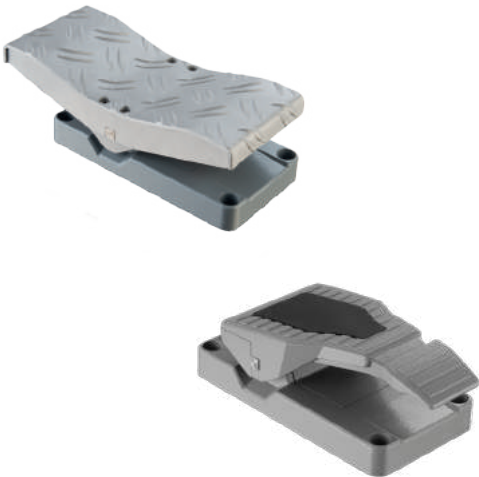


# Pedal-Controller P20



The Pedal-Controller P20 is a rugged switching device for electro-hydraulic. The modular design enables the switching device to be used universally.



## Technical data

|                          |                                                                  |
|--------------------------|------------------------------------------------------------------|
| Mechanical life P20      | 10 million operating cycles                                      |
| Operation temperature    | -40°C to +85°C                                                   |
| Degree of protection P20 | IP67 (electronic)                                                |
| Functional safety        | PLd compatible (EN ISO 13849, complies SIL2 to DIN EN IEC 61508) |

|                                                                   |                              | P20                      | -1 | Example<br>-ZZ | -E1041 | -S... | -X |
|-------------------------------------------------------------------|------------------------------|--------------------------|----|----------------|--------|-------|----|
| <b>Basic unit</b>                                                 |                              |                          |    |                |        |       |    |
| P20                                                               | Pedal-Controller             |                          |    |                |        |       |    |
| <b>Pedal</b>                                                      |                              |                          |    |                |        |       |    |
| 1                                                                 | Pedal shape A 0-15°          |                          |    |                |        |       |    |
| 2                                                                 | Pedal shape B 0-25°          |                          |    |                |        |       |    |
| 3                                                                 | Pedal shape C 15°-0-15°      |                          |    |                |        |       |    |
| 4                                                                 | Pedal shape C 0-15°          |                          |    |                |        |       |    |
| <b>Spring return</b>                                              |                              |                          |    |                |        |       |    |
| Z                                                                 | Spring return                |                          |    |                |        |       |    |
| ZZ                                                                | Spring return redundant      |                          |    |                |        |       |    |
| <b>Interfaces</b> <i>(description see on the following pages)</i> |                              |                          |    |                |        |       |    |
| E                                                                 | 0xx                          | Switching output         |    |                |        |       |    |
| E                                                                 | 1xx                          | Voltage output           |    |                |        |       |    |
| E                                                                 | 2xx                          | Current output           |    |                |        |       |    |
| E                                                                 | 3xx                          | CAN-interface            |    |                |        |       |    |
| E                                                                 | 4xx                          | CANopen Safety interface |    |                |        |       |    |
| <b>Plug connectors</b>                                            |                              |                          |    |                |        |       |    |
| S...                                                              | Standard plug connectors     | (see page 149)           |    |                |        |       |    |
| <b>Special model</b>                                              |                              |                          |    |                |        |       |    |
| X                                                                 | Special / customer specified |                          |    |                |        |       |    |

Technical details may vary based on configuration or application! Technical data subject to change without notice!

## Digital output

|                                                                      |                                                                               |        |   |
|----------------------------------------------------------------------|-------------------------------------------------------------------------------|--------|---|
| Supply voltage                                                       | 9-32 V DC                                                                     |        |   |
| Current carrying capacity                                            | Direction signal 150 mA                                                       |        |   |
|                                                                      | Zero position signal 500 mA                                                   |        |   |
| Wiring                                                               | Cable 500mm long without plug connector                                       |        |   |
|                                                                      | Optional with plug connector ( <i>standard plug connectors see page 149</i> ) |        | S |
| 2 direction signals + 1 zero position signal (galvanically isolated) |                                                                               | E001 1 |   |
| 1 direction signal + 1 zero position signal (galvanically isolated)  |                                                                               | E003 1 |   |

## Voltage output (not stabilized)

|                                                   |                                                                               |        |   |
|---------------------------------------------------|-------------------------------------------------------------------------------|--------|---|
| Supply voltage                                    | 4,75-5,25 V DC                                                                |        |   |
| Current carrying capacity                         | Direction signal 8 mA                                                         |        |   |
| Wiring                                            | Cable 500mm long without plug connector                                       |        |   |
|                                                   | Optional with plug connector ( <i>standard plug connectors see page 149</i> ) |        | S |
| 0,5...2,5...4,5 V redundant + 2 direction signals |                                                                               | E104 1 |   |
| 0,5...2,5...4,5 V redundant + 1 direction signal  |                                                                               | E145 1 |   |
| <b>Output options</b>                             |                                                                               |        |   |
| Characteristic:                                   |                                                                               |        |   |
| Inverse dual                                      |                                                                               | 1      |   |
| Dual                                              |                                                                               | 2      |   |
| Inverse dual with dead zone +/- 3° (standard)     |                                                                               | 3      |   |
| Dual with dead zone +/- 3°                        |                                                                               | 4      |   |

## Voltage output

|                                                                                                                                                                              |                                                                               |        |   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|--------|---|
| Supply voltage                                                                                                                                                               | 9-32 V DC (*11,5-32 V)                                                        |        |   |
| Current carrying capacity                                                                                                                                                    | Direction signal 150 mA                                                       |        |   |
|                                                                                                                                                                              | Zero position signal 500 mA                                                   |        |   |
| Wiring                                                                                                                                                                       | Cable 500mm long without plug connector                                       |        |   |
|                                                                                                                                                                              | Optional with plug connector ( <i>standard plug connectors see page 149</i> ) |        | S |
| 0,5...2,5...4,5 V redundant + 2 direction signals + 1 zero position signal (galvanically isolated)                                                                           |                                                                               | E112 1 |   |
| 0,5...2,5...4,5 V redundant + 1 direction signal + 1 zero position signal (galvanically isolated)                                                                            |                                                                               | E146 1 |   |
| 0...5...10 V redundant + 2 direction signals + 1 zero position signal (galvanically isolated), supply voltage 11,5 - 32 V DC                                                 |                                                                               | E132 1 |   |
| 0...5...10 V redundant + 1 direction signal + 1 zero position signal (galvanically isolated), supply voltage 11,5 - 32 V DC                                                  |                                                                               | E147 1 |   |
| 10...0...10 V + 2 direction signals + 1 zero position signal (galvanically isolated), supply voltage 11,5 - 32 V DC, sensor redundant with error monitoring and error signal |                                                                               | E136 1 |   |
| <b>Output options</b>                                                                                                                                                        |                                                                               |        |   |
| Characteristic:                                                                                                                                                              |                                                                               |        |   |
| Inverse dual *1                                                                                                                                                              |                                                                               | 1      |   |
| Dual *1                                                                                                                                                                      |                                                                               | 2      |   |
| Inverse dual with dead zone +/- 3° *1 (standard)                                                                                                                             |                                                                               | 3      |   |
| Dual with dead zone +/- 3° *1                                                                                                                                                |                                                                               | 4      |   |
| *1 not combinable with output E136X                                                                                                                                          |                                                                               |        |   |
| Single *2                                                                                                                                                                    |                                                                               | 5      |   |
| Single with dead zone +/- 3° *2 (standard)                                                                                                                                   |                                                                               | 6      |   |
| *2 not combinable with output E1121 and E1321, E1461 und E1471                                                                                                               |                                                                               |        |   |
| Voltage output with other value on request!                                                                                                                                  |                                                                               |        |   |

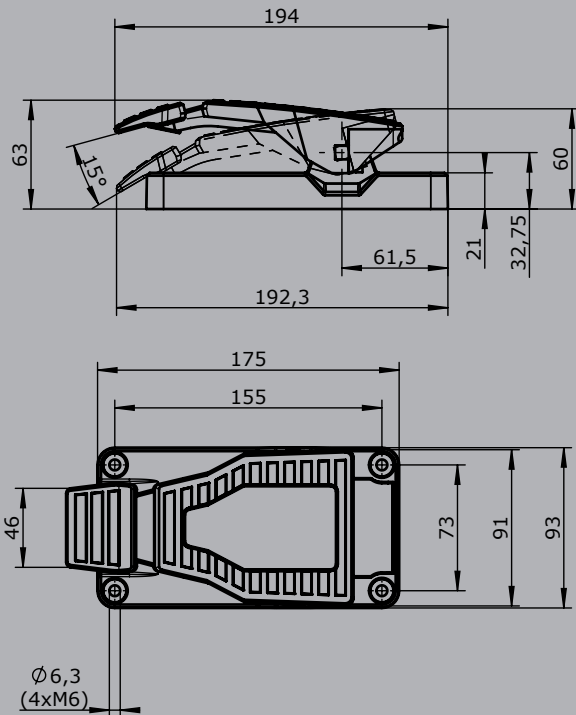
| Current output                                                                                                                                 |                                                                                                                           |                                         |   |
|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|---|
| Supply voltage                                                                                                                                 | 9-32 V DC                                                                                                                 |                                         |   |
| Current carrying capacity                                                                                                                      | Direction signal 150 mA<br>Zero position signal 500 mA                                                                    |                                         |   |
| Wiring                                                                                                                                         | Cable 500 mm long without plug connector<br>Optional with plug connector ( <i>standard plug connectors see page 149</i> ) |                                         | S |
| 0...10...20 mA + 2 direction signals + 1 zero position signal (galvanically isolated), sensor redundant with error monitoring and error signal |                                                                                                                           | E206 1                                  |   |
| 0...20 mA + 1 direction signal + 1 zero position signal (galvanically isolated), sensor redundant with error monitoring and error signal       |                                                                                                                           | E222 1                                  |   |
| 20...0...20 mA + 2 direction signals + 1 zero position signal (galvanically isolated), sensor redundant with error monitoring and error signal |                                                                                                                           | E208 1                                  |   |
| 4...12...20 mA + 2 direction signals + 1 zero position signal (galvanically isolated), sensor redundant with error monitoring and error signal |                                                                                                                           | E214 1                                  |   |
| 4...20 mA + 1 direction signal + 1 zero position signal (galvanically isolated), sensor redundant with error monitoring and error signal       |                                                                                                                           | E223 1                                  |   |
| 20...4...20 mA + 2 direction signals + 1 zero position signal (galvanically isolated), sensor redundant with error monitoring and error signal |                                                                                                                           | E216 1                                  |   |
|                                                                                                                                                |                                                                                                                           | Output options                          |   |
|                                                                                                                                                |                                                                                                                           | Single                                  | 5 |
|                                                                                                                                                |                                                                                                                           | Single with dead zone +/- 3° (standard) | 6 |
| Current output with other value on request!                                                                                                    |                                                                                                                           |                                         |   |

| CAN                                                           |                                                                                                                 |        |   |
|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|--------|---|
| Supply voltage                                                | 9-36 V DC                                                                                                       |        |   |
| Idle current consumption                                      | 120 mA                                                                                                          |        |   |
| Current carrying capacity                                     | Direction signal 100 mA                                                                                         |        |   |
| Protocol                                                      | CANopen CiA DS 301 or SAE J 1939                                                                                |        |   |
| Baud rate                                                     | 125 kBit/s to 1 Mbit/s (standard 250 kBit/s)                                                                    |        |   |
| Output value                                                  | 0...255 / 255...0...255                                                                                         |        |   |
| Wiring                                                        | CAN (IN) cable 500 mm with plug connector M12 (male)<br>CAN (OUT) cable 500 mm with plug connector M12 (female) |        |   |
| <b>CAN P20</b>                                                |                                                                                                                 | E307 1 |   |
| With additional digital output separately wired (not via CAN) |                                                                                                                 |        |   |
| - 1 direction signal                                          |                                                                                                                 |        | 2 |

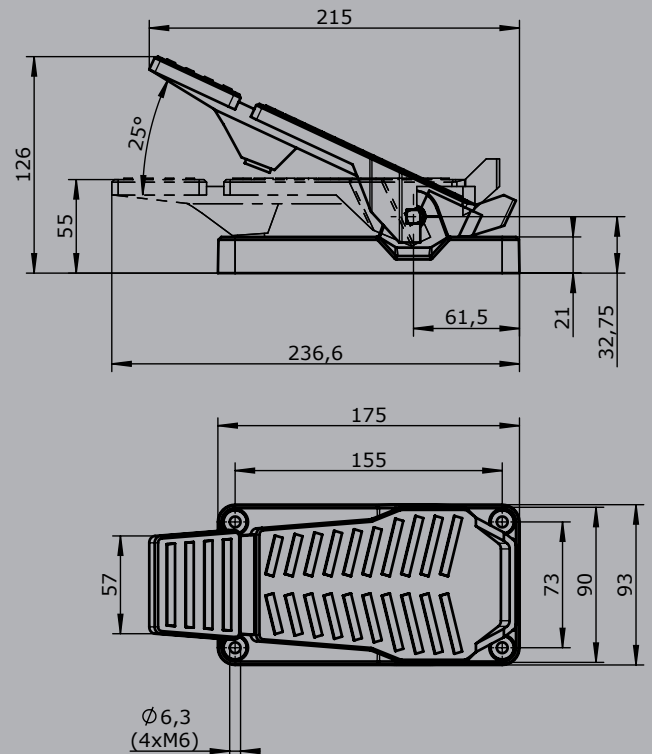
| CANopen Safety                                                 |                                                                                                                 |        |   |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|--------|---|
| Supply voltage                                                 | 9-36 V DC                                                                                                       |        |   |
| Idle current consumption                                       | 120 mA                                                                                                          |        |   |
| Current carrying capacity                                      | Direction signal 100 mA                                                                                         |        |   |
| Protocol                                                       | CANopen Safety CIA 304                                                                                          |        |   |
| Baud rate                                                      | 125 kBit/s bis 1 MBit/s (standard)                                                                              |        |   |
| Output value                                                   | 0...255 / 255...0...255                                                                                         |        |   |
| Wiring                                                         | CAN (IN) cable 500 mm with plug connector M12 (male)<br>CAN (OUT) cable 500 mm with plug connector M12 (female) |        |   |
| <b>CANopen Safety P20</b>                                      |                                                                                                                 | E407 1 |   |
| With additional digital outputs separately wired (not via CAN) |                                                                                                                 |        |   |
| - 1 direction signal                                           |                                                                                                                 |        | 2 |

| Attachments                                           |  |          |  |
|-------------------------------------------------------|--|----------|--|
| Z01 Mating connector M12 male insert with 2 m cable   |  | 20201140 |  |
| Z02 Mating connector M12 female insert with 2 m cable |  | 20202298 |  |

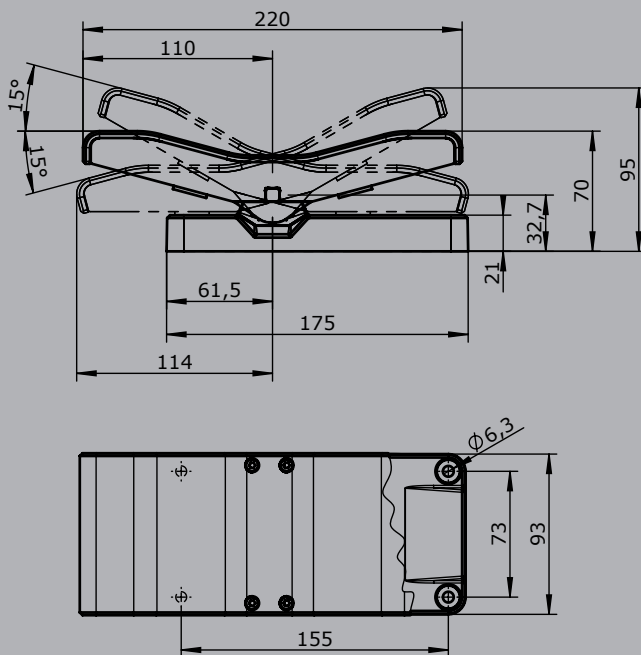
### Pedalform A



### Pedalform B



### Pedalform C



### Possible cable outputs

