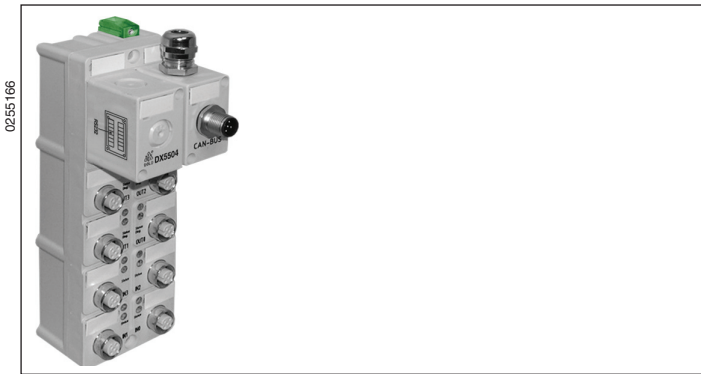
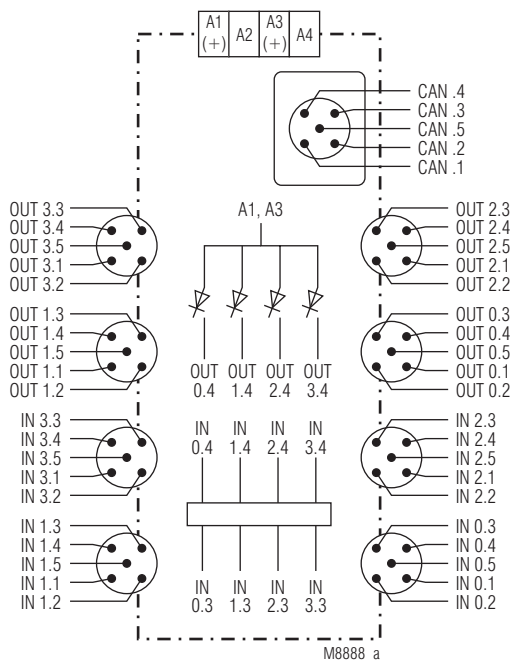




Circuit Diagram



- 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
- Case isolation type IP67
- CANopen interface, galvanic isolation
- 4 digital inputs for 24 V DC for direct connection of 2- or 3 wire proximity sensors
- With variant DX 5504/102 inputs can also be used as 0 ... 10 V analogue inputs
- 4 Active outputs, short-circuit protected
- LED indicator for bus activity, supply voltage, input / output status, active output status
- 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
- Width: 61 mm

Additional information

- Data sheet minimaster I/O module DX 5509
- Data sheet input module IP 5502
- Data sheet output module IP 5503
- Data sheet emergency stop monitor BH 5922
- Data sheet CANopen PLC IL 5504, IN 5504
- Data sheet power supply IR 5592
- Data sheet analogue input module IL 5508
- Data sheet analogue output module IL 5507

Approvals and marking

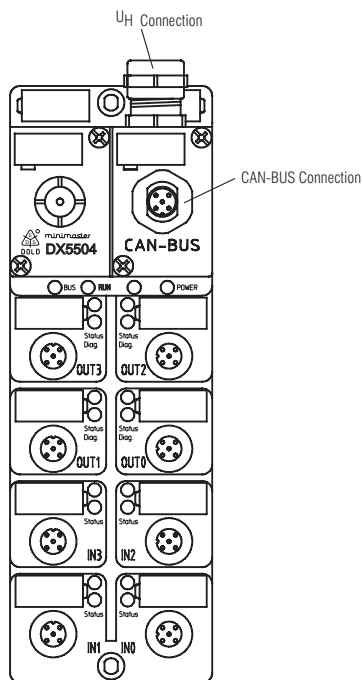


Application

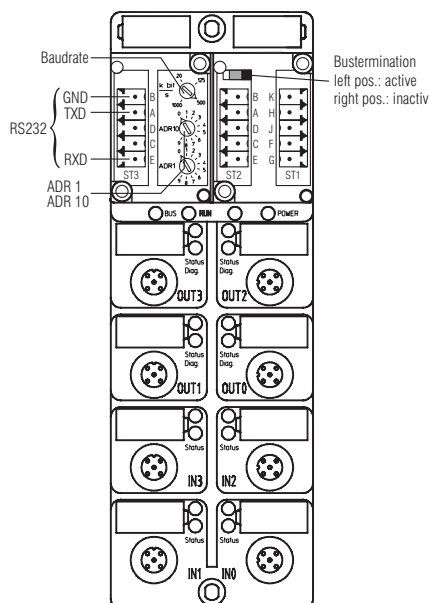
The PLC runs a user program edited with the programming software PN 5501. The program can process local I/Os on the PLC as well as remote I/Os via the CANopen bus.

Indication

Green LED „POWER“:	on, when power is applied
Yellow LED „BUS“:	on, when bus is active
Yellow indicator LED „IN 0, IN 1, IN 2, IN 3“:	Status LED lit when input is active (IN x.4 / IN x.3)
Yellow indicator LED „OUT 0, OUT 1, OUT 2 OUT 3“:	Status LED lit during activated active output
Red diagnosis LED „DIAG 0, DIAG 1, DIAG 2, DIAG 3,“:	Diagnosis LED indicates failure on the associated active output (OpenLoad, Overtemperature)



M9785



M9775

Example address setting: Address 14
Upper knob „ADR10“ to 1
Lower knob „ADR1“ to 4

Connector Pin Diagram of ST1:

U_H-Connector (ST1) Terminal ST1

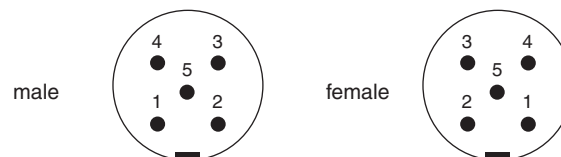
Pin	Signal	Description
K	A1 (+)	Auxiliary voltage 24 V DC
H	A2 (-)	A1 GND (+)
J	A3 (+)	Auxiliary voltage 24 V DC
F	A4 (-)	A3 GND (+)
G		Not connected

Connector Pin Diagram of ST3:

Program interface RS232

Pin	Description
B	GND
A	TXD
D	-
C	-
E	RXD

Connector Pin Diagram:



CAN-connection CAN-BUS (male)

Pin	Signal	Description
1	Shield	Connected to PE
2		Not connected
3	CAN_GND	CAN-GND
4	CAN_H	CAN-HIGH
5	CAN_L	CAN-LOW

Inputs

IN 0, IN 1, IN 2, IN 3
(female)

Pin	Signal	Description
1	+ 24 V	Sensor supply DC 24 V
2		Not connected
3	GND	- Input
4	IN (+)	+ Input
5		Not connected

Outputs

OUT 0, OUT 1,
OUT 2, OUT 3
(female)

Pin	Signal	Description
1		Not connected
2		Not connected
3	GND	GND (Actuator)
4	OUT (+)	Output
5		Not connected

Technical Data	
Auxiliary Voltage	
Auxiliary Voltage U_H A1/A2:	DC 24 V
Voltage Range:	0.8 ... 1.1 U_N
Nominal Power:	1.4 W
Inputs (IN0, IN1, IN2, IN3) at variants DX5504/101, DX5504/102	
Inputs:	4 digital inputs acc. to IEC/EN 61 131-2 Limit value type 1
Input Voltage:	DC 24 V
Signal Delay:	ca. 2 ms
Permissible residual current at 2-wire initiators:	≤ 290 µA
Inputs (IN0, IN1, IN2, IN3) at variant DX5504/102	
Inputs:	4 analogue inputs, single ended
Input Voltage:	0 ... 10 V
Input impedance:	> 5.5 kΩ
Resolution:	8 bit
Converting:	successive approximation
Converting time:	9.7
Measuring error:	< 2 % of end scale value
Quantisierung:	39 mV

Semiconductor outputs (OUT 0, OUT 1, OUT 2, OUT 3)

Output:	Semiconductor, plus switching
Thermal current I_{th}:	1 A
Short circuit strength:	short circuit strength

Program interface RS232

Transfer Cable:	Zero modem cable
Transmission parameters:	57.6 Kbaud, 8N1

The auxiliary supply is not separated from the programming interface

CANopen Interface

Transfer Cable:	Shielded twisted pair
Transfer Rate:	as option with 20 Kb/s, 125 Kb/s, 500 Kb/s or 1 Mb/s



Attention: Both ends of the bus cable must be connected

General Data

Nominal operating mode:	Continuous operation
Temperature range:	- 20 ... + 50°C
Buffer for RAM and Realtime:	3 years
Cycle time:	approx. 10 ms + (0.4 ms per translated 1 Kb user program)

Clearance and creepage distances

rated impuls voltage / pollution degree:	4 kV / 2	IEC 60 664-1
EMC		
Electrostatic discharge (ESD):	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 voltage 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
Interference suppression:	Limit value class B	

Technical Data	
Degree of protection	
Housing:	IP 67 IEC/EN 60 529
Terminals:	IP 67 IEC/EN 60 529
Housing:	Thermoplast mit V0-Verhalten nach UL Subj. 94
Vibration resistance:	Amplitude 0.35 mm Frequency 10 ... 55 Hz, IEC/EN 60 068-2-6 20 / 060 / 04 IEC/EN 60 068-1
Climate resistance:	EN 50 005
Terminal designation:	
Wire connections:	
Auxiliary voltage	Box terminal
Inputs/outputs	Mini-Style M12 connection
CAN-Bus	Mini-Style M12 connection
Net weight:	370 g
Dimensions	

Width x Height x Depth: 61 x 226 x 76 mm

Standard type	
DX 5504.23/101	DC 24 V
Article number:	0057771
• 4 Semiconductor output • 4 digital inputs for DC 24 V • CANopen interface, galvanic isolation • Width: 61 mm	

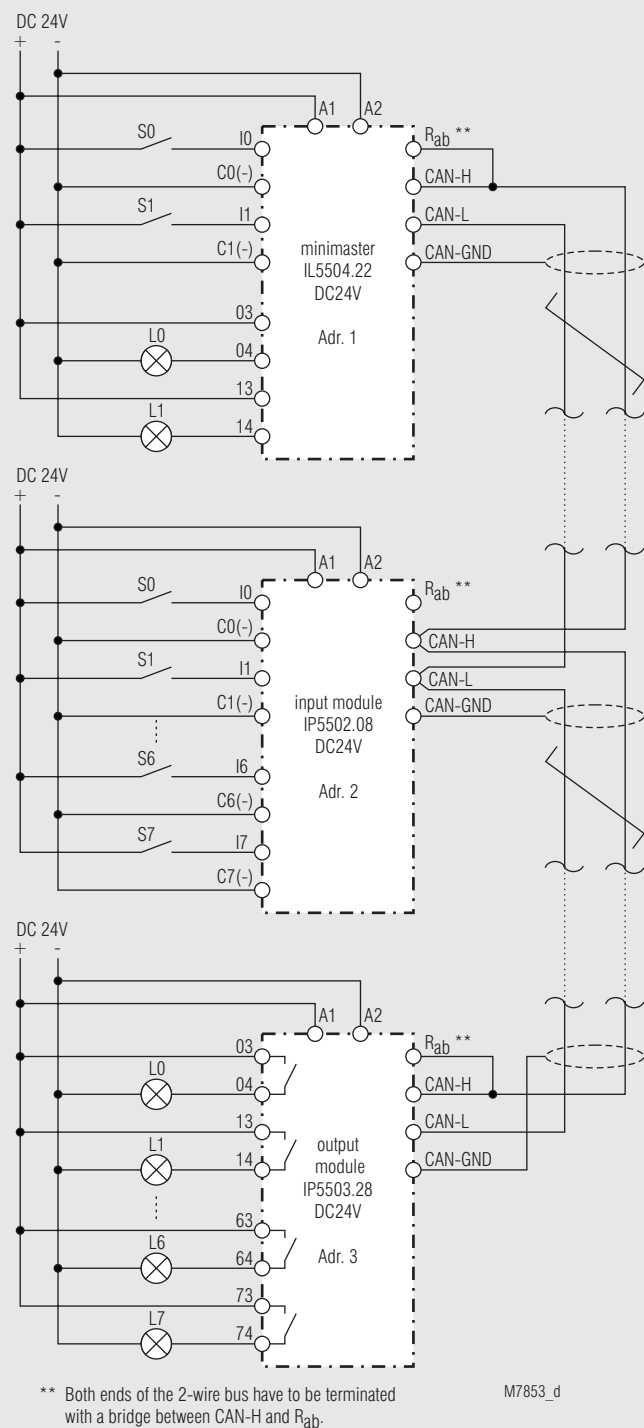
Variants

Order example for variants

DX 5504.23/_0_	DC 24 V
1	4 Semiconductor output
2	4 digital inputs for DC 24 V
0	4 Semiconductor output
1	4 combine analogue (0 ... 10 V), digital inputs DC 24 V
0	CANopen interface not galvanic isolation
1	CANopen interface, galvanic isolation

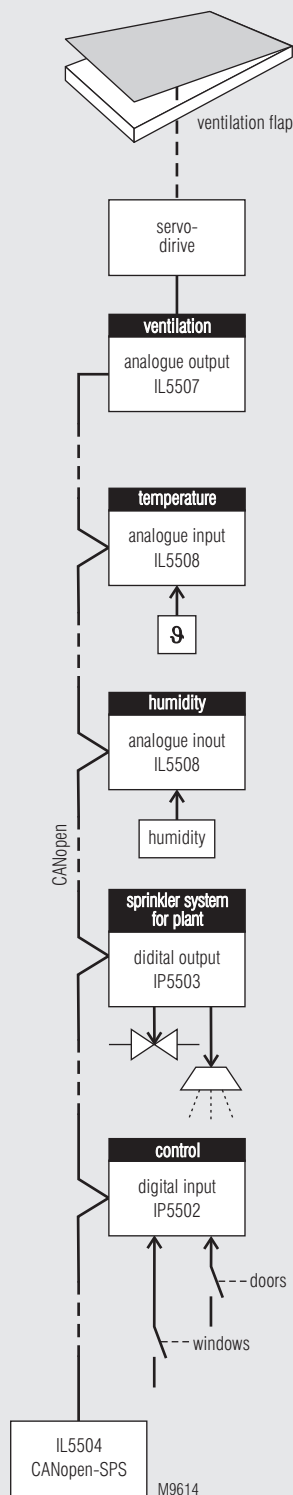
Accessories	
5 units	Protective cap M12 round connector Article number: 0057951
PN 5501:	Programming software Article number: 0052860
OA5529/180:	Programming cable Article number: 0054950
IP5502.08:	CANopen module with 8 binary inputs DC 24 V Article number: 0050911
IP 5503.28:	CANopen module with 8 relay outputs Article number: 0050912
IN 5509.23:	CANopen in- / output module with 4 binary inputs DC 24 V und 4 relay outputs Article number: 0055929
DX 5509.23/101:	as IN 5509, IP67 Article number: 0056952
IL 5507.90/100:	Analogue output modul; 0 ... 10 V; DC 24 V Article number: 0060372
IL 5507.90/110:	Analogue output modul; 0 ... 20 V; DC 24 V Article number: 0060373
IL 5508.90/100:	CANopen module with 2 analogue inputs 0 ... 10 V Article number: 0056431
IL 5508.90/110:	CANopen module with 2 analogue inputs 0 ... 20 mA Article number: 0056807
IL 5508.90/121:	CANopen module with 2 analogue inputs, PT100 Article number: 0056957
IR 5592:	Power supply for PLC and modules Article number: 0041650
IL 5504:	CANopen PLC
DX 5504 (IP67):	CANopen PLC

Application example IL 5504



M7853_d

Application example



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