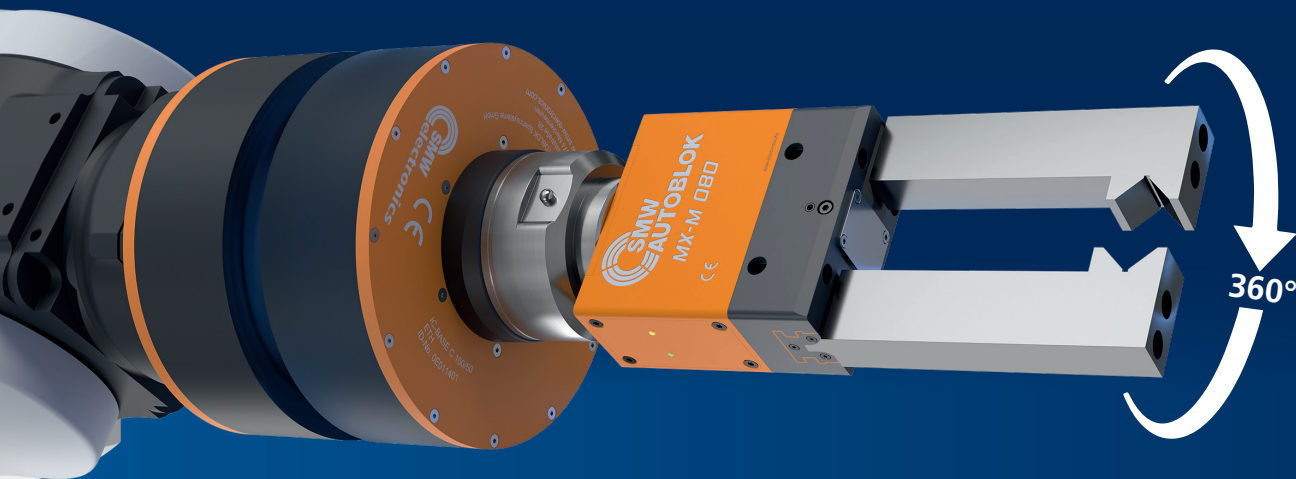


# MX-M

## MECHATRONIC UNIVERSAL GRIPPER

Gripping force independent of gripping speed and stroke  
Mechatronic drive with gripping force retention  
Position measuring system  
Pre-positioning and gripping force adjustment  
Robust and compact design allows universal usage





### Application/customer benefits

- Gripping force independent of gripping speed and stroke
- Mechatronic drive with gripping force retention
- Position measuring system (absolute)
- Pre-positioning and gripping force adjustment
- ID and OD clamping clamping
- Use as universal gripper

### Technical features

- Aluminium housing
- Sealed / Protection class: IP64
- Adjustable gripping position and force
- Repeatability 0,02 mm
- Power supply 19.2 ... 30 V / 5 A
- Communication interface IO-Link or Digital-IO
- URCap optionally available

### Standard equipment

Gripper with centering sleeves (without gripper fingers and mounting bolts)

### MX-M

#### LED Status indication



#### M12 Connector

Power and  
Communication  
Interface  
(IO-Link / Digital-IO)



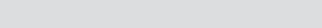
**Integrated  
position measuring system  
(absolute)**



**Sealed**

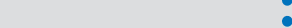


**Common interface  
gripper fingers**

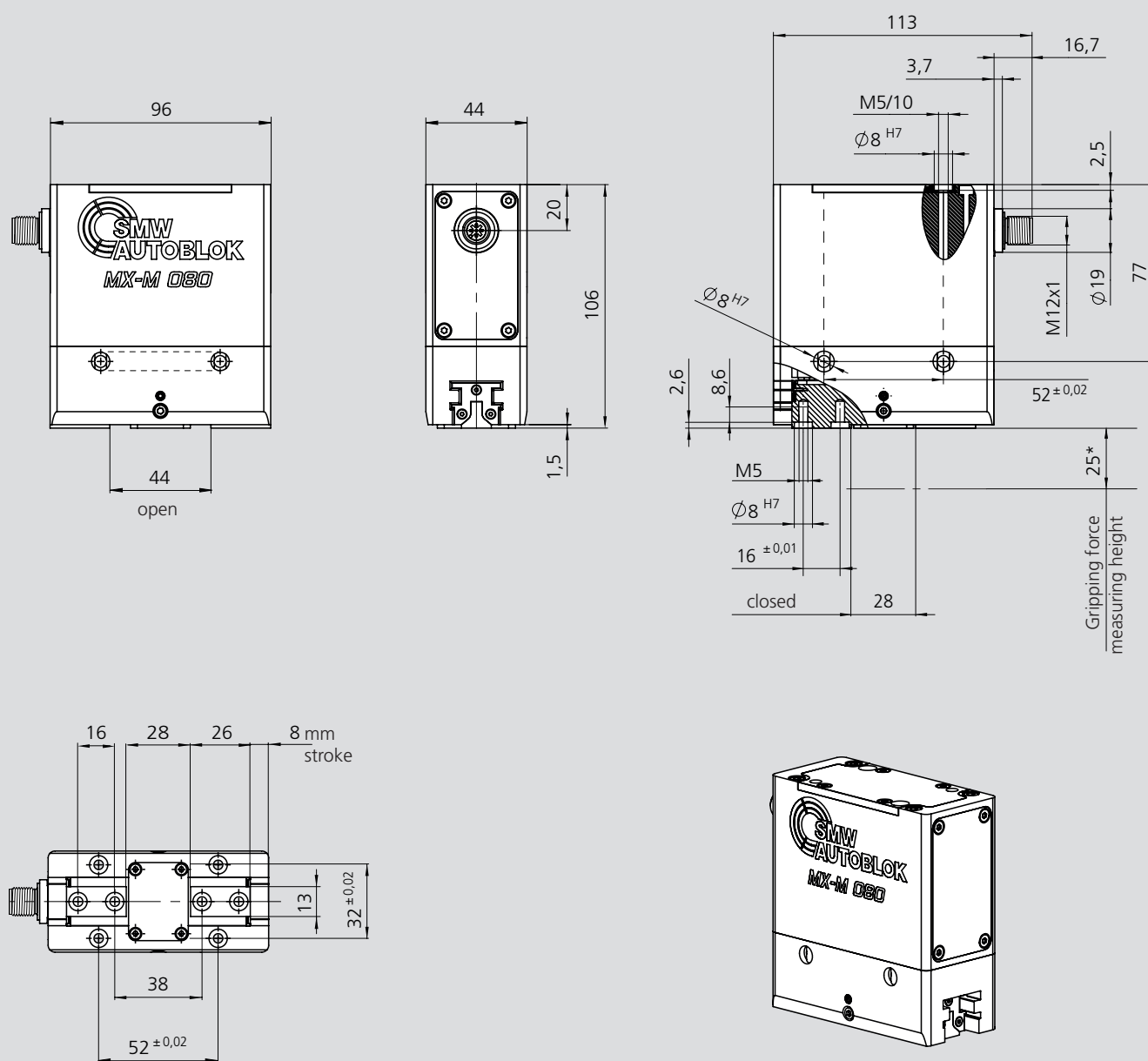


#### Common interface

Robot connection



**Mechatronic drive  
with gripping force retention**

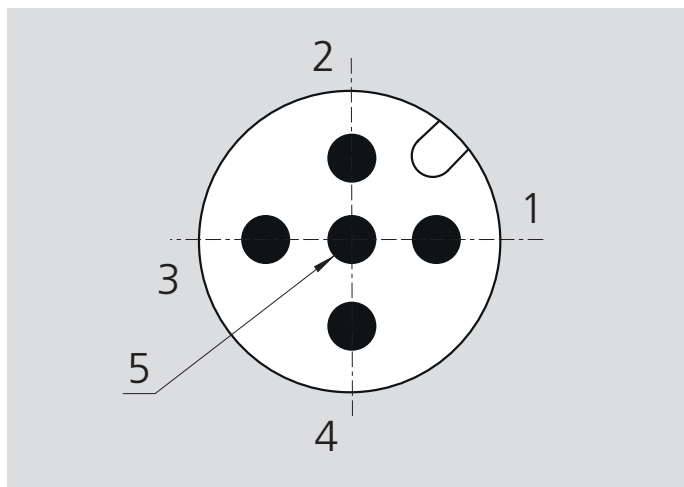


Subject to technical changes.  
For more detailed information please ask our customer service.

\*Gripping force is the arithmetic sum of the individual forces applied on each jaw at the specified distance.

| Type                               |    | MX-M 080 IOL  | MX-M 080 DIO |
|------------------------------------|----|---------------|--------------|
| Id. No.                            |    | 480040        | 480140       |
| Gripping force                     | N  | 1.200         |              |
| Stepless gripping force adjustment | N  | 360 - 1.200   |              |
| Stroke per jaw                     | mm | 8             |              |
| Repeatability                      | mm | 0,02          |              |
| Weight                             | kg | 1,35          |              |
| Recommended workpiece weight       | kg | 6             |              |
| Closing time                       | s  | 0,36          |              |
| Opening time                       | s  | 0,36          |              |
| Voltage                            | V  | 19.2 ... 30 V |              |
| Max. power consumption             | A  | 5 A           |              |
| Protection class                   |    | IP64          |              |
| Signal interface                   |    | IO-Link       | Digital-IO   |

### Pin assignment M12 x 1 - 5 Pin A-coded Male



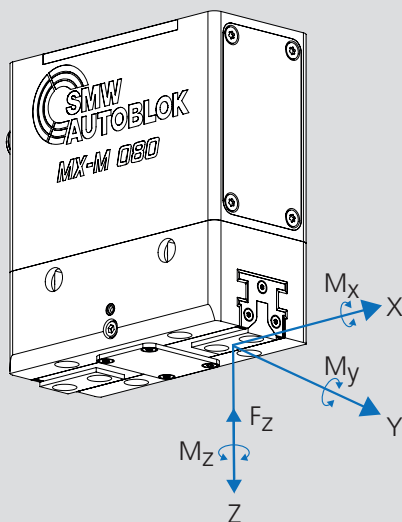
| IO-Link Port B |          |                                   |
|----------------|----------|-----------------------------------|
| Pin            | Function | Description                       |
| 1              | US+      | Power supply IO-Link logic 24V DC |
| 2              | UA+      | Power supply actuator 24V DC      |
| 3              | US-      | Ground IO-Link logic              |
| 4              | C/Q      | IO-Link signal                    |
| 5              | UA-      | Ground Actuator                   |

| Digital IO Interface M12 - 5A |          |                                |
|-------------------------------|----------|--------------------------------|
| Pin                           | Function | Description                    |
| 1                             | +24V     | Positive supply voltage        |
| 2                             | Opened   | Digital output opened feedback |
| 3                             | GND      | Ground                         |
| 4                             | Ctrl     | Digital input control signal   |
| 5                             | Closed   | Digital output closed feedback |

### Force and moment loading

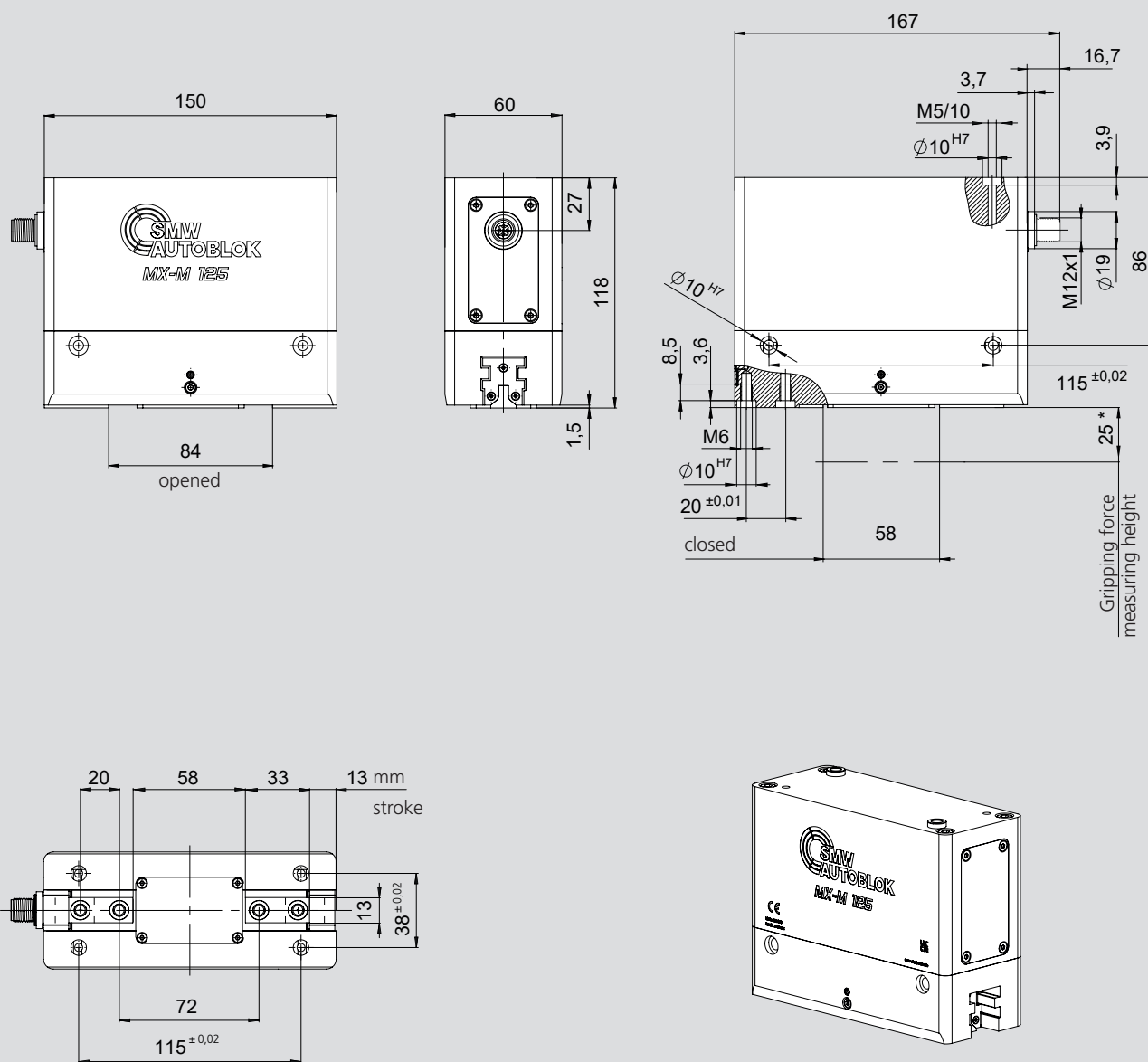
#### Forces and moments

Shows static forces and moments that can act in addition to the gripping force.



|           |                             |    |       |
|-----------|-----------------------------|----|-------|
| <b>Mx</b> | max. moment in X-axis       | Nm | 50    |
| <b>My</b> | max. moment in Y-axis       | Nm | 100   |
| <b>Mz</b> | max. moment in Z-axis       | Nm | 50    |
| <b>Fz</b> | max. weight force in Z-axis | N  | 1.200 |

# Notes

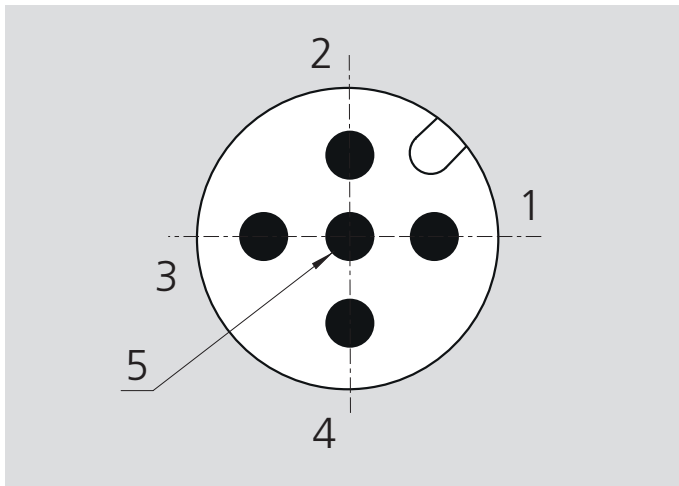


Subject to technical changes.  
For more detailed information please ask our customer service.

\*Gripping force is the arithmetic sum of the individual forces applied each jaw at the specified distance.

| Type                               |    | MX-M 125 IOL  | MX-M 125 DIO |
|------------------------------------|----|---------------|--------------|
| Id. No.                            |    | 480110        | 480210       |
| Gripping force                     | N  | 1.800         |              |
| Stepless gripping force adjustment | N  | 540-1.800     |              |
| Stroke per jaw                     | mm | 13            |              |
| Repeatability                      | mm | 0,02          |              |
| Weight                             | kg | 2,7           |              |
| Recommended workpiece weight       | kg | 9             |              |
| Closing time                       | s  | 0,4           |              |
| Opening time                       | s  | 0,4           |              |
| Voltage                            | V  | 19.2 ... 30 V |              |
| Max. power consumption             | A  | 5 A           |              |
| Protection class                   |    | IP64          |              |
| Signal interface                   |    | IO-Link       | Digital-IO   |

## Pin assignment M12 x 1 - 5 Pin A-coded Male



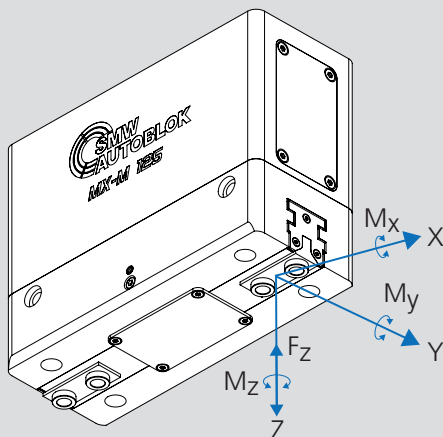
| IO-Link Port B |          |                                   |
|----------------|----------|-----------------------------------|
| Pin            | Function | Description                       |
| 1              | US+      | Power supply IO-Link logic 24V DC |
| 2              | UA+      | Power supply actuator 24V DC      |
| 3              | US-      | Ground IO-Link logic              |
| 4              | C/Q      | IO-Link signal                    |
| 5              | UA-      | Ground Actuator                   |

| Digital IO Interface M12 - 5A |          |                                |
|-------------------------------|----------|--------------------------------|
| Pin                           | Function | Description                    |
| 1                             | +24V     | Positive supply voltage        |
| 2                             | Opened   | Digital output opened feedback |
| 3                             | GND      | Ground                         |
| 4                             | Ctrl     | Digital input control signal   |
| 5                             | Closed   | Digital output closed feedback |

## Force and moment loading

### Forces and moments

Shows static forces and moments that can act in addition to the gripping force.



|           |                             |    |         |
|-----------|-----------------------------|----|---------|
| <b>Mx</b> | max. moment in X-axis       | Nm | 125 Nm  |
| <b>My</b> | max. moment in Y-axis       | Nm | 140 Nm  |
| <b>Mz</b> | max. moment in Z-axis       | Nm | 110 Nm  |
| <b>Fz</b> | max. weight force in Z-axis | N  | 3.000 N |

Use MX-M with inductive coupling system F100-2IOL



#### Advantages:

- 360 ° rotation of the gripper
- No cable breaks
- Use in clean room applications
- No limitation of the speed of the robot by cables

# Notes

# F100-2IOL

## Inductive Coupling System

Axial coupler

■ Contact free transmission of energy and signals



### Application/customer benefits

- Contact free transmission of energy and signals between moving / rotating and stationary components
- Application examples: Robotic (End of Arm Tooling), Automation, Mechanical engineering
- Substitution of slip ring / connector
- Dynamic Pairing
- Wear and maintenance free
- Protective functions: temperature monitoring, foreign object detection, reverse polarity protection
- Status LED with good visibility

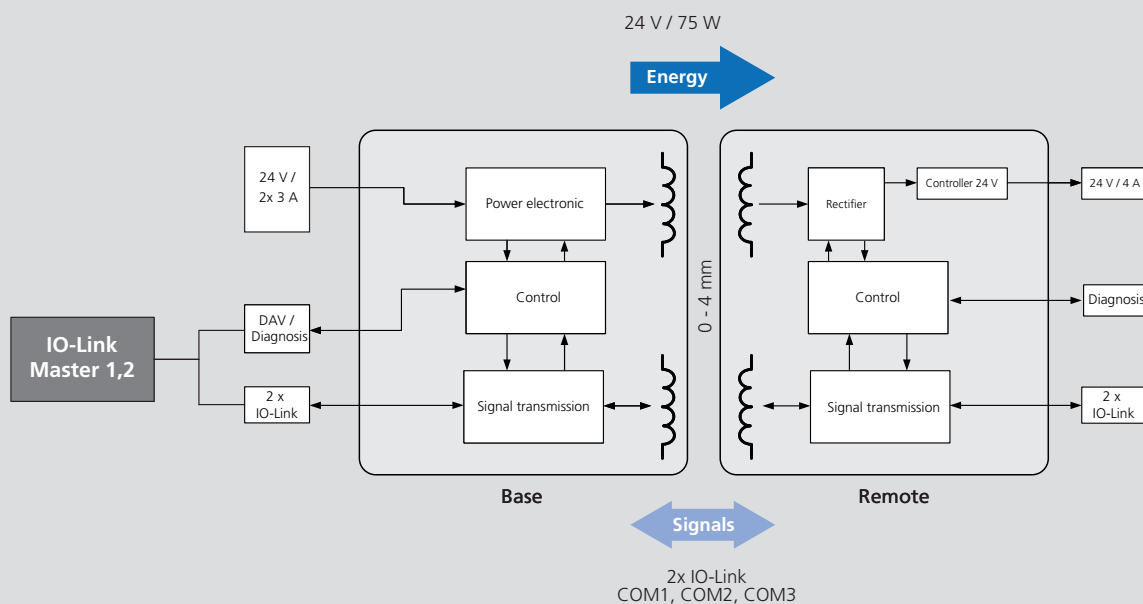
### Technical features

- Diameter: 100 mm / Through hole 50 mm
- Operating voltage: 24 V / max 6 A
- Transmission distance: 0 - 4 mm
- Transmission of energy: 24 V / 75 W
- Transmission of signals: 2x IO-Link (COM 1, COM 2, COM 3)
- Connections: Base: 2x M12 x 1 male 5-pin, Remote: 2x M12 x 1 female 5-pin
- Protection class: IP67

### Standard equipment

Inductive coupler base or remote

### Block diagram



Subject to technical changes.  
For more detailed information please ask our customer service.

IO-Link

### Inductive coupling system F100-2IOL

| Type                                           | Base                            | Remote      |
|------------------------------------------------|---------------------------------|-------------|
| Id. No.                                        | 0E012330                        | 0E012331    |
| Operating temperature (housing surface)        | -20 °C ... +60 °C               |             |
| Storage temperature                            | -20 °C ... +60 °C               |             |
| Transmission distance                          | 0 mm ... 4 mm                   |             |
| Operating voltage                              | 24 V                            | -           |
| Output voltage                                 | -                               | 24 V (75 W) |
| Signal transmission                            | 2x IO-Link (COM2, COM 2, COM 3) |             |
| LED                                            | 2 LEDs 2-color                  |             |
| Current consumption (Base)                     | 6 A (24 V)                      | -           |
| Overload protection / short circuit protection | ✓                               | ✓           |
| Residual ripple                                | -                               | < 50 mV     |
| Reverse polarity protection                    | ✓                               | -           |
| Data-Valid output                              | max. 100 mA                     |             |
| Ready delay                                    | < 1 s                           |             |

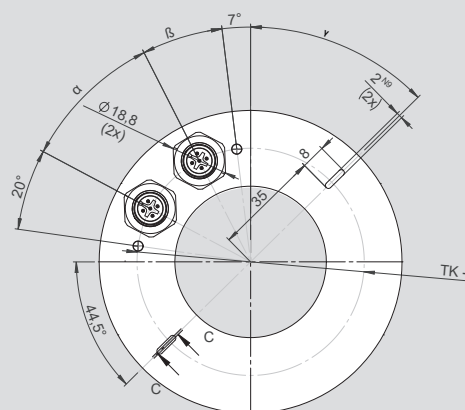
# Inductive Coupling System

# F100-2IOL

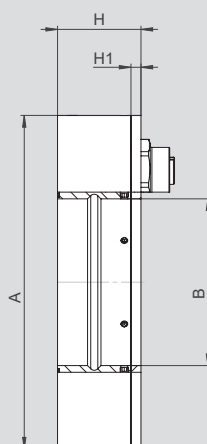
- Stationary unit - Base
- Mobile unit - Remote

Axial coupler

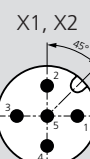
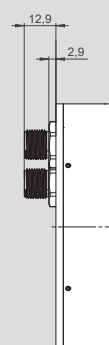
Base / Remote:



Base / Remote:

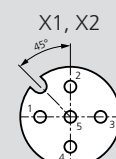
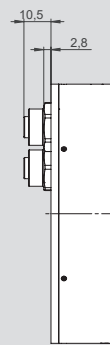


Base:



2x Male connector 5-pin  
M12 x 1

Remote:



2x Female connector 5-pin  
M12 x 1

Subject to technical changes.  
For more detailed information please ask our customer service.

## Inductive coupling system F100-2IOL

| Type             |        | Base     | Remote   |
|------------------|--------|----------|----------|
| Id. No.          |        | 0E012330 | 0E012331 |
| A                | mm     | 100      |          |
| B                | mm     | 50       |          |
| C                | mm     | 1        |          |
| H                | mm     | 25       |          |
| H1               | mm     | 3        |          |
| α                | degree | 35       |          |
| β                | degree | 20       |          |
| γ                | degree | 45.5     |          |
| Housing material |        | Al, GFK  |          |
| Protection class |        | IP67     |          |
| Weight           | kg     | 0,224    | 0,237    |

### Function LED IO-Link Base (X1, X2)

| LED Power |                                                                                                         |
|-----------|---------------------------------------------------------------------------------------------------------|
| Color     | Yellow / red                                                                                            |
| Function  | Yellow » SIO mode active and SIO signal is high                                                         |
|           | Flash yellow (1000 ms on, 100 ms off), » IO-Link communication active, power is on, Remote was detected |
|           | Flashing 2 Hz yellow » no IO-Link device detected, power on, no Remote detected                         |
|           | Flashing 2 Hz red » Short circuit on IO-Link PIN                                                        |
|           | Flashing 5 Hz red » Overload voltage output Remote                                                      |

### Function LED IO-Link Remote (X1, X2)

| LED Power |                                                                                                            |
|-----------|------------------------------------------------------------------------------------------------------------|
| Color     | Yellow / red                                                                                               |
| Function  | Yellow » SIO mode active and SIO signal is high                                                            |
|           | Flash yellow (1000 ms on, 100 ms off), » IO-Link communication active, power is on, Base has been detected |
|           | Flashing 2 Hz yellow » No IO-Link communication, power on, no Base detected                                |
|           | Flashing 2 Hz red » Short circuit on IO-Link PIN                                                           |
|           | Flashing 5 Hz red » Overload voltage output Base                                                           |

| PIN assignment | PIN | X1 Base    | X2 Base    | X1 Remote  | X2 Remote  |
|----------------|-----|------------|------------|------------|------------|
| Supply voltage | 1   | 24 V IN    | 24 V IN    | 24 V OUT   | 24 V OUT   |
| Data-Valid     | 2   | DAV 24 V   | -          | -          | -          |
| Ground         | 3   | GND        | GND        | GND        | GND        |
| IO-Link Signal | 4   | IO-Link CQ | IO-Link CQ | IO-Link CQ | IO-Link CQ |
| -              | 5   | -          | -          | -          | -          |

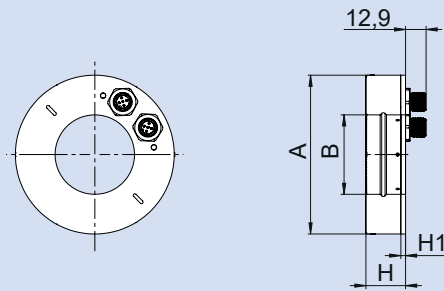
# F100-2IOL F100 Ethernet

Axial coupler

## Inductive Coupling Systems

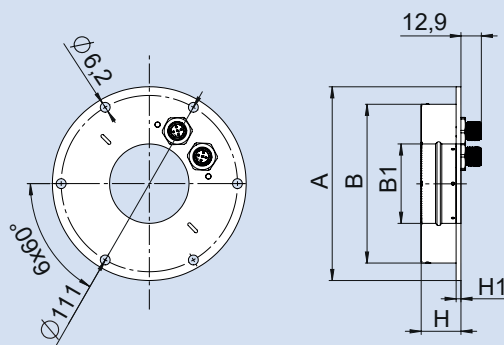
■ Ordering overview flange

### Standard flange



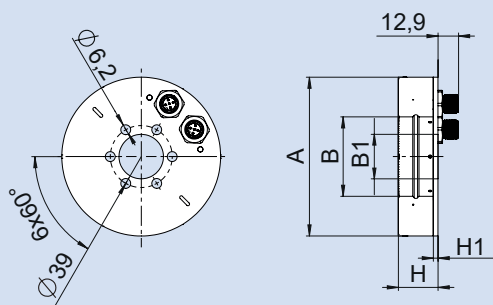
| Type    | F100-2IOL                     |                                  | F100 Ethernet                |                                 |
|---------|-------------------------------|----------------------------------|------------------------------|---------------------------------|
|         | IC-Base-F100-2IOL<br>D100/050 | IC-Remote-F100-<br>2IOL D100/050 | IC-Base-F100-ETH<br>D100/050 | IC-Remote-F100-<br>ETH D100/050 |
| Id.-No. | 0E012330                      | 0E012331                         | 0E011420                     | 0E011421                        |
| A       | 100                           |                                  |                              |                                 |
| B       | 50                            |                                  |                              |                                 |
| B1      | -                             |                                  |                              |                                 |
| B2      | -                             |                                  |                              |                                 |
| H       | 25                            |                                  |                              |                                 |
| H1      | 3                             |                                  |                              |                                 |
| Weight  | 0.26 kg                       |                                  |                              |                                 |

### Outer flange with feed-through



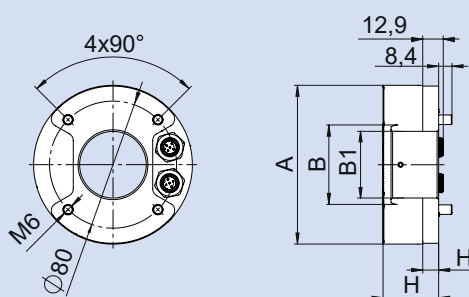
| Type    | F100-2IOL                     |                                  | F100 Ethernet                |                                 |
|---------|-------------------------------|----------------------------------|------------------------------|---------------------------------|
|         | IC-Base F100-2IOL<br>D122/050 | IC-Remote-F100-<br>2IOL D122/050 | IC-Base F100-ETH<br>D122/050 | IC-Remote-F100-<br>ETH D122/050 |
| Id.-No. | 0E012332                      | 0E012333                         | 0E012320                     | 0E012321                        |
| A       | 122                           |                                  |                              |                                 |
| B       | 100                           |                                  |                              |                                 |
| B1      | 50                            |                                  |                              |                                 |
| B2      | -                             |                                  |                              |                                 |
| H       | 25                            |                                  |                              |                                 |
| H1      | 3                             |                                  |                              |                                 |
| Weight  | 0.36 kg                       |                                  |                              |                                 |

### Inner flange with feed-through



| Type    | F100-2IOL                     |                                  | F100 Ethernet                |                                 |
|---------|-------------------------------|----------------------------------|------------------------------|---------------------------------|
|         | IC-Base F100-2IOL<br>D100/028 | IC-Remote-F100-<br>2IOL D100/028 | IC-Base F100-ETH<br>D100/028 | IC-Remote-F100-<br>ETH D100/028 |
| Id.-No. | 0E012334                      | 0E012335                         | 0E012322                     | 0E012323                        |
| A       | 100                           |                                  |                              |                                 |
| B       | 50                            |                                  |                              |                                 |
| B1      | 28                            |                                  |                              |                                 |
| B2      | -                             |                                  |                              |                                 |
| H       | 25                            |                                  |                              |                                 |
| H1      | 3                             |                                  |                              |                                 |
| Weight  | 0.34 kg                       |                                  |                              |                                 |

### Flangering with feed-through



| Type    | F100-2IOL                     |                                  | F100 Ethernet                |                                 |
|---------|-------------------------------|----------------------------------|------------------------------|---------------------------------|
|         | IC-Base F100-2IOL<br>D100/042 | IC-Remote-F100-<br>2IOL D100/042 | IC-Base F100-ETH<br>D100/042 | IC-Remote-F100-<br>ETH D100/042 |
| Id.-No. | 0E012336                      | 0E012337                         | 0E012324                     | 0E012325                        |
| A       | 100                           |                                  |                              |                                 |
| B       | 50                            |                                  |                              |                                 |
| B1      | 42                            |                                  |                              |                                 |
| B2      | -                             |                                  |                              |                                 |
| H       | 25                            |                                  |                              |                                 |
| H1      | 10                            |                                  |                              |                                 |
| Weight  | 0.48 kg                       |                                  |                              |                                 |

#### FURTHER OPTIONS AVAILABLE ON REQUEST!

- Outer flange without feed-through
- Inner flange without feed-through
- Threaded sleeve with without feed-through

# Notes



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