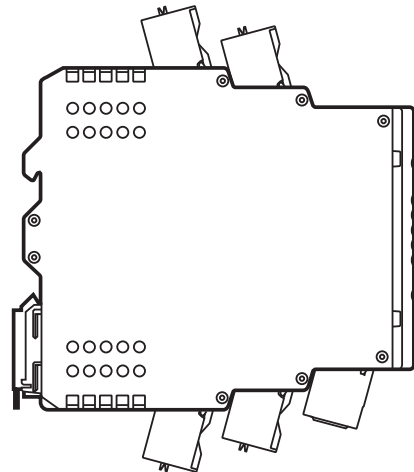


Operating instructions  
IO-Link master  
**AL19xx**

**UK**

80281466/00 01/2019



# 1 Preliminary note

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

## 2 Safety instructions

- The device described is a subcomponent for integration into a system.
  - The manufacturer is responsible for the safety of the system.
  - The system manufacturer undertakes to perform a risk assessment and to create a documentation in accordance with legal and normative requirements to be provided to the operator and user of the system. This documentation must contain all necessary information and safety instructions for the operator, the user and, if applicable, for any service personnel authorised by the manufacturer of the system.
- Read this document before setting up the product and keep it during the entire service life.
- The product must be suitable for the corresponding applications and environmental conditions without any restrictions.
- Only use the product for its intended purpose (→ Functions and features).
- If the operating instructions or the technical data are not adhered to, personal injury and/or damage to property may occur.
- The manufacturer assumes no liability or warranty for any consequences caused by tampering with the product or incorrect use by the operator.
- Installation, electrical connection, set-up, programming, configuration, operation and maintenance of the product must be carried out by personnel qualified and authorised for the respective activity.
- Protect units and cables against damage.

## 3 Functions and features

The IO-Link master modules serve as a gateway between intelligent IO-Link sensors and the field bus. The units with protection rating IP 20 are designed as a control cabinet module for use in plant construction.

## 4 Symbols used

- ▶ Instruction



Important note

Non-compliance may result in malfunction or interference.

## 4.1 Warnings used

### **WARNING**

Warning of serious personal injury.

Death or serious irreversible injuries may result.

## 4.2 Safety symbols on the device



General warning on the device.

When this symbol appears, consider the corresponding section in the operating instructions.

UK

## 5 Installation



▶ Disconnect power before installation.

- ▶ Mount the unit in a control cabinet with a protection rating of at least IP 54 to ensure protection against accidental contact with dangerous contact voltages and against external influence. The control cabinet has to be installed in accordance with local and national regulations.
- ▶ Mount the unit vertically on a DIN rail.
- ▶ Leave enough space between the unit and the top or bottom of the control cabinet as well as to adjacent devices to enable air circulation and to avoid inadmissible heating.

### 5.1 Installation instructions

#### Electrostatic discharge

The device contains components that can be damaged or destroyed by electrostatic discharge.

- ▶ When handling the device, observe the necessary safety precautions against electrostatic discharge (ESD).
- ▶ Only operate the device when mounted on a grounded DIN rail.

## **WARNING**

- ▶ Do not open the devices.
- ▶ Do not insert any objects into the devices.
- ▶ Prevent metal foreign bodies from penetrating.

## **6 Electrical connection**



The device must be connected by a qualified electrician.

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

- ▶ Disconnect the system from power and connect the unit.

The unit is only suitable for operation using SELV/PELV voltages.

For UL applications:

- ▶ To connect the IO-Link master, only use cables ranging from AWG 26 to 12 and with a temperature range of -25...75 °C.



The circuits are insulated from each other and from device surfaces that could be touched by means of basic insulation (according to IEC 61010-1, secondary circuit with max. operating voltage, supplied from mains circuit up to 300 V of overvoltage category II). The RJ45 interfaces are designed for network environment 0 according to IEC TR62102.

→ Technical data.

- ▶ Do not use the device beyond the limits of the technical data.

### **6.1 IO-Link connection**

The connected IO-Link devices must be supplied exclusively via the AL19x0 masters.

Any additional supply  $U_A$  for class B operation must be electrically isolated from the circuit  $U_S$  of the AL19xx while assuring basic isolation (according to IEC 61010-1, secondary circuit with max. 30 V DC, supplied from mains circuit up to 300 V of overvoltage category II).

### **6.2 Wiring**

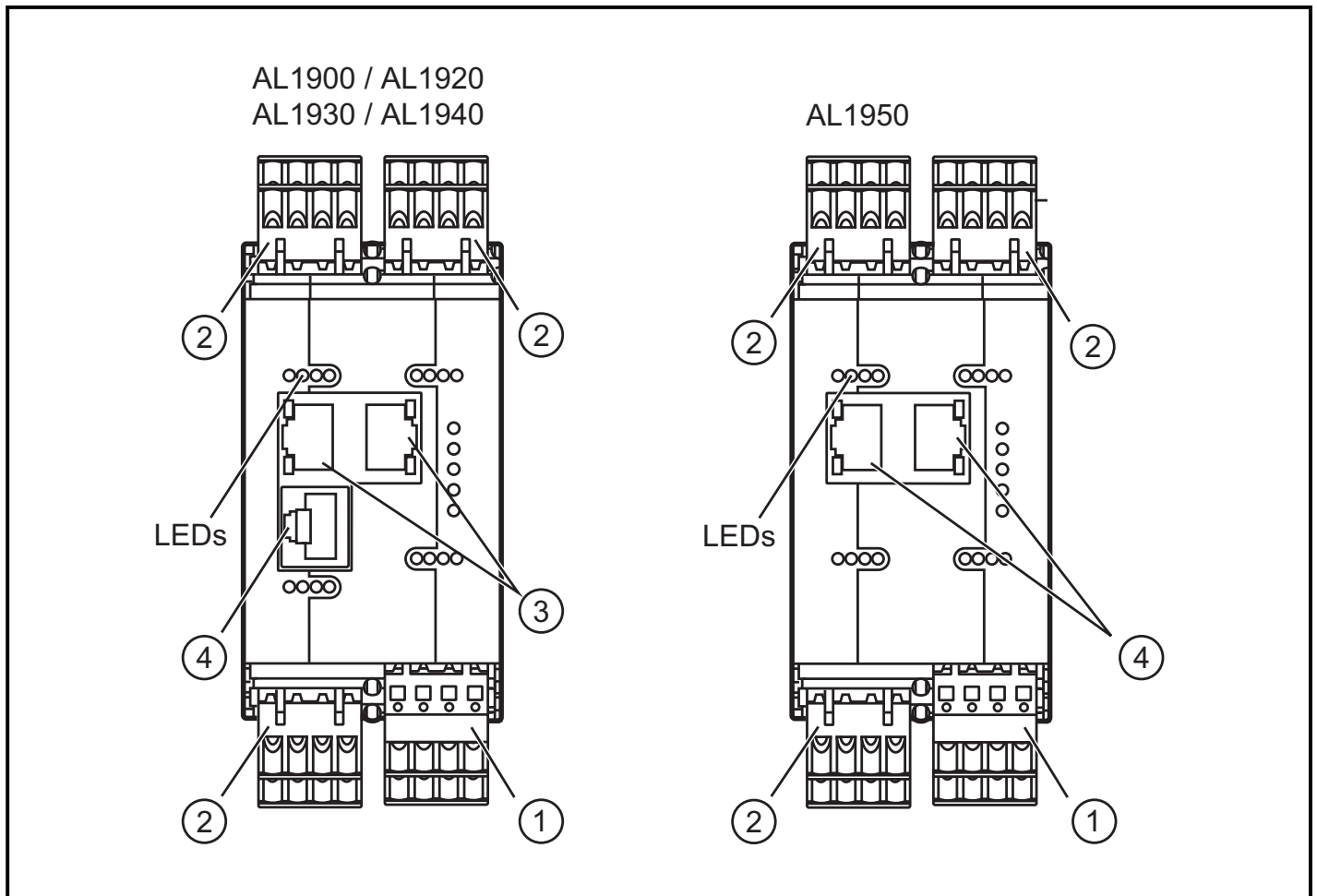
Connect the IO-Link master to 24 V DC (20...30 V SELV/PELV) via port X31.

<b>AL1900 / AL1920 / AL1930 / AL1940 / AL1950</b>		
	<b>IO-Link</b>	<b>Power supply <math>U_s</math></b>
Terminal	IO-Link A ports X01...X08	IN X 31
1	Sensor supply L+ ( $U_s$ )	GND ( $U_s$ )
2	DI	GND ( $U_s$ )
3	Sensor supply L- ( $U_s$ )	+ 24 V DC ( $U_s$ )
4	C/Q IO-Link	+ 24 V DC ( $U_s$ )

UK

	<b>AL1900</b>	<b>AL1920</b>	<b>AL1930</b>	<b>AL1940</b>	<b>AL1950</b>
RJ45	PROFINET Ethernet port X21 / X22	EtherNet/IP Ethernet port X21 / X22	EtherCAT Ethernet port X21 / X22	Modbus TCP Ethernet port X21 / X22	
RJ45	IoT (Internet of Things) Ethernet port X23	IoT (Internet of Things) Ethernet port X23	IoT (Internet of Things) Ethernet port X23	IoT (Internet of Things) Ethernet port X23	IoT (Internet of Things) Ethernet port X21/X22

## 6.3 Interfaces



	<b>AL1900</b>	<b>AL1920</b>	<b>AL1930</b>	<b>AL1940</b>	<b>AL1950</b>
1	Voltage supply	Voltage supply	Voltage supply	Voltage supply	Voltage supply
2	8 IO-Link A ports	8 IO-Link A ports	8 IO-Link A ports	8 IO-Link A ports	8 IO-Link A ports
3	PROFINET IO	EtherNet/IP	EtherCAT	Modbus TCP	
4	IoT port (Internet of Things)	IoT port (Internet of Things)	IoT port (Internet of Things)	IoT port (Internet of Things)	IoT port (Internet of Things)

## 7 Factory settings

	<b>AL1900</b> PROFINET	<b>AL1920</b> EtherNet/IP	<b>AL1930</b> EtherCAT	<b>AL1940</b> Modbus TCP	<b>AL19xx</b> IoT (Internet of Things)
IP address	0.0.0.0	192.168.1.250	—	192.168.1.250	169.254.X.X
IP addressing	DCP	Static IP address	—	Static IP address	DCP, DHCP, Auto IP
Subnet mask	0.0.0.0	255.255.255.0	—	255.255.255.0	255.255.0.0
Gateway IP address	0.0.0.0	0.0.0.0	—	0.0.0.0	0.0.0.0
MAC address	See type label				

UK

## 8 Parameter setting

The parameter setting and configuration of the field bus interface is done via the higher-level PLC.

As an option, the connected IO-Link devices can be configured with the ifm software LR DEVICE.

## 9 Maintenance, repair, disposal

The device is maintenance-free.

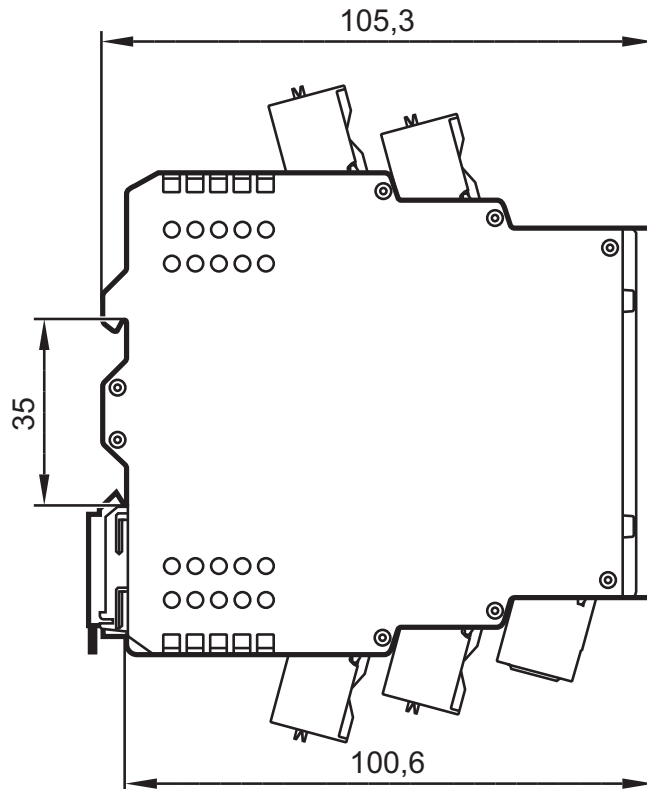
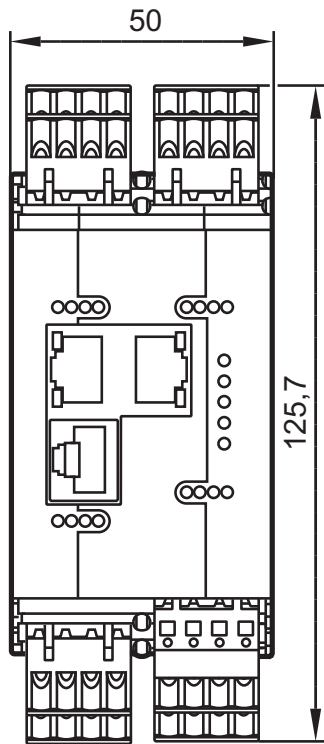
- ▶ Disconnect the device.
- ▶ Clean the device from dirt using a soft, chemically untreated and dry cloth. Do not use any caustic cleaning agents for this.

### 9.1 Disposal

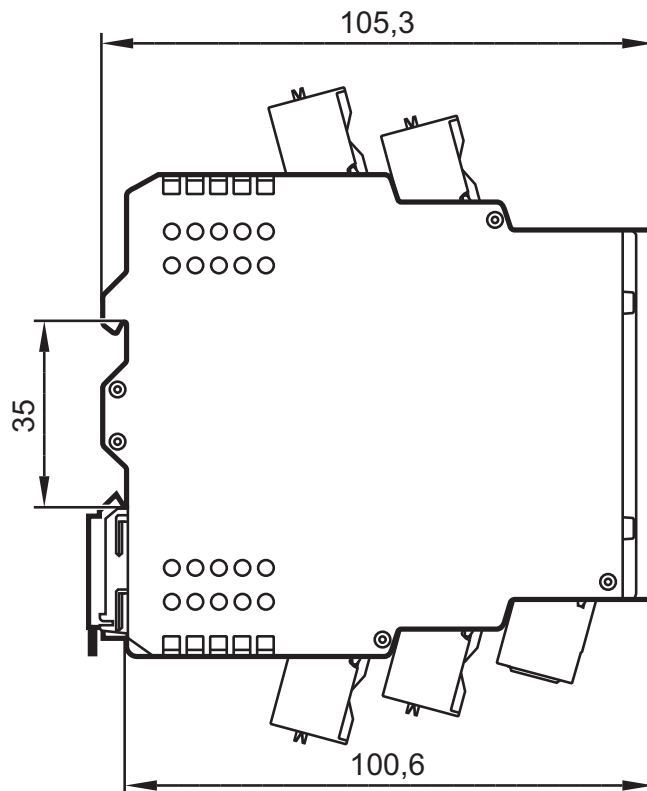
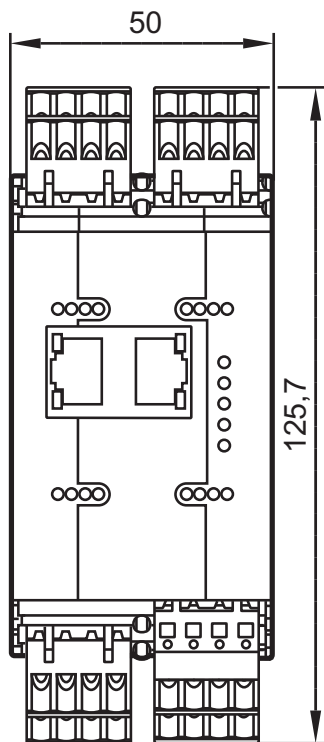
- ▶ Dispose of the device in accordance with the applicable national environmental regulations.

# 10 Scale drawing

AL1900 / AL1920  
AL1930 / AL1940



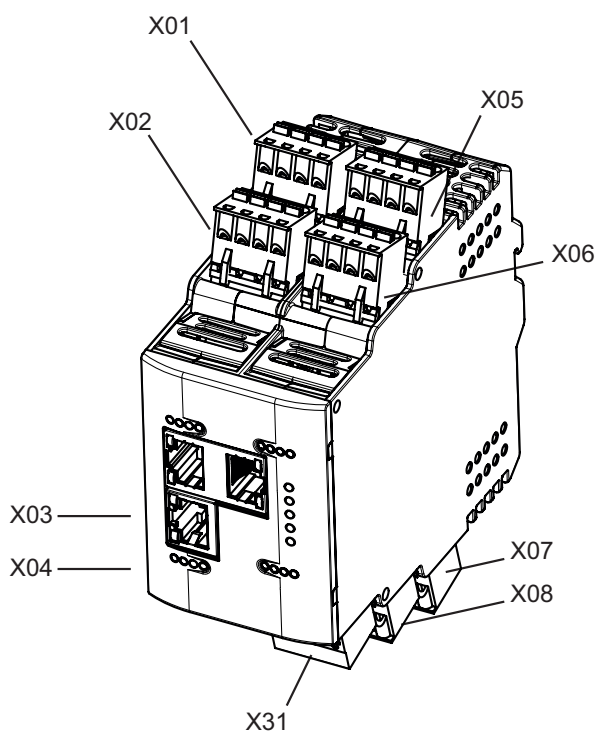
AL1950



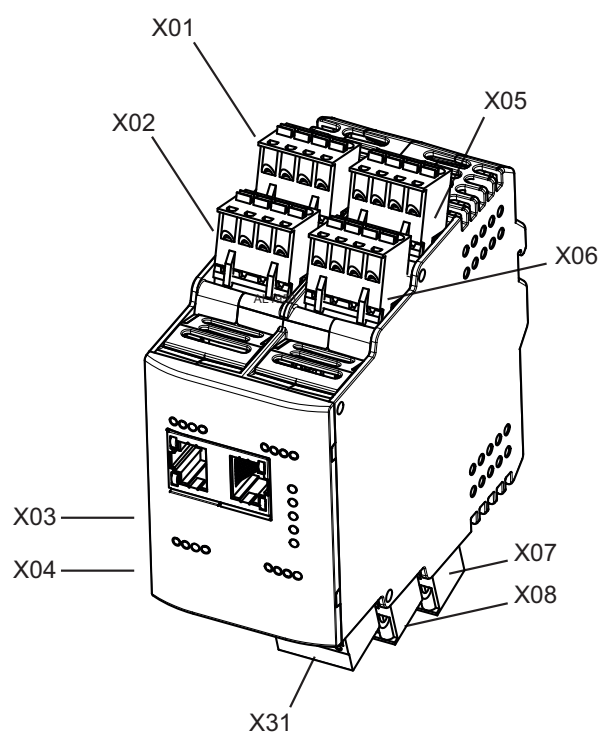


# 10.1 Terminal arrangement

AL1900 / AL1920  
AL1930 / AL1940



AL1950



UK

## 11 Technical data

Electrical data	
Operating voltage [V]	20...30 DC; (U <sub>S</sub> ; to SELV/PELV)
Current consumption [mA]	300...3900; (U <sub>S</sub> )
Protection class	III
Sensor supply U <sub>S</sub>	
Total current rating [A]	3.6
Environmental conditions	
Application	Control cabinet
Ambient temperature [°C]	-25...65
Storage temperature [°C]	-25...85
Max. perm. relative air humidity [%]	90, linearly decreasing to 50 % (40 °C)
Max. height above sea level [m]	2000
Protection rating	IP 20
Pollution degree	2