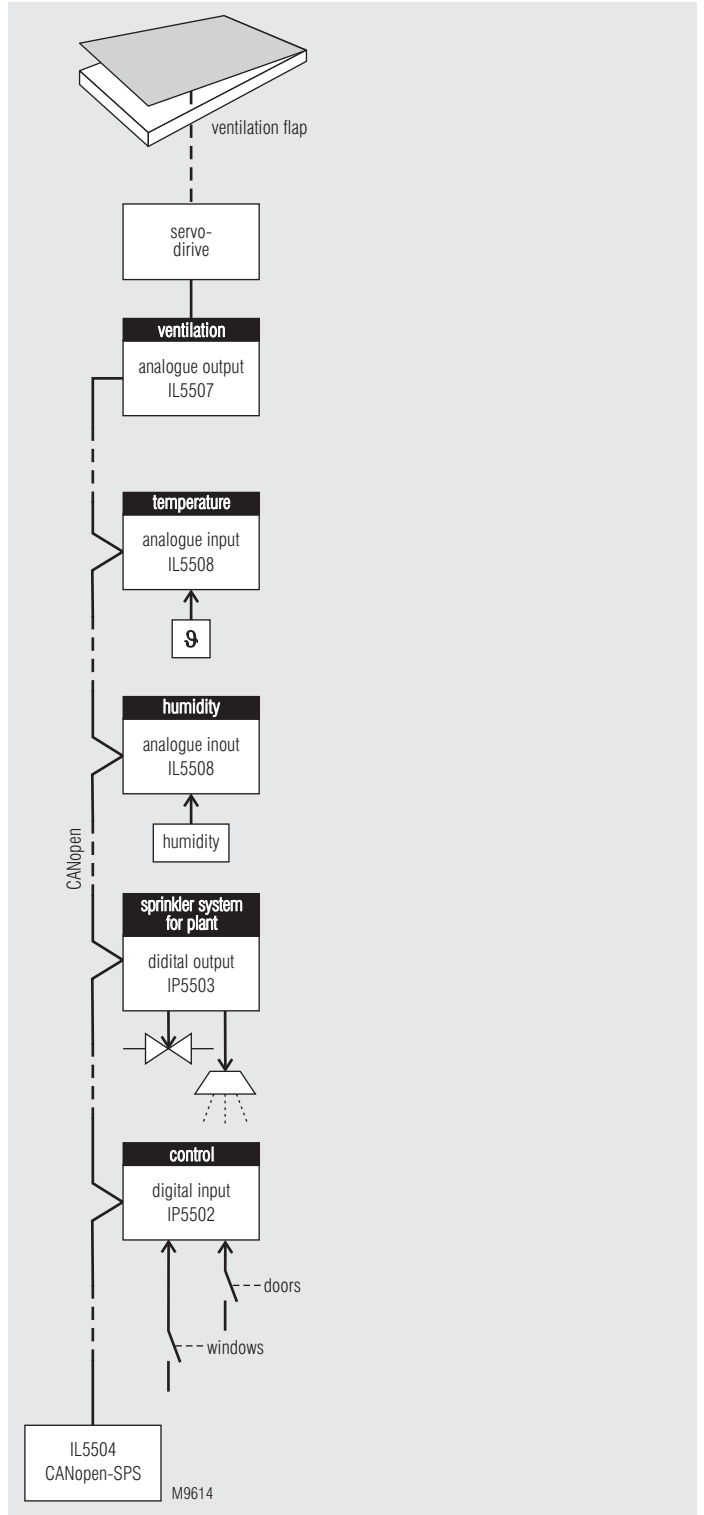
## Application Example IL 5504



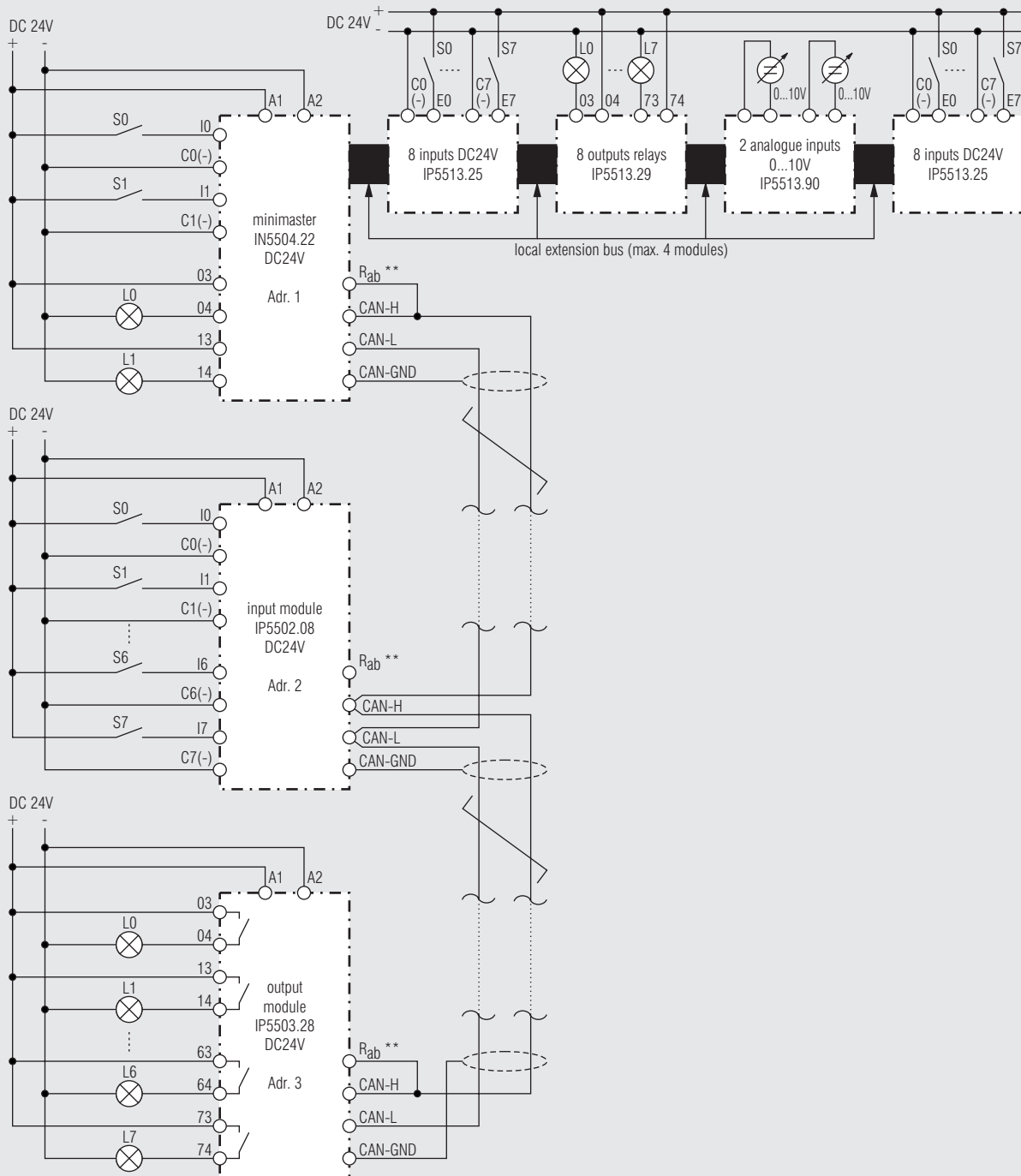
\*\* Both ends of the 2-wire bus have to be terminated with a bridge between CAN-H and R<sub>ab</sub>.

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## Application Example



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



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

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