



Operating instructions  
AS-i CompactLine module

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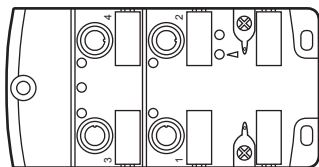
**AC2456**

**AC2457**

**AC2458**

**AC2459**

80012043/00 03/2019



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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

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- 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 (4). 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 (5) to the M12 sockets.  
Tightening torque 0.8...1.5 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.

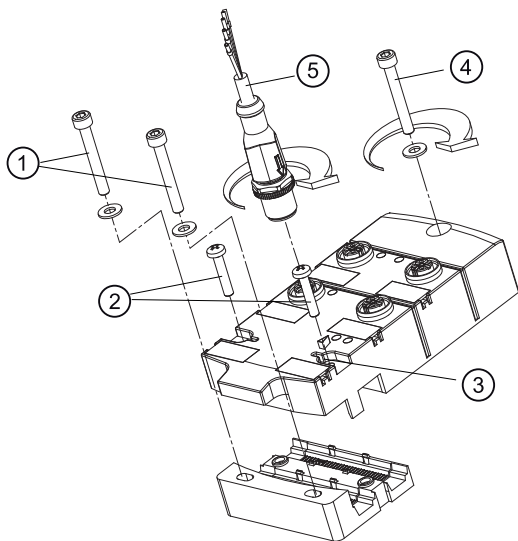
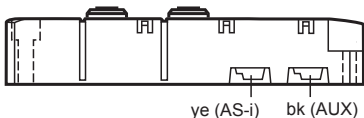
\*to be ordered separately



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: Functional earth springs
- 4: M4...M5 screw and washer (not supplied with the device).  
Tightening torque max. 1.8 Nm.
- 5: M12 connector. Tightening torque 0.8...1.5 Nm.



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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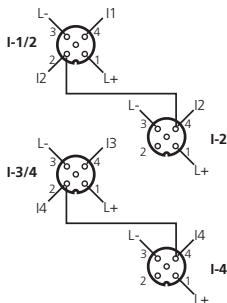
### AC2457

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-3/4	I-3/4
Pin	4	2	4	2

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

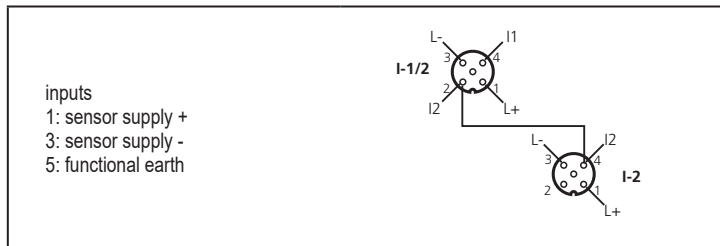
## AC2458

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

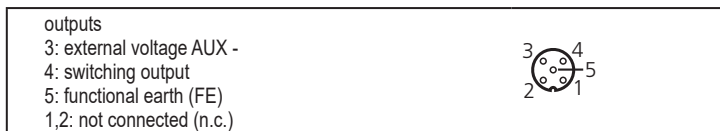
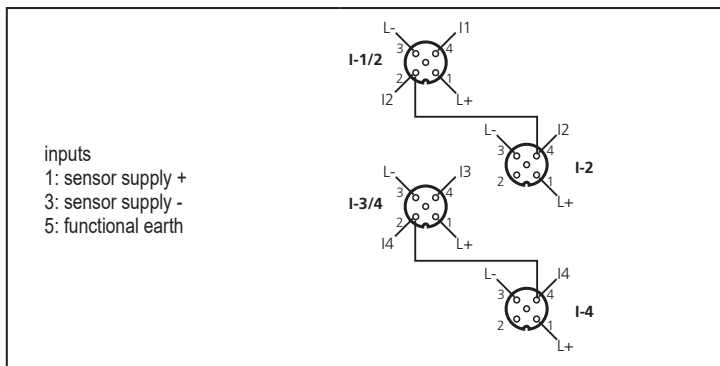
4 inputs / 4 outputs

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

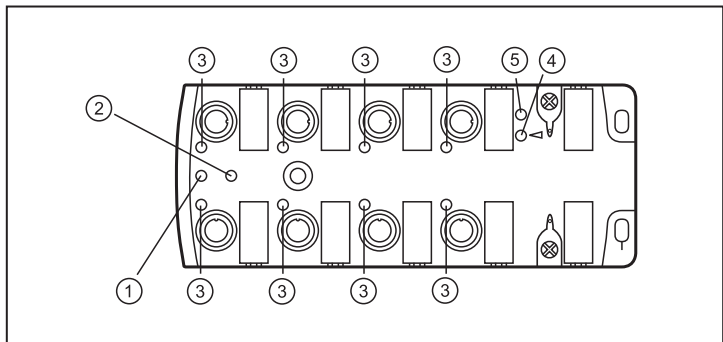
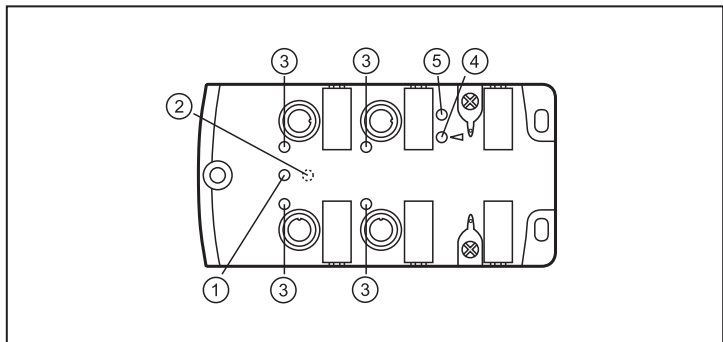
Data bit	D0	D1	D2	D3
Input	I1	I2	I-3	I-4
Socket	I-1/2	I-1/2   I-2	I-3/4	I-3/4   I-4
Pin	4	2   4	4	2   4
Output	O1	O2	O3	O4
Socket	O-1	O-2	O-3	O-4
Pin	4	4	4	4

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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



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](http://www.ifm.com).