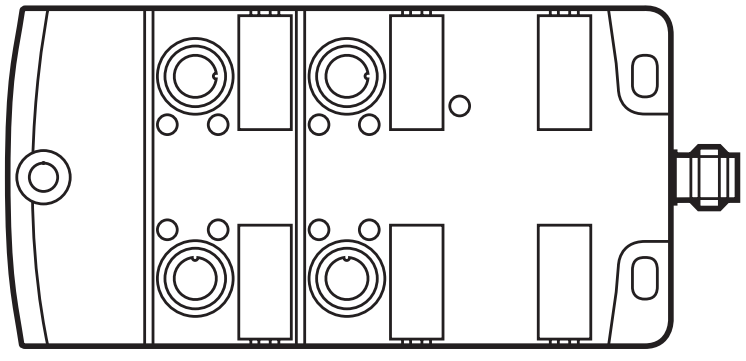
Operating instructions
IO-Link CompactLine module

**AL2400**
**AL2401**

UK



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# Content

# 1 Preliminary note

▶ Instructions

> Reaction, result

Important note
Non-compliance may result in malfunction or interference.

Information
Supplementary note.

UK

# 2 Safety instructions

- 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 be carried out by qualified personnel authorised by the machine operator.

# 3 Functions and features

The device transmits the input states of the digital type 2 inputs and the status of the sensor supply to IO-Link.

# 4 Function

## 4.1 Communication, parameter setting, evaluation

### 4.1.1 IO-Link data

The device

- transmits the current states of the digital I-1 inputs cyclically in byte 0.
- transmits the current states of the digital I-2 inputs cyclically in byte 1.
- transmits the device information "short circuit" (SC) cyclically in byte 2.
- transmits the equipment identification cyclically in byte 3.
- provides the equipment identification for writing acyclically (index 688, sub-index 0).

| 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | |
|---|---|---|---|---|---|---|---|---|
| X1.7 | X1.6 | X1.5 | X1.4 | X1.3 | X1.2 | X1.1 | X1.0 | Byte 0 (I-1) |
| X1.7 | X1.6 | X1.5 | X1.4 | X1.3 | X1.2 | X1.1 | X1.0 | Byte 1 (I-2) |
| X1.7 | X1.6 | X1.5 | X1.4 | X1.3 | X1.2 | X1.1 | X1.0 | Byte 2 (SC) |
| | Equipment identification | | | | | | | Byte 3 |

For AL2400 the data bits 4...7 of bytes 0, 1 and 2 are transmitted with '0'.

### 4.1.2 Visual indication

The device

- indicates the current state of an input (yellow LED).
- indicates a correct operation (green PWR/FLT LED lights).
- indicates a short circuit of one or several sensor supplies (red PWR/FLT LED lights).

### 4.1.3 Parameter setting

Device-specific parameter lists for IO-Link parameter setting are available at: www.ifm.com.

## 4.2 Digital inputs

Depending on the version the device has 8 (AL2400) or 16 (AL2401) digital inputs (type 2 inputs).
All inputs refer to the sensor supply potential.

## 4.3 Sensor supply

Depending on the version the device has 4 (AL2400) or 8 (AL2401) sensor supplies.

Each sensor supply is limited to 100 mA, the device will not allow higher current.

The total current is max. 400 mA (AL2400) or max. 800 mA (AL2401).

Every sensor supply has a short circuit monitoring.

The output voltage of the sensor supply is in linear proportion to the input voltage (positive supply cable of the IO-Link port). Voltage can vary within the IO-Link specification (18...30 V).

# 5 Installation

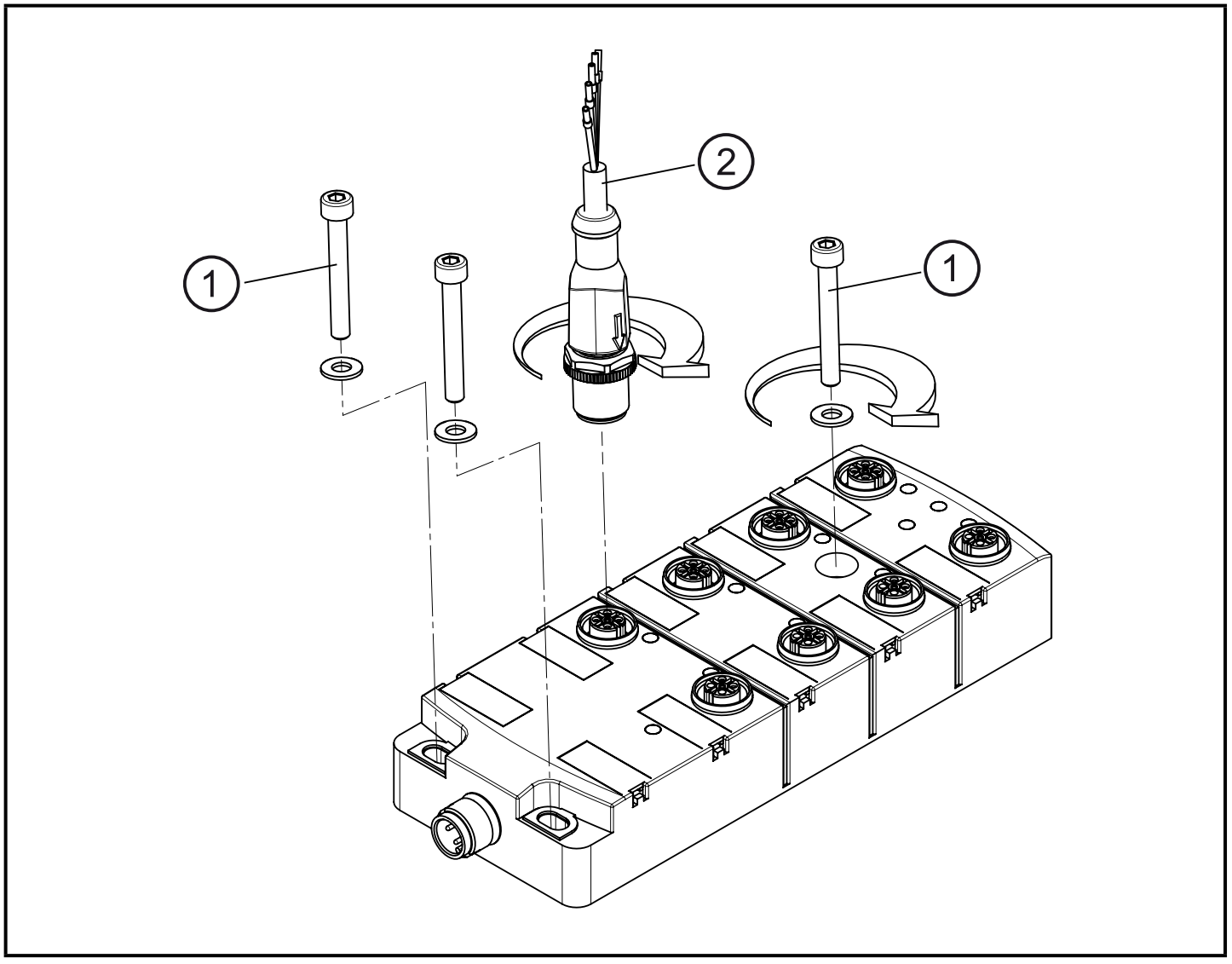
▶ Disconnect power before installation.

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

▶ Fasten the module onto the mounting surface using M4 screws and washers (1). Tightening torque 1.8 Nm.
Use stainless steel sleeve (E70402)* for installation in case of high mechanical stress.

▶ Connect the plugs of the sensors (2) to the M12 sockets. Tightening torque 0.8...1.5 Nm.

▶ Cover unused sockets with protective caps (E73004)*.
Tightening torque 0.6...0.8 Nm.




1: M4 screws and washers (not supplied with the device). Tightening torque 1.8 Nm.
2: M12 connector. Tightening torque 0.8...1.5 Nm.

Observe the maximum tightening torque of the connection cable.

# 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.

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

▶ Disconnect power.

▶ Connect the unit.

## 6.1 Input circuit

The inputs are of type 2, the connected electronics must be rated for this electrically.

The sensor supply can provide up to 100 mA/socket, the connected electronics must limit the current itself or be rated for min. 100 mA.

Maximum cable length < 30 m.

## 6.2 IO-Link connection



The IO-Link port must be connected according to the IO-Link specification.
The current required by the devices depends on the current load of the sensor supplies.

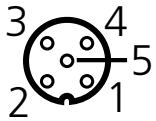
Up to 100 mA per sensor supply can be provided, the device itself requires 50 mA. The total current (AL2400 = 450 mA and AL2401 = 850 mA) must be provided by the connected IO-Link master.

If the positive supply cable is interrupted the device may be supplied via the IO-Link cable. This may lead to an unwanted system behaviour.

# 7 Pin connection

**Inputs (X1.0...X1.7)**

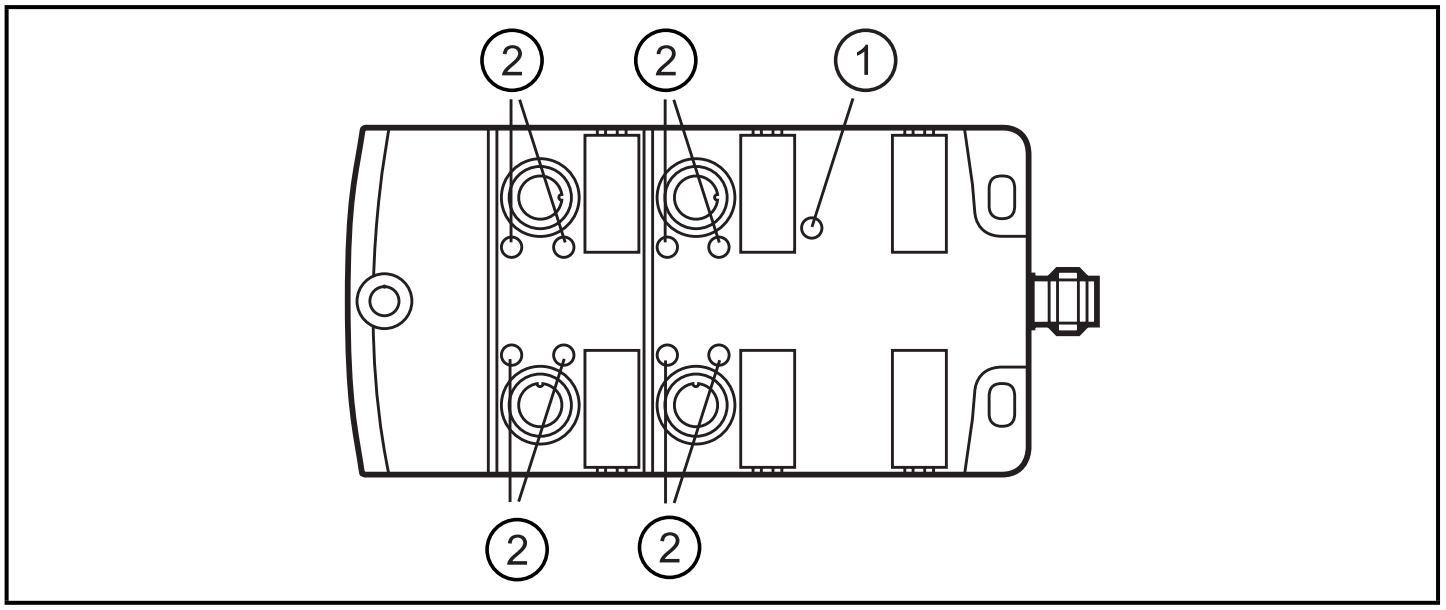
1: sensor supply +
2+4: data input
3: sensor supply -
5: not connected



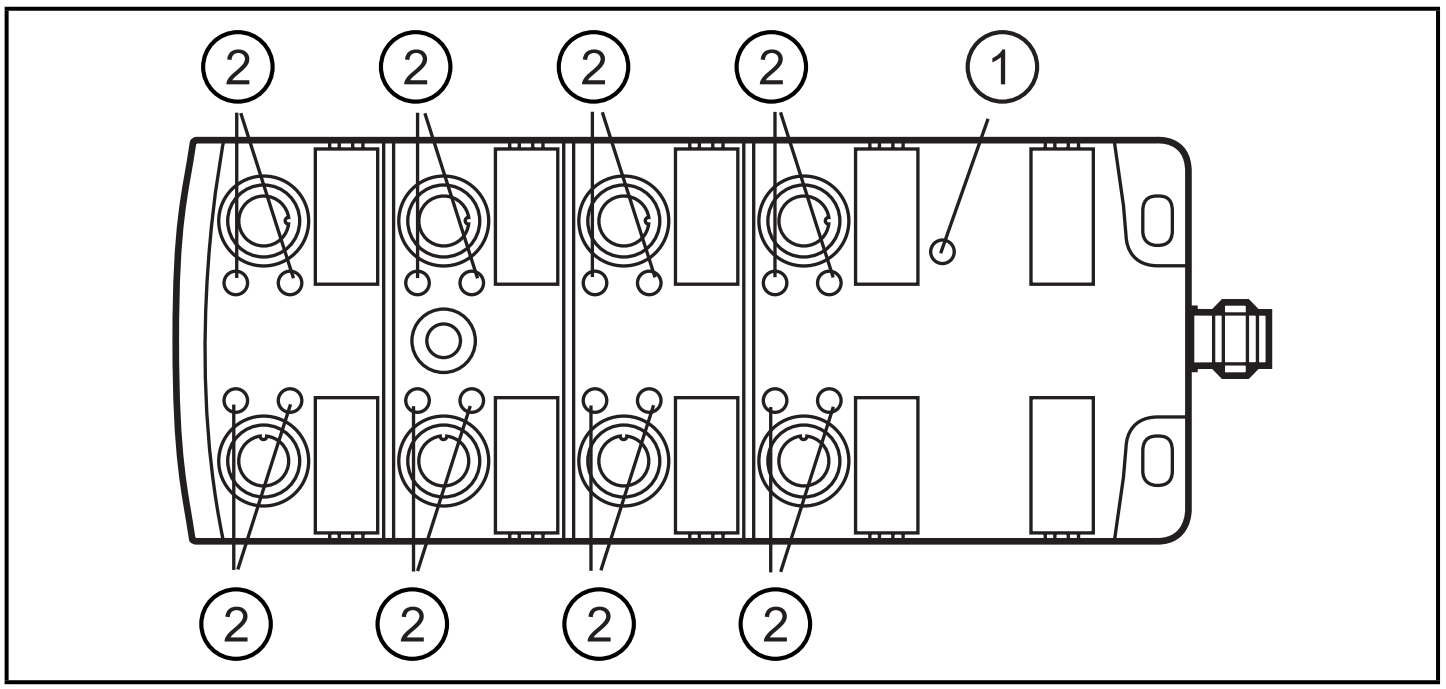

**M12 connector IO-Link (X1)**

1: $U_B$+
2: not connected
3: $U_B$-
4: IO-Link

# 8 Operating and display elements




1: LED PWR / FLT
2: LED IN




1: LED PWR / FLT
2: LED IN

| | |
|---|---|
| Green LED PWR / FLT lights: | everything ok |
| Red LED PWR / FLT lights: | short circuit on one or several sensor supplies |
| LED PWR / FLT off: | undervoltage or disconnected system |
| Yellow LED IN input lights: | input provides a type 2 HIGH signal |
| Yellow LED IN input off: | input provides a type 2 LOW signal |

# 9 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.

# 10 Technical data

Technical data and further information at www.ifm.com