SMW AUTOBLOK

# MX-L

## MECHATRONIC LONG STROKE GRIPPER

Mechatronic drive
Position sensing and monitoring of the gripping force
Pre-positioning and sensitive gripping force adjustment


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SMW electronics

# MX-L 335 compact

**Mechatronic gripper**

## Mechatronic long stroke gripper

■ 2 finger parallel


AI READY

### Application/customer benefits

- Gripping force independent of gripping speed and stroke
- Mechatronic drive with gripping force retention
- Gripping force 2.500 N - 27.000 N
- Position sensing and monitoring of the gripping force
- OD clamping
- Pre-positioning and sensitive gripping force adjustment

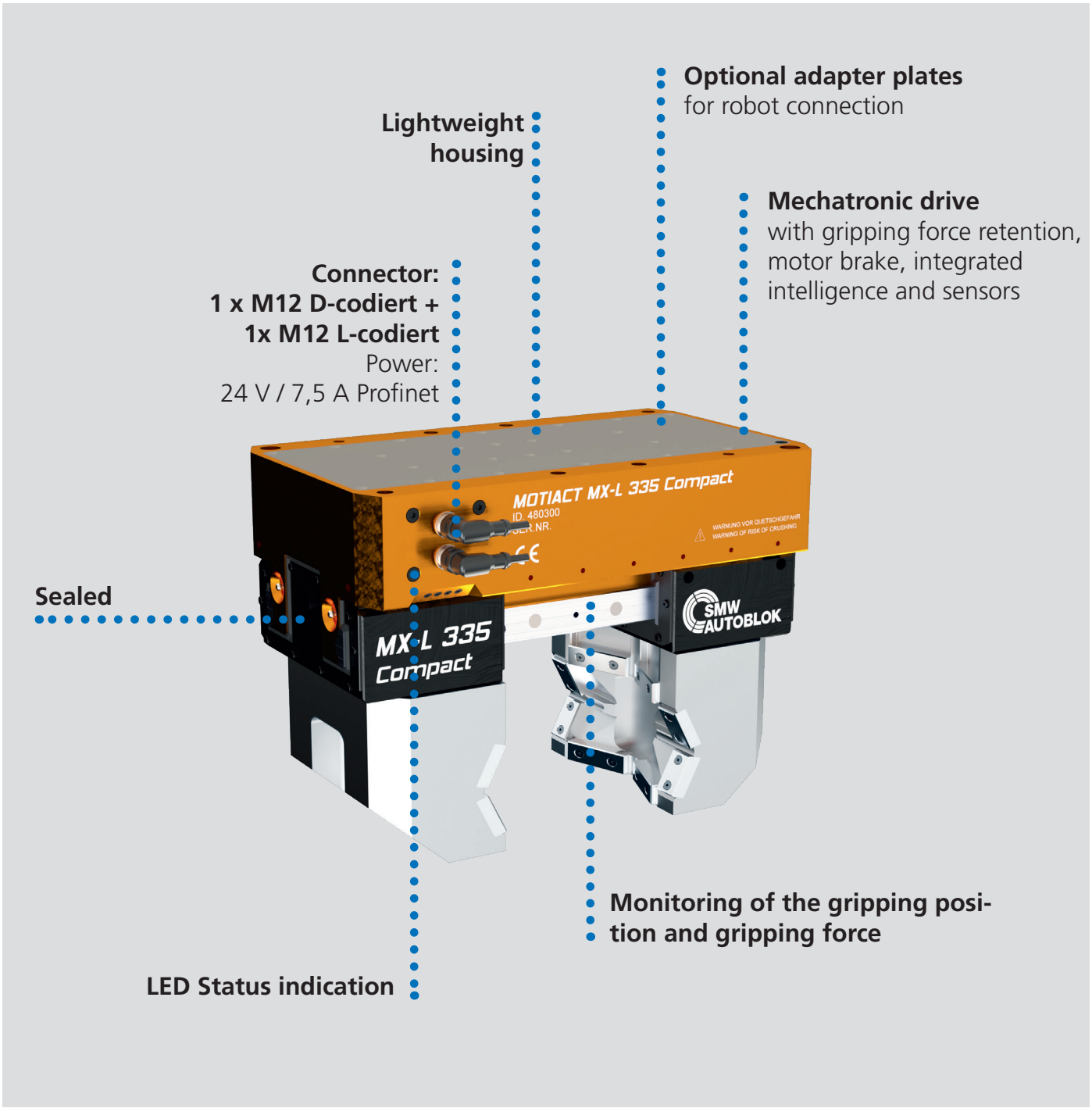
### Technical features

- Aluminum housing
- Sealed/Protection class: IP67
- Repeatability: 0,02 mm
- Recommended workpiece weight up to 135 kg
- Power supply: 24 V / 7,5 A
- Communication interface: Profinet
- Possibility of safe motion shutdown by means of STO Signals (optinal)

### Standard equipment

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

## MX-L 335 compact

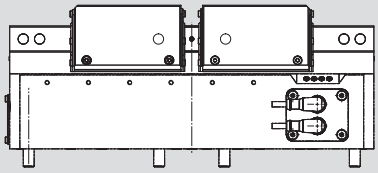


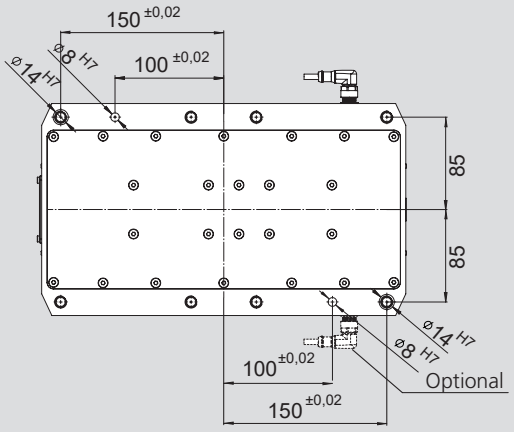
# Mechatronic long stroke gripper

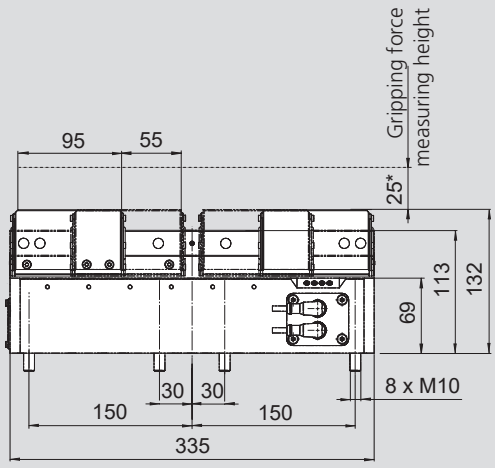
## Dimension and technical data

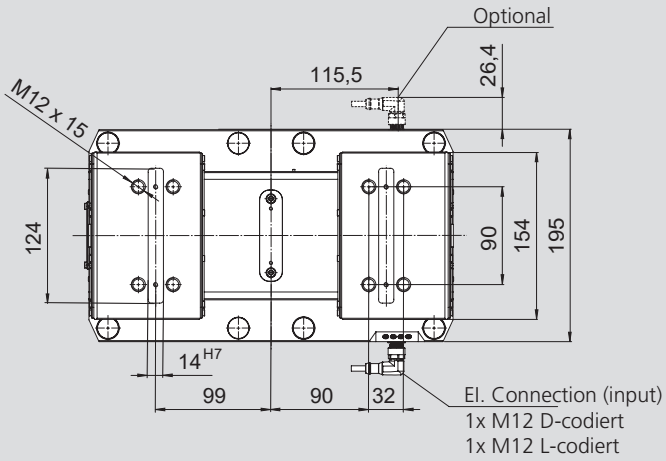
# MX-L 335 compact

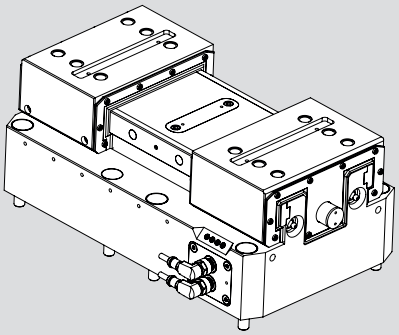
Mechatronic gripper





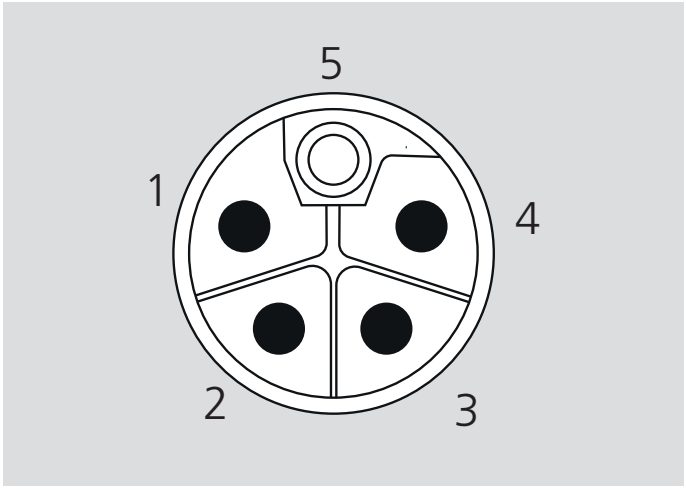



Subject to technical changes.
For more detailed information please ask our customer service.

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

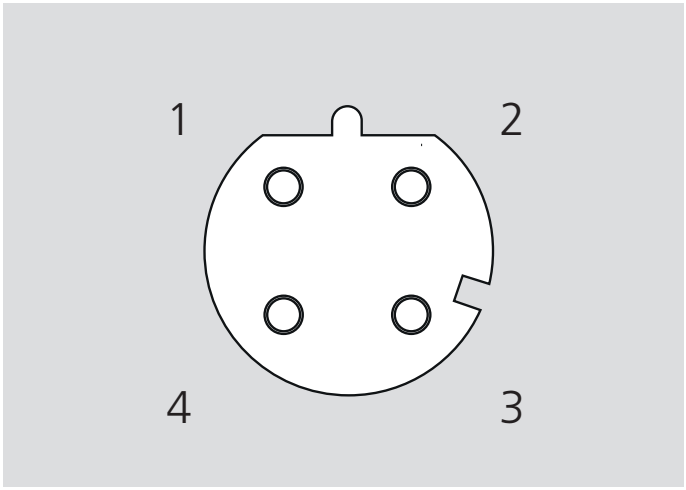
| Type | | MX-L 335 compact<br>PROFINET |
|---|---|---|
| **Id. No.** | | **480300** |
| **Gripping force (steplessly adjustable)** | N | 2.500 - 27.000 |
| **Stroke per jaw** | mm | 55 |
| **Repeatability** | mm | 0,02 |
| **Weight** | kg | 32 |
| **Recommended workpiece weight** | kg | 135 |
| **Travel speed per jaw** | mm/s | 5 |
| **Voltage (actuators)** | V | 24/48 |
| **Max. power consumption (actuators)** | A | 7,5 |
| **Voltage (sensors)** | V | 24 V ± 10% |
| **Max. power consumption (sensors)** | A | 0.5 A |
| **Communication interface** | | Profinet |
| **STO signals (option)** | | 2 |

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




| Power Interface | | |
|---|---|---|
| **Pin** | **Function** | **Description** |
| 1 | US+ | 24V Power supply logic |
| 2 | UA+ | 24V/ 48V Power supply actuator |
| 3 | GND US- | Ground power supply logic |
| 4 | GND UA- | Ground power supply actuator |
| 5 | nc | - |

## Pin assignment M12 x 1 - 4 Pin D-coded Female




| Ethernet/Profinet Interface | | |
|---|---|---|
| **Pin** | **Function** | **Description** |
| 1 | Tx+ | Ethernet/Profinet Tx+ |
| 2 | Rx+ | Ethernet/Profinet Rx+ |
| 3 | Tx- | Ethernet/Profinet Tx- |
| 4 | Rx- | Ethernet/Profinet Rx- |

# Notes

# MX-L 520

Mechatronic gripper

## Mechatronic long stroke gripper

■ 2 finger parallel


## Application/customer benefits

- Gripping force independent of gripping speed and stroke
- Mechatronic drive with gripping force retention
- Gripping force up to 40.000 N
- Position sensing and monitoring of the gripping force
- OD clamping
- Pre-positioning and gripping force adjustment

## Technical features

- Aluminum housing
- Sealed/Protection class: IP67
- Repeatability 0,02 mm
- Recommended workpiece weight up to 200 kg
- Power supply 48V / 10A
- Communication interface Profinet / EtherNet/IP
- Possibility of safe motion shutdown by means of STO Signals (optional)

## Standard equipment

Gripper (wihout gripper fingers, centering sleeves and mounting bolts)

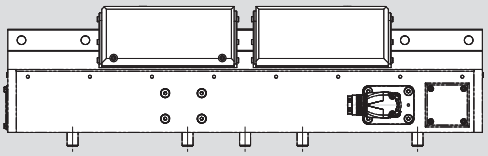
## MX-L

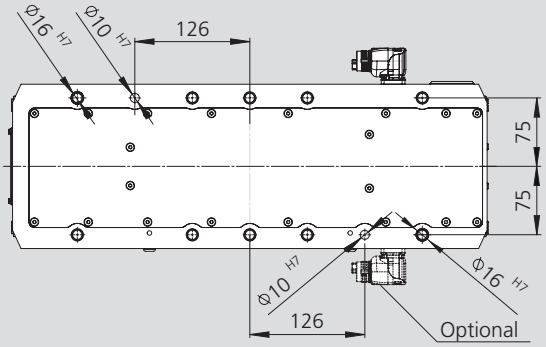
# Mechatronic long stroke gripper

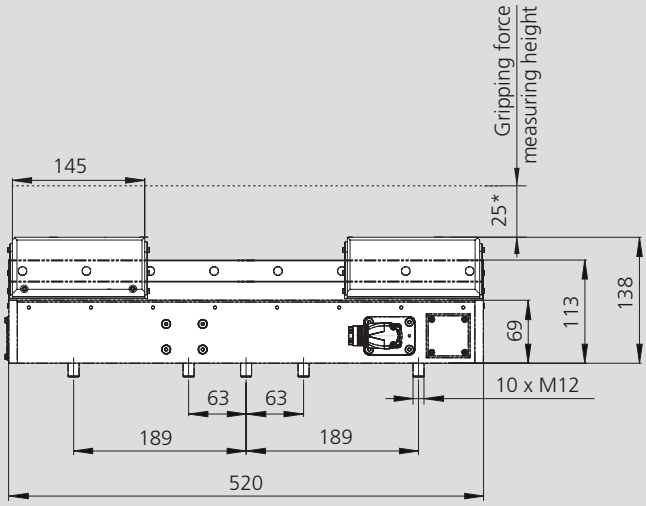
## Dimension and technical data

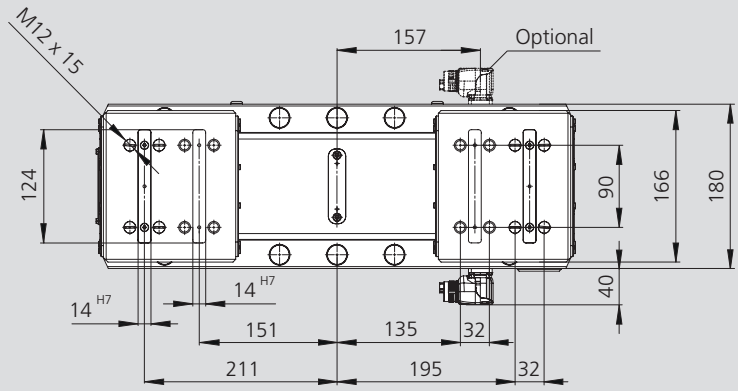
# MX-L 520

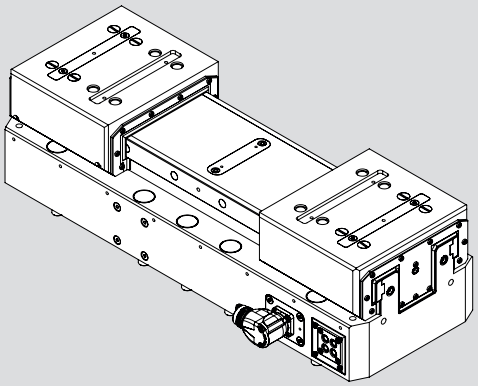
## Mechatronic gripper





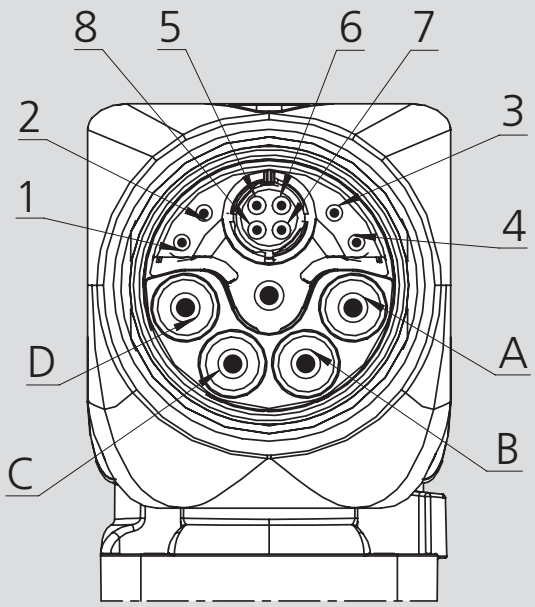



Subject to technical changes.
For more detailed information please ask our customer service.

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

| Type | | MX-L 520 PROFINET | MX-L 520 ETHERNET / IP |
|---|---|---|---|
| **Id. No.** | | **480000** | **480200** |
| **Gripping force (steplessly adjustable)** | N | 10.000 - 40.000 | |
| **Stroke per jaw** | mm | 99 | |
| **Repeatability** | mm | 0,02 | |
| **Weight** | kg | 42,2 | |
| **Recommended workpiece weight** | kg | 200 | |
| **Travel speed per jaw** | mm/s | 1,2 | |
| **Voltage (actuators)** | V | 48 | |
| **Max. power consumption (actuators)** | A | 10 | |
| **Voltage (sensors)** | V | 24 V ± 10% | |
| **Max. power consumption (sensors)** | A | 0.5 A | |
| **Communication interface** | | Profinet | EtherNET/IP |
| **STO signals (option)** | | 2 | |

## PIN assignment M23 hybrid plug

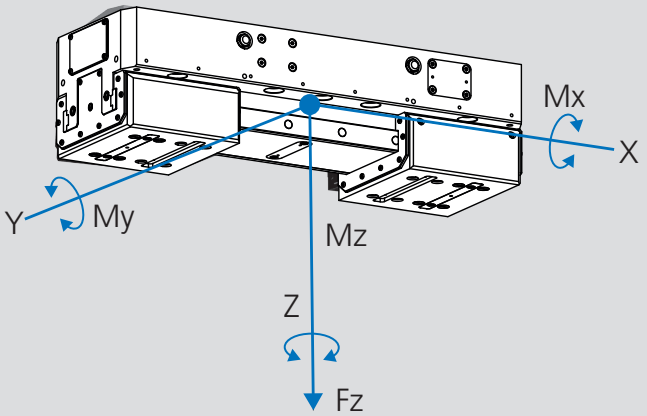



| Device plug connector | | | |
|---|---|---|---|
| **Pin** | **Core color** | **Function** | **Description** |
| **A** | black 1 | 24 V | Logic Power |
| **B** | black 2 | GND | Logic GND |
| **C** | black 3 | 48 V | Last Power |
| **D** | black 4 | GND | Last GND |
| **PE** | green / yellow | Ground | Ground wire |
| **1** | violett | STO A | Safe hold A |
| **2** | brown | STO B | Safe hold B |
| **3** | green | STO GND | Safe hold GND |
| **4** | black 5 | Nc | - |
| **5** | blue | Data RX- | ProfiNet |
| **6** | yellow | Data TX+ | ProfiNet |
| **7** | white | Data RX+ | ProfiNet |
| **8** | orange | Data TX- | ProfiNet |

## Force and moment loading

### Forces and moments

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




| | | | |
|---|---|---|---|
| **Mx** | max. torque in X axis | Nm | 1.200 |
| **My** | max. torque in Y axis | Nm | 2.900 |
| **Mz** | max. torque in Z axis | Nm | 1.200 |
| **Fz** | max. effective weight in Z-axis | daN | 400 |


**Optional:** Use inductive coupling system F180 Ehternet with mechatronic gripper


**Advantages:**

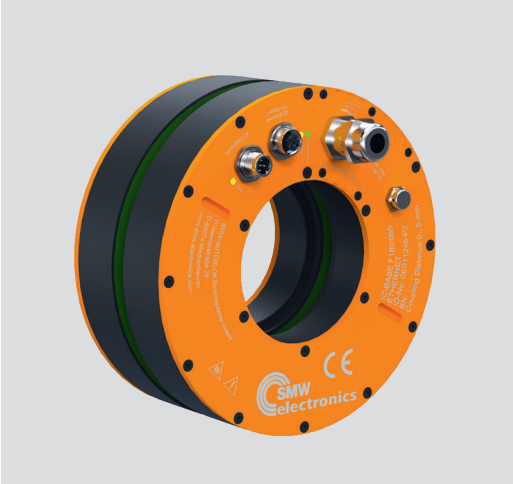
- 360 ° rotation of the gripper
- No cable breaks
- Use in clean room applications
- No limitation of the speed of the robot by cables

# F180 Ethernet

**Axial coupler**

## Inductive Coupling System

**■ 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: Packaging machines, special machines, automation, machine tools, printing machines, robot applications (EOAT)
- Substitution of slip ring / connector
- Dynamic Pairing
- Wear and maintenance free
- Protective functions: Temperature monitoring, foreign object detection
- Status LED with good visibility

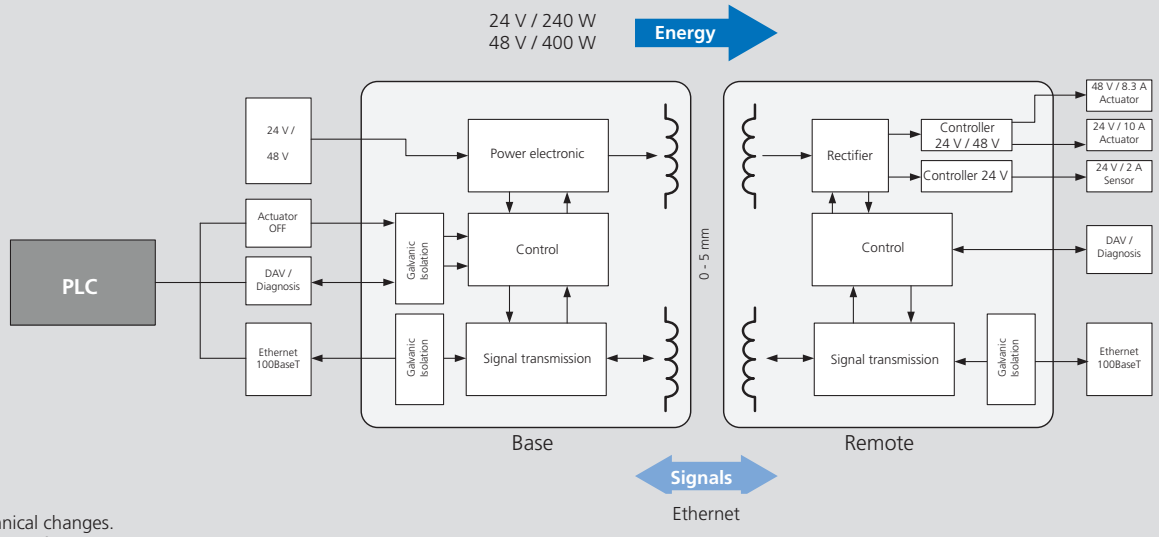
## Technical features

- Diameter: 180 mm / Through hole: 85 mm
- Operating voltage: 24 V or 48 V
- Transmission distance: 0 - 5 mm at 24 V or 0 - 3 mm at 48 V
- Energy transmission: 24 V / 240 W or 48 V / 400 W (adjustable)
- Signal transmission: Ethernet 100 Base-T
- Transmission bandwidth < 5 MBit/s
- Connections: M12 Ethernet (D-coded), M12 Diagnosis (A-coded), terminal block (Energy)
- Protection class: IP67

## Standard equipment

Inductive coupler base oder remote

## Block diagram




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

| Inductive coupling system F180 Ethernet | | |
|---|---|---|
| **Type** | **Base** | **Remote** |
| **Id. No.** | **0E011246** | **0E011247** |
| Operating temperature (body surface) | -20° C ... +60° C | |
| Stocking temperature | -20° C ... +60° C | |
| Transmission distance | 0 mm ... 5 mm (24 V)<br>0 mm ... 3 mm (48 V) | |
| Operating voltage | 24 V / 48 V | - |
| Output voltage (Actuator supply)* | - | 24 V DC / 10 A<br>48 V DC / 8.3 A |
| Output voltage (Sensor supply)* | - | 24 V DC / 4 A |
| Signal transmission | Ethernet 100 Base-T | |
| LED function display | 3 LEDs 2-color | |
| Current consumption (base) | 15 A (24 V)<br>12 A (48 V) | - |
| Overload protection / short-circuit protection | ✓ | ✓ |
| Reverse polarity protection | - | < 50 mV |
| Data valid output | max. 100 mA | - |
| Ready delay | < 5 s | |

*max 400 W total

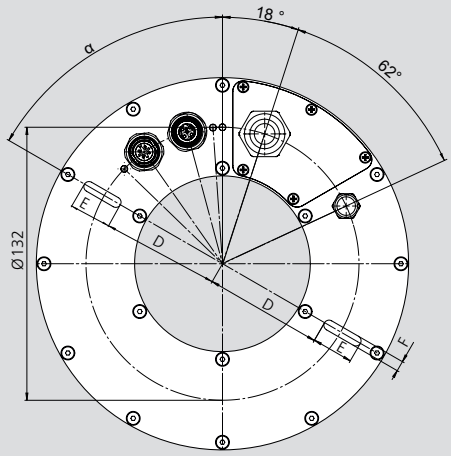
# Inductive Coupling System

■ Stationary Unit - Base
■ Mobile Unit - Remote

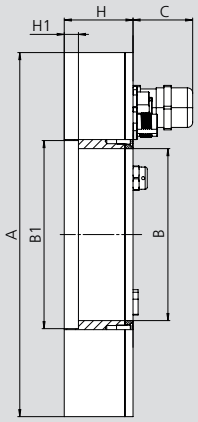
# F180 Ethernet

Axial coupler

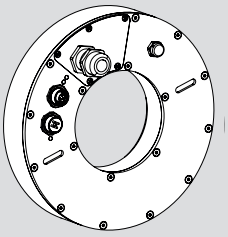
**Base / Remote:**



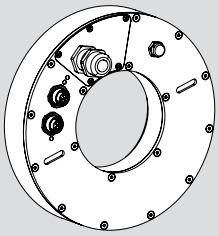

**Base / Remote:**




**Base:**



**Remote:**



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

| Inductive coupling system F180 Ethernet | | | |
|---|---|---|---|
| **Type** | | **Base** | **Remote** |
| **Id. No.** | | **0E011246** | **0E011247** |
| **A** | mm | 180 | |
| **B** | mm | 85 | |
| **B1** | mm | 93 | |
| **C** | mm | 29.5 | |
| **D** | mm | 57 | |
| **E** | mm | 20 | |
| **F** | mm | 5 | |
| **H** | mm | 34 | |
| **H1** | mm | 7 | |
| **α** | degree | 60 | |
| **Housing material** | | Al, GFK | |
| **Protection class** | | IP67 | |
| **Weight** | kg | 1,172 | 1,275 |

| Function Base | |
|---|---|
| **LED Power** | |
| **Color** | Green/red |
| **Function** | Off » Unit not supplied with voltage (or undervoltage) |
| | On (green) » Voltage ok and mobile unit has been detected |
| | 2 Hz green 50/ 50% » Operating temperature in critical range |
| | 1 Hz green 25/75% » Voltage ok but no mobile unit detected |
| | 1 Hz red/green » Incompatible mobile unit detected |
| | 2 Hz red » Foreign element detected |
| | 5 Hz red » Internal error |
| **LED Signal transmission Ethernet** | |
| **Color** | Yellow/red |
| **Function** | Off » No mobile unit detected |
| | On/yellow » Signal transmission ready |
| | 1 Hz yellow » Data packets are being transmitted |
| | 3 Hz yellow » 50% of the transmission bandwidth used (10 s) |
| | 8 Hz red » Data packets were discarded (in the last 10 s) |
| | On/red » Error in data transmission (internal error) |
| **LED Energy transmission** | |
| **Color** | Yellow/red |
| **Function** | Off » No mobile unit detected |
| | On (yellow) » Unit coupled, voltage output ok |
| | 1 Hz red/yellow » Short circuit at voltage output sensor |
| | 3 Hz red/yellow » Short circuit at voltage output actuator |
| | 3 Hz red » Short circuit at both voltage outputs |
| | 5 Hz red » Internal error |

| Function Remote | |
|---|---|
| **LED Actuator** | |
| **Color** | Green/red |
| **Function** | Off » Unit not paired |
| | On (green) » Unit paired, voltage output actuator ok |
| | Flashes 2 Hz red » Unit paired but short circuit on actuator |
| | Flashes 5 Hz red » Internal error |
| **LED Sensor supply** | |
| **Color** | Green/red |
| **Function** | Off » Unit not paired |
| | On (green) » Unit paired, voltage output sensor (24 V) ok |
| | Flashes 2 Hz red » Unit paired but short circuit on sensor (24 V) |
| | Flashes 5 Hz red » Internal error |
| **LED Signal transmission** | |
| **Color** | Yellow/red |
| **Function** | Off » No mobile unit detected |
| | On/yellow » Signal transmission ready |
| | Flashes 1 Hz yellow » Data packets are being transmitted |
| | Flashes 3 Hz yellow » 50% of the transmission bandwidth used (10 s) |
| | Flashes 8 Hz red » Data packets were discarded (in the last 10 s) |
| | On/red » Error in data transmission (internal error) |

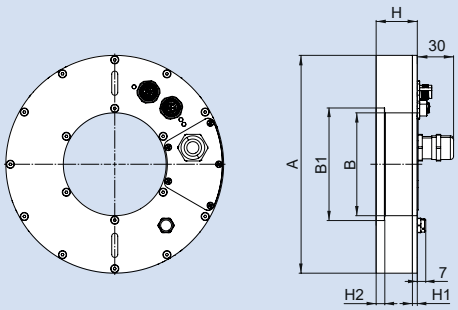
# F180 Ethernet

Axial coupler

## Inductive Coupling System

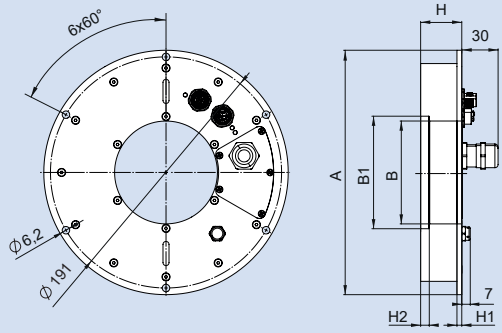
■ Ordering review flanges

## Standard flange



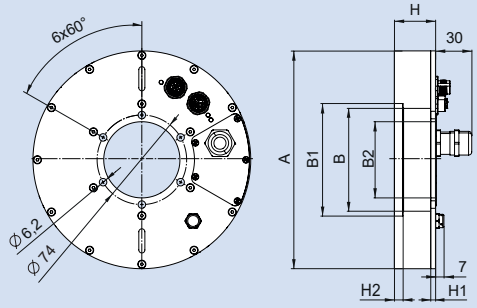

| Type | F180 Ethernet | |
|---|---|---|
| | IC-Base F180 Ethernet D180/085 | IC-Remote F180 Ethernet D180/085 |
| Id.-No. | 0E011246 | 0E011247 |
| A | 180 | |
| B | 85 | |
| B1 | 93 | |
| B2 | - | |
| H | 34 | |
| H1 | 3 | |
| H2 | 7 | |
| Weight | 1.31 kg | |

## Outer flange with feed-through



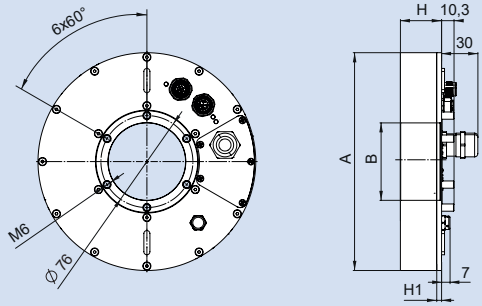

| Type | F180 Ethernet | |
|---|---|---|
| | IC-Base F180 Ethernet D202/085 | IC-Remote F180 Ethernet D202/085 |
| Id.-No. | 0E012340 | 0E012341 |
| A | 202 | |
| B | 85 | |
| B1 | 93 | |
| B2 | - | |
| H | 34 | |
| H1 | 4 | |
| H2 | 7 | |
| Weight | 1.47 kg | |

## Inner flange with feed-through




| Type | F180 Ethernet | |
|---|---|---|
| | IC-Base F180 Ethernet D180/063 | IC-Remote F180 Ethernet D180/063 |
| Id.-No. | 0E012342 | 0E012343 |
| A | 180 | |
| B | 85 | |
| B1 | 93 | |
| B2 | 63 | |
| H | 34 | |
| H1 | 4 | |
| H2 | 7 | |
| Weight | 1.4 kg | |

## Flange ring with feed-through




| Type | F180 Ethernet | |
|---|---|---|
| | IC-Base F180 Ethernet D180/064 | IC-Remote F180 Ethernet D180/064 |
| Id.-No. | 0E012344 | 0E012345 |
| A | 180 | |
| B | 64 | |
| B1 | - | |
| B2 | - | |
| H | 34 | |
| H1 | 4 | |
| H2 | - | |
| Weight | 1.58 kg | |

**FURTHER OPTIONS AVIABLE ON REQUEST!**

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

# Notes

# Notes

# Notes

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