

ifm electronic



Operating instructions
AS-i CompactLine module

ecomat300[®]

UK

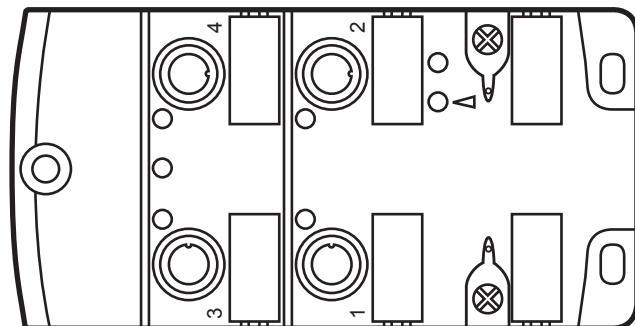
AC2456

AC2457

AC2458

AC2459

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1 Preliminary note

► Instruction

> Reaction, result



Important note

Non-compliance can result in malfunction or interference.



Information

Supplementary note.

2 Safety instructions

UK

- Please read the operating instructions prior to set-up of the device. Ensure that the product is suitable for your application without any restrictions.
- The unit conforms to the relevant regulations and EC directives.
- Improper or non-intended use may lead to malfunctions of the unit or to unwanted effects in your application.
- Installation, electrical connection, set-up, operation and maintenance of the unit must only be carried out by qualified personnel authorised by the machine operator.

3 Functions and features

- maximum number of modules per master: 31 (AC2458 / AC2459);
62 (AC2456 / AC2457) with AS-i Master 2.1
- AS-interface version 2.1
- AC2456: threaded bush stainless steel (1.4404),
screws stainless steel (1.4578)

4 Installation



- ▶ Disconnect the system from power before installation.



- ▶ For installation choose a flat mounting surface.
The entire bottom of the module must lie flat on the mounting surface.

- ▶ Screw the lower part onto the mounting surface using M4 screws and washers (1). Tightening torque 1.8 Nm.
- ▶ Place the yellow AS-i flat cable carefully into the profile slot.
- ▶ Place the black AS-i flat cable for external voltage supply carefully into the profile slot.
- ▶ Position the upper part and fix it using the supplied M3.5 screws (2). Tightening torque 1.2...1.4 Nm.
- ▶ Fix the module onto the mounting surface using M4...M5 screws and washers (3). Tightening torque max. 1.8 Nm.
Use stainless steel sleeve (E70402)* for installation in case of high mechanical stress.
- ▶ Connect the plugs of the sensors (4) to the M12 sockets.
Tightening torque max. 1 Nm.
- ▶ Cover the unused sockets with protective caps (E73004)*.
Tightening torque 0.6...0.8 Nm.
- ▶ The flat cable end seal (E70413)* must be used if the module is at the end of the cable line.

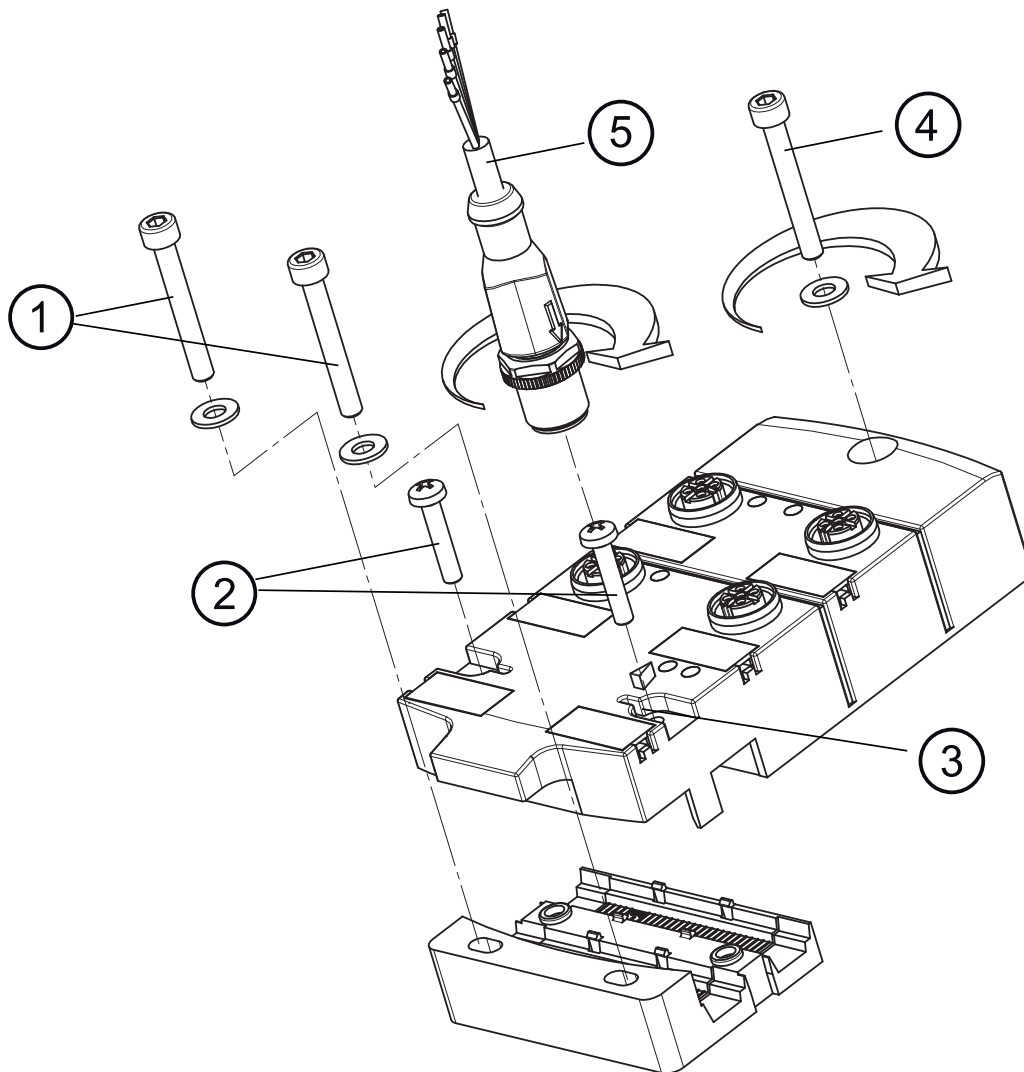
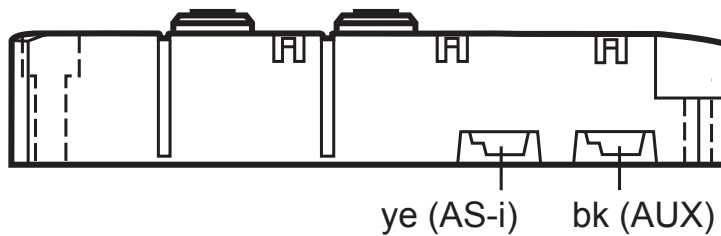
*to be ordered separately



In case of interference coupling to the sensor cables or the black flat cable (24 V DC auxiliary supply) the use of the functional earth springs can improve the EMC.

Requirement: An interference-free and low-resistance connection to the machine ground.

- ▶ If necessary, you can ground the module via the functional earth springs (5).



- 1: M4 screws and washers (not supplied with the device). Tightening torque 1.8 Nm.
- 2: M3.5 screws supplied. Tightening torque 1.2...1.4 Nm.
- 3: M4...M5 screw and washer (not supplied with the device).
Tightening torque max. 1.8 Nm.
- 4: M12 connector. Tightening torque max. 1 Nm.
- 5: Functional earth springs



Observe the maximum tightening torque of the connection cable.

5 Electrical connection



The unit must be connected by a qualified electrician.

The national and international regulations for the installation of electrical equipment must be adhered to.



Intended for connection to class 2 (cULus class 2) circuits only.

► Disconnect power.

► Connect the unit.

5.1 External protective circuitry for inductive loads

The switch-on and switch-off capacity for triggering solenoids is rated up to 20 W (IEC 947-5-2, utilisation category DC-13).



Recommendation: For inductive loads use a free wheel diode on the load. ifm electronic offers valve plugs with integrated free wheel diodes.

6 Addressing

► Assign a free address between 1 and 31.

The address is set to 0 at the factory.

6.1 Addressing with the AC1154 addressing unit

The module can be addressed via the addressing cable E70423.

6.2 Infrared addressing

The safe AS-i module also offers the option of infrared addressing with the addressing unit AC1154 and the addressing cable E70211.



The AS-i communication (yellow cable) must be switched off during the infrared addressing.

► Disconnect the master.

► Supply the slaves with voltage via the AS-i power supply.



When the ifm AS-i power supplies type SL are used, the communication can be deactivated via a jumper on the power supply.

7 Pin connection / data bits

AC2456

4 inputs / AS-i profile S-0.A.E / extended addressing mode: yes

Data bit	D0	D1	D2	D3
Input	I1	I2	I3	I4
Socket	I-1	I-2	I-3	I-4
Pin	4	4	4	4

Inputs

1: sensor supply +
2: not connected (n.c.)
3: sensor supply -
4: Data input
5: functional earth

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AC2457

4 inputs

AS-i profile S-0.A.E / extended addressing mode: yes

Data bit	D0	D1		D2	D3	
Input	I1	I2		I3	I4	
Socket	I-1/2	I-1/2	I-2	I-3/4	I-3/4	I-4
Pin	4	2	4	4	2	4

Y-circuit inputs

Inputs

1: sensor supply +
3: sensor supply -
5: functional earth

If a slave with the ID code "A" (option of extended addressing mode) is connected to a master of the first generation (version 2.0), the parameter P3 must be 1 and the output bit D3 = 0*. The output bit D3 must not be used.

If a slave with the ID code "A" (option of extended addressing mode) is connected to a master of the first generation (version 2.0), an address between 1A and 31A must be assigned to this slave.

* default setting

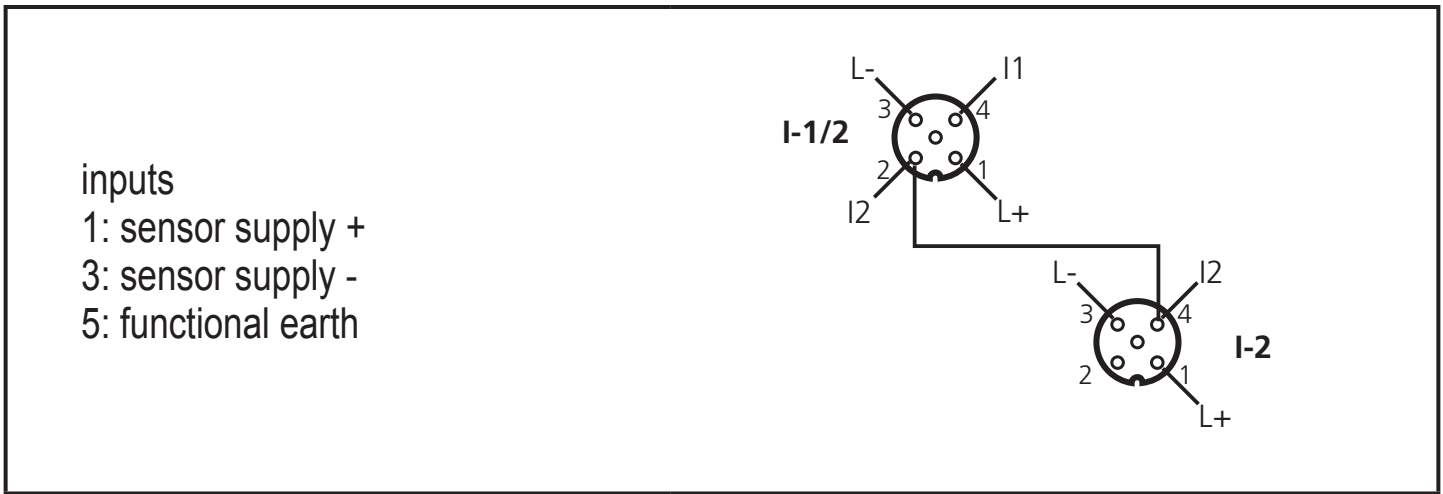
AC2458

2 inputs / 2 outputs

AS-i profile S-3.F.E / extended addressing mode: no

Data bit	D0	D1		D2	D3
Input	I1	I2		-	-
Socket	I-1/2	I-1/2	I-2	-	-
Pin	4	2	4	-	-
Output	-	-	-	O3	O4
Socket	-	-	-	O-3	O-4
Pin	-	-	-	4	4

Y-circuit inputs



AC2459

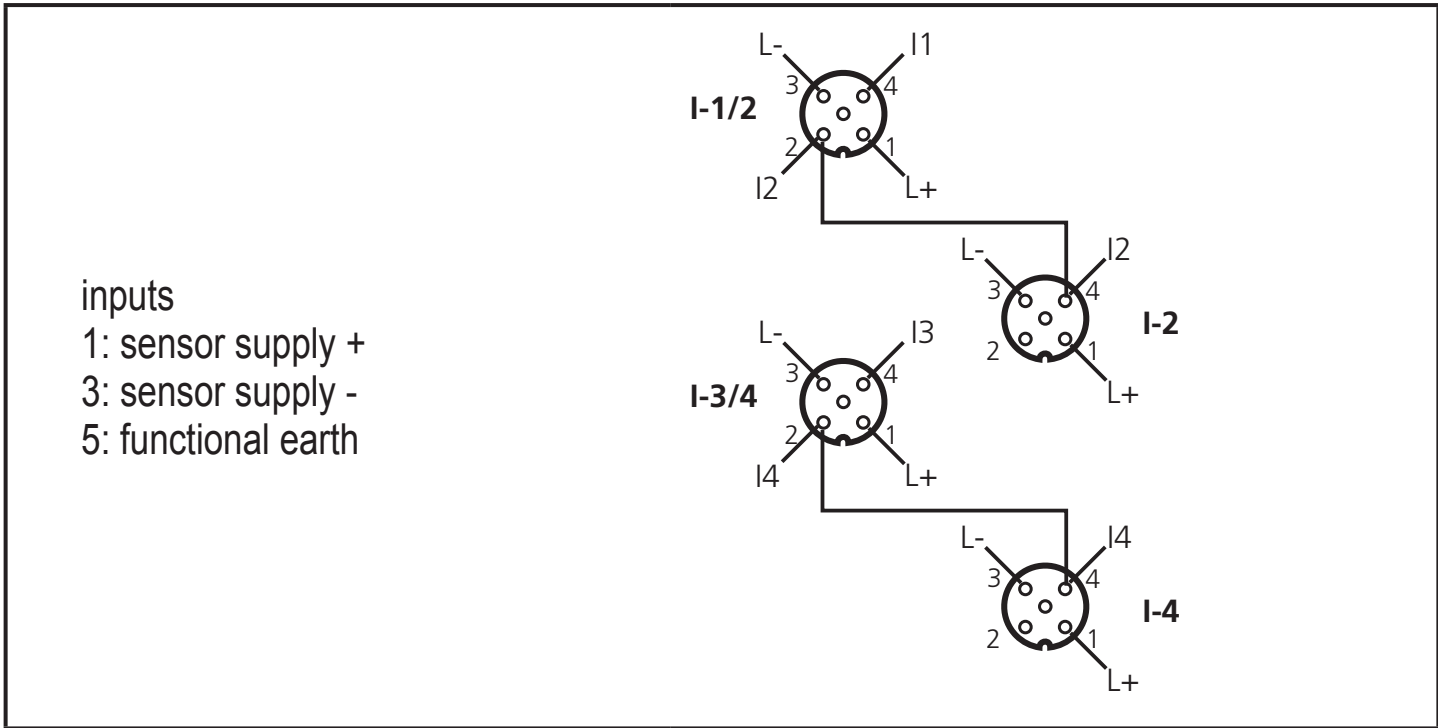
4 inputs / 4 outputs

AS-i profile S-3.F.E / extended addressing mode: no

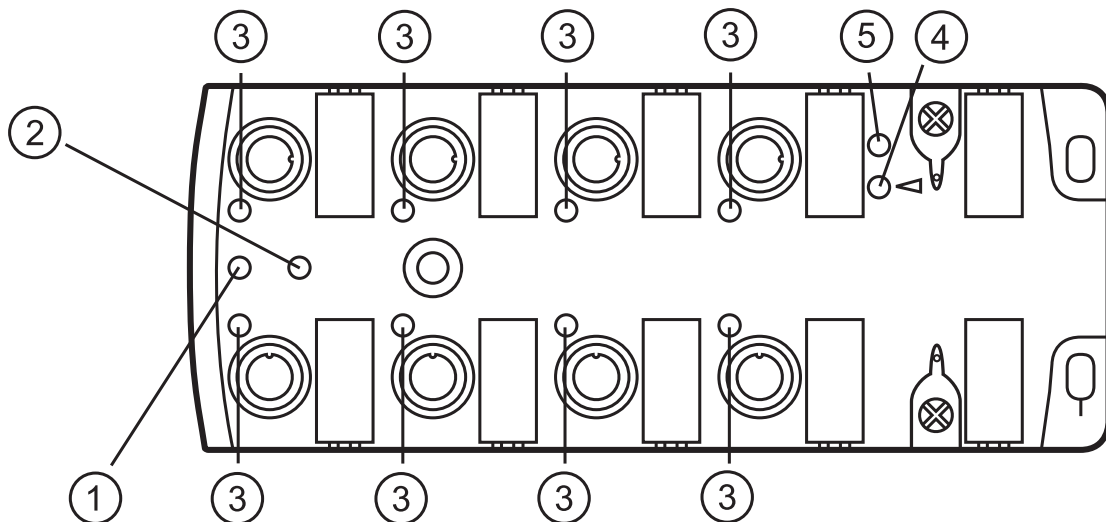
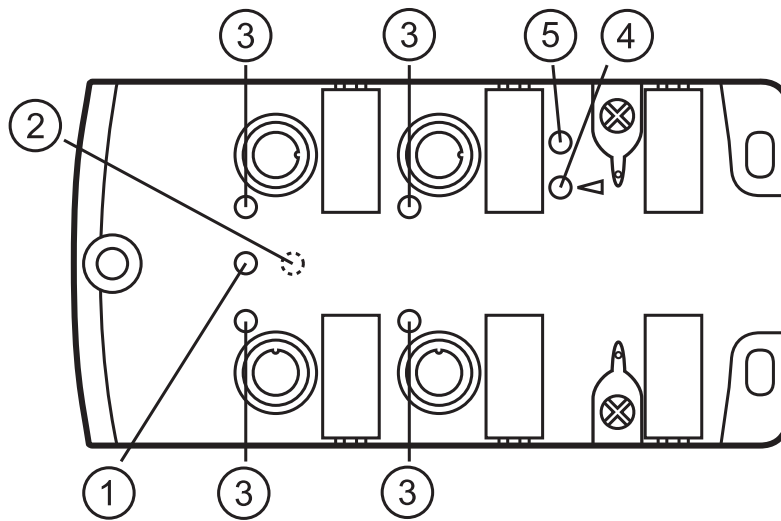
Data bit	D0		D1		D2	D3	
Input	I1		I2		I-3	I-4	
Socket	I-1/2		I-1/2	I-2	I-3/4	I-3/4	I-4
Pin	4		2	4	4	2	4
Output	O1		O2		O3	O4	
Socket	O-1		O-2		O-3	O-4	
Pin	4		4		4	4	

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Y-circuit inputs



8 Operating and display elements



- 1: LED AS-i
- 2: LED AUX (AC2458, AC2459)
- 3: LED IN/OUT
- 4: LED FAULT
- 5: LED IR addressing

LED AS-i green lights:	AS-i voltage supply ok
LED AUX green lights:	AUX voltage supply ok (AC2458, AC2459)
LED IN / OUT yellow lights:	input/output switched
LED FAULT red lights:	AS-i communication error, slave does not participate in the "normal" exchange of data, e.g. slave address 0
LED FAULT red flashes:	peripheral fault, e.g. sensor supply / output overloaded or shorted, communication active
LED IR addressing:	infrared receiver

UK



Overload and short circuit of the input supply and the outputs are signalled as peripheral fault to the AS-i master (version 2.1 or higher).

9 Maintenance, repair and disposal

The operation of the unit is maintenance-free. Always exchange the upper part and lower part at the same time.

After use dispose of the unit in an environmentally friendly way in accordance with the applicable national regulations.

10 Technical data

Technical data and further information at

www.ifm.com → Select your country → Data sheet direct