

ifm electronic



Operating instructions  
AS-i module

**ecomat300**

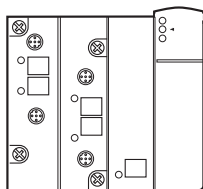
**AC2518**

**AC2519**

**AC2568**

**UK**

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# 1 Preliminary note

- ▶ Instructions
- > 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

The slave receives data via the AS-Interface and converts them into analogue output signals. The AS-i module operates as a slave with bidirectional data transfer in the AS-i network.

The data transfer from the host to the slave is asynchronous according to the AS-i profile S-7.3 and the AS-i specification V2.1.

- Current output 0...20 mA (AC2518; AC2568) or voltage output 0...10 V (AC2519)
- AS-i profile S-7.3.6
- Actuators are connected via M12 connectors
- Maximum number of modules per AS-i system: 31
- $R_{\max}$  for current output 600  $\Omega$ ;  $R_{\min}$  for voltage output 1.2 k $\Omega$
- Conversion time (digital - analogue) in the slave with two channels: < 1 ms
- 1  $\mu$ A (AC2518, AC2568) or 1 mV (AC2519)

- Special feature AC2568: stainless steel screws, Viton sealing

## 4 Addressing

### 4.1 Lower parts without addressing socket

- ▶ Use the addressing unit AC1154 to assign a free address between 1 and 31. The address is set to 0 at the factory.

### 4.2 Lower parts with addressing socket

- ▶ When mounted and wired, address the device with the addressing cable (E70213) via the integrated addressing interface.




No addressing via the addressing socket while live.

### 4.3 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.

## 5 Mounting

- ▶ Mount the device on a wired lower part of the AS-i network, tightening torque 0.8 Nm.

## 6 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.

- ▶ Disconnect power.

- ▶ Connect the device to the AS-Interface via the standardised EMS (supply from AS-i) or the E-EMS (supply from an external 24 V PELV voltage source).

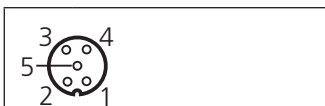


If the module is to be supplied from an external 24 V PELV source,

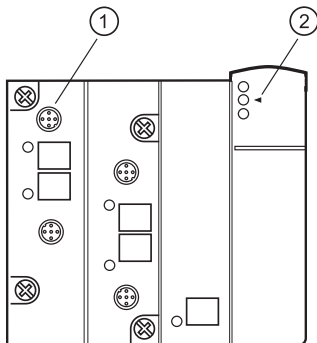
- ▶ mount an FC-E lower part (AC5003, AC5011).

The supply is automatically changed when the external 24 V voltage is applied.

## 6.1 Wiring



Pin 1	AO+ analogue output
pin 2	not connected (n.c.)
Pin 3	AO- analogue output 0 V
pin 4	not connected (n.c.)
pin 5	functional earth



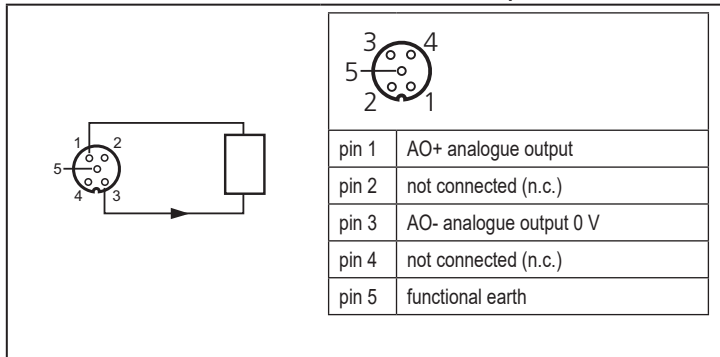
- 1: 4 M12 sockets  
2: Fixing infrared adapter

In all the following wiring diagrams the indicated pin connection refers to the analogue module.

The analogue outputs AO- must neither directly nor indirectly (via the connected actuator) be connected to each other.

## 6.2 Analogue modules AC2518, AC2568 (0...20 mA)

### 6.2.1 Connection of a 2-wire actuator with current output



### 6.2.2 Electrical connection 0 V terminal

- ▶ Do not connect the 0 V terminals (analogue output 0 V) of the respective channels of the current output modules to each other.
- > This connection leads to faulty current signals.



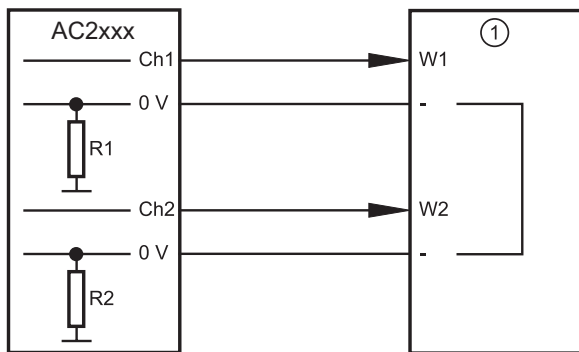
The connection of the 0 V terminals (analogue output 0 V) results in a parallel connection of the resistances R1 and R2 (see drawing). This leads to faulty current signals.

#### Example

This problem can occur when a frequency converter is connected, i.e. the connection of the 0 V- terminal is established there (common-).



- ▶ Adhere to the documentation of the frequency converter.

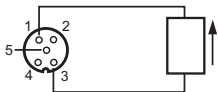


1: Frequency converter

► As a remedy, use two current output modules.

### 6.3 Analogue module AC2519 (0...10 V)

#### 6.3.1 Connection of a 2-wire actuator with voltage output



pin 1	AO+ analogue output
pin 2	not connected (n.c.)
pin 3	AO- analogue output 0 V
pin 4	not connected (n.c.)
pin 5	functional earth

## 7 Parameter setting

Parameter bit / Designation	Description
P0 monitoring profile 7.3 (watchdog)	1 monitored 0 not monitored
P1 not used	1 reserved 0 reserved
P2 periphery fault	1 error indication active 0 error indication inactive
P3 not used	1 reserved 0 reserved

## 8 Measuring range

► The measuring ranges, the states of the LEDs and their meaning are indicated in the following tables.

### 8.1 Analogue modules AC2518, AC2568

Range 0...20 mA	Units dec.	Units hex.	LEDs O1...O4 analogue	Description
0...20 mA	0000...20000	0000...4E20	on	nominal range
20.001... 23 mA	20001...23000	4E21...59D8	on	above nominal range
> 23 mA	> 23000	> 59D8	flashes	overflow



## 8.2 Analogue module AC2519

Range 0...10 V	Units dec.	Units hex.	LEDs O1...O4 analogue	Description
0 ...10 V	0000...10000	0000...2710	on	nominal range
10.001...11.5 V	10001...11500	2711...2CEC	on	above nominal range
> 11.5 V	> 11500	> 2CEC	flashes	overflow

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### 8.3 Transmission time of the analogue values

The transmission time of the analogue values depends on the conversion time of the digital signals into analogue signals in the AS-i module and on the transmission time via the AS-Interface.

The conversion time of the digital signals is approx. 1 ms.

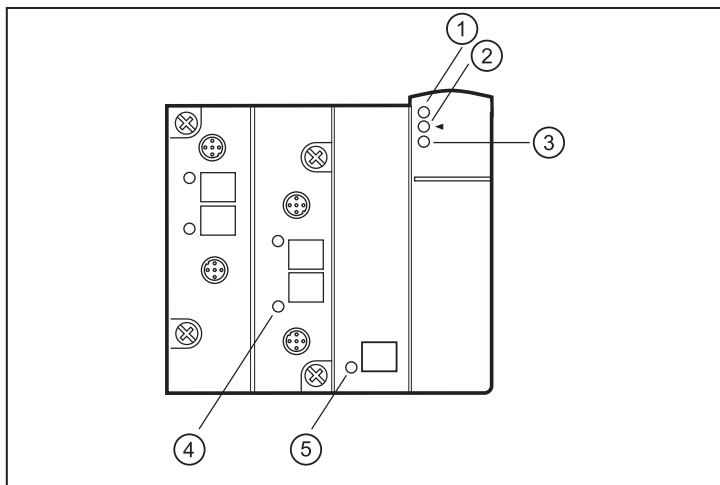
The transmission time of the 4 16-bit values via the AS-interface ideally is 7 AS-i cycles per value. For a cycle time of 5 ms per AS-i cycle this results in a transmission time of  $4 \times 7 \times 5 \text{ ms} = 140 \text{ ms}$  via the AS-Interface.

Thus the total transmission time for 4 analogue values ideally is approx. 1 ms (conversion time) + 140 ms (transmission time) = approx. 141 ms.

## 9 Operation

► Check the safe functioning of the unit.

Display by LEDs:



LED PWR green lights:	AS-i voltage supply OK
LED AUX green lights	external 24 V voltage is applied
LEDs AO1...AO4 yellow light	Analogue signal within the measuring range or no actuator connected. It cannot be differentiated whether the 0 V / 0 mA signal is applied or whether no actuator is connected.
LEDs AO1...AO4 yellow flash	analogue signal outside the measuring range (outside range)
LED FAULT red flashes:	Periphery fault. A periphery fault is indicated if at least one of the analogue signals is outside the value range.
LED red (FAULT) lights	AS-i communication error

## 10 Maintenance, repair and disposal

The operation of the unit is maintenance-free. After use dispose of the unit in an environmentally friendly way in accordance with the applicable national regulations.

## 11 Technical data

Technical data and further information at [www.ifm.com](http://www.ifm.com).

## 12 Scale drawing

