MVK METAL
COMPACT I/O MODULES FOR DEMANDING REQUIREMENTS

MAXIMUM FLEXIBILITY
MVK Metal features a robust metal housing and is extremely resistant to vibration, media, and weld splatter.

- Double valves occupy only one M12 port.
- PROFINET versions with Fast Start Up (< 500 ms).
- Models with multi-functional I/Os.
- Fewer variations required, minimizes inventory costs.
- Maximum flexibility for expansions.

DON'T LOOK FOR ERRORS, FIND THEM
MVK Metal’s diagnostic options offer detailed information about the type and location of the failure or the error.

- Only the affected part shuts down, not the whole module.
- Detailed message sent to controls and device LED.
- Minimizes downtime – failures are fixed faster.

MVK Metal I/O Modules

MVK ReM
- Multi-functional I/Os
- Digital I/Os
- Safety inputs
- Locking I/Os

MVK ReMPc
- Multi-functional I/Os
- Digital I/Os
- AIDA push-in
- Safety inputs/outputs
- Fast Start Up

MVK MP
- Multi-functional I/Os

<table>
<thead>
<tr>
<th>MVK METAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expanded diagnostic</td>
</tr>
<tr>
<td>MVK-MP</td>
</tr>
</tbody>
</table>

Order Data

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>55.003</td>
<td>55.003</td>
<td>55.003</td>
</tr>
</tbody>
</table>

Connection

<table>
<thead>
<tr>
<th>material</th>
<th>Terminals</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12, 8-pole</td>
<td></td>
</tr>
</tbody>
</table>

Sensing voltage/actuator supply: 7-36 V, 5 poles, 2 x max. 9 A

90° ports

15°, 8-pole, 8-pole

Fieldbus

Operating voltage: 24 V DC

Operating mode: Safe and safe mode supported

Transform ratio: 1:2, 100:1

Addressing: Bury code (16 bit)

Input

Sensor supply: 24 V DC, 150 mA (with M42 female), short-circuit and overload protected

Type:
- for two-wire sensors or mechanical switches, y symbolizing (H40442B 2)

Parameterization

<table>
<thead>
<tr>
<th>TN 4</th>
<th>input</th>
<th>input/output</th>
</tr>
</thead>
</table>

Input diagnostic

Output

Actuator supply: 24 V DC, 250 mA, max. 9 A

Switching current per output: max. 4 A (short-circuit and overload protected)

Load lift: 10 W

Diagnosis

Communication status: via LED

Diagnostic (LED): via module and channel

Diagnostic (LED): via module and channel

Monitoring: overload voltage: yes

Monitoring: low voltage: yes

Short circuit and overload: yes

Actuator monitoring: per channel via LED (diagnostic)

Safety brake: per port

General data

Identification

Temperature range: 25 - 55°C (storage temperature: -25 - 70°C)

Mounting method: 4-hole screw mounting

Notes
### MVK METAL

#### Expanded diagnostic

**MVK-MP**

**Order Data**

- Order Code: 55039
- Art No: 550390
- Art No: 550394

**Connections**

- Sensors/Actuators (supply)
  - 24 V DC, max. 9 A
- Sensors/Actuators (input)
  - 24 V DC, max. 9 A

**Pin assignment**

- 9 pin, 6 pin

**Dimensions**

- 100 x 100 mm, 24 mm

#### MVK-MP IO-Link

**Order Data**

- Order Code: 55039
- Art No: 550390
- Art No: 550394

**Connections**

- Sensors/Actuators (supply)
  - 24 V DC, max. 9 A
- Sensors/Actuators (input)
  - 24 V DC, max. 9 A

**Pin assignment**

- 9 pin, 6 pin

**Dimensions**

- 100 x 100 mm, 24 mm

---

**Notes**

- Dimensions drawing

---

**Notes**

- Dimensions drawing
### MVP METAL

#### Expanded diagnostic

- **MVP2-M D416 I0-Link**
- **MVP2-M D48 D08 I0-Link**

#### I0-Link

<table>
<thead>
<tr>
<th>Order Date</th>
<th>Art No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/04/21</td>
<td>501641</td>
<td>I0-Link</td>
</tr>
<tr>
<td>01/04/21</td>
<td>501642</td>
<td>I0-Link</td>
</tr>
</tbody>
</table>

#### 20-DO-Link

- **Current consumption**: max. 15 mA
- **Input circuit supply**: 24 V DC, 1.5 A
- **Input circuit supply protection**: short circuit and overload protected
- **Type**: 3-wire sensors or mechanical switches, p-switching (B10130, 3)
- **Input (I) max.**: 1 mA
- **Input (V)**: 5 VA
- **Operating voltage**: 24 V DC (10% ± 10%)
- **Input**: 4 inputs

#### Output

- **Switching current per output**: max. 15 mA

#### Diagnostics

| Communication status: | 1DI/1DO |
| Diagnostics 1DO | per module and channel |
| Diagnostics 1DI | per module and channel |

#### Monitoring: no voltage

- **Monitoring voltage**: yes
- **Monitoring no voltage**: yes
- **Short circuit and overload**: yes
- **Actuator warning**: per channel via LED and BUS

#### General data

| Selection: | 100 |
| Temperature range: | 35 to 55°C (storage temperature: -20 to 70°C) |
| Mounting method: | 4 holes cross mounting |

#### Dimension drawing

![Dimension drawing](image)

---

### MVP METAL

#### Expanded diagnostic

- **MVP2-M D416 I0-Link**
- **MVP2-M D48 D08 I0-Link**

#### I0-Link

<table>
<thead>
<tr>
<th>Order Date</th>
<th>Art No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/04/21</td>
<td>501641</td>
<td>I0-Link</td>
</tr>
<tr>
<td>01/04/21</td>
<td>501642</td>
<td>I0-Link</td>
</tr>
</tbody>
</table>

#### 20-DO-Link

- **Current consumption**: max. 15 mA
- **Input circuit supply**: 24 V DC, 1.5 A
- **Input circuit supply protection**: short circuit and overload protected
- **Type**: 3-wire sensors or mechanical switches, p-switching (B10130, 3)
- **Input (I) max.**: 1 mA
- **Input (V)**: 5 VA
- **Operating voltage**: 24 V DC (10% ± 10%)
- **Input**: 4 inputs

#### Output

- **Switching current per output**: max. 15 mA

#### Diagnostics

| Communication status: | 1DI/1DO |
| Diagnostics 1DO | per module and channel |
| Diagnostics 1DI | per module and channel |

#### Monitoring: no voltage

- **Monitoring voltage**: yes
- **Monitoring no voltage**: yes
- **Short circuit and overload**: yes
- **Actuator warning**: per channel via LED and BUS

#### General data

| Selection: | 100 |
| Temperature range: | 35 to 55°C (storage temperature: -20 to 70°C) |
| Mounting method: | 2 hole screw mounting |

#### Dimension drawing

![Dimension drawing](image)
MVK METAL

Expanded diagnostic

- Analog outputs
- Current

Approvals

Order Data

Art No

MVK-MP

Order Data

Art No

MVK-MP

Expanded diagnostic

- Analog inputs
- Voltage

Approvals

Order Data

Art No

MVK-MP

Order Data

Art No

MVK-MP
### MVK METAL

#### Expanded diagnostic

**MVK-MPNI0**

**Order Data**
- **Art. No.** 35287
- **Art. No.** 35288
- **Art. No.** 35289

**Connections**
- **Screw terminals (actuator supply)**
  - 7/8", 5-pole, 2 x max. 9 A
- **10-pin**
  - 7/8", 5-pole, 5-pole

**Fields**
- **Operating voltage**
  - 24 V DC (EN 54431-2)
- **Operating mode**
  - Switching: One step (Auto MVR/MVR)
- **Transformer**
  - 12 V, 24 V, 120 V
- **Dimensions**
  - 125 x 390 x 160 mm
  - Full Universe

**Input**
- **Sensor supply**
  - 24 V DC, EN 54431-2, max. 200 mA per 50 mA female, short circuit and overload protected

**Parameters**
- **Type**
  - 4-way, one channel/one channel, switching (1-way/1-way)

**Voltage**
- **Input**
  - 12 V
- **Input/output**
  - 12 V
- **Input/output diagnostic**
  - 12 V

**Output**
- **Actuator supply voltage**
  - 24 V DC, EN 54431-2, max. 9 A
- **Switching current per output**
  - 9 A

**Additional information**
- **Voltage**
  - 12 V

**Flaw**
- **Communication status** via LED
- **Diagnostic LED**
  - per module and channel
  - per module and channel

**Diagnosis**
- **Diagnostic LED**
  - per module and channel
  - per module and channel

**Protection**
- **Temperature**
  - -25...+55°C (storage temperature -25...+70°C)
- **Mounting method**
  - Front side insertion

**Dimensions**

### Notes
### MVK METAL

**Expanded diagnostic**

- FSU [Fast Start-Up]
- galvanically separated input and output potential

#### MVK+ MPNIC

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7S510010</td>
<td>7S510010</td>
<td>7S520010</td>
<td>7S520010</td>
</tr>
</tbody>
</table>

**Connections**

- Power supply: Power plug, Push Pull, max. 2A
- 7A: 5-pin, max. 9A
- Power consumption: 8W
- 2A: 3-pin, max. 5A

**Applications**

- Safety switch, push-pull, max. 2A
- 7A: 5-pin, max. 9A
- Power consumption: 8W

### MVK METAL

**LWL-Push Pull**

- FSU [Fast Start-Up]
- galvanically separated input and output potential

#### MVK+ MPNIC POF

<table>
<thead>
<tr>
<th>Order No.</th>
<th>Art No.</th>
<th>Art No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>502262</td>
<td>502262</td>
<td>502267</td>
</tr>
</tbody>
</table>

**Connections**

- Power supply: Power plug, Push Pull, max. 2A
- 7A: 5-pin, max. 9A
- Power consumption: 8W

**Applications**

- Safety switch, push-pull, max. 2A
- 7A: 5-pin, max. 9A
- Power consumption: 8W

### Notes

- Diagrams and specifications as shown.
- Dimensions and technical data provided.

---

**Diagram:**

- Components, connections, and physical layout of the devices.
### Active - safe inputs/outputs up to cat. 4/PLe (EN ISO 13849-1)
- up to SIL 3 (IEC 61508)
- up to SIL CL 3 (IEC 62061)

### MVK MPNO Safety

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Art No</th>
<th>Art No</th>
</tr>
</thead>
<tbody>
<tr>
<td>55960</td>
<td>47</td>
<td>55961</td>
</tr>
</tbody>
</table>

#### Connections
- M2, D, order

#### Terminal Form/Actuator supply
- 77V, 5 poles, 2 x max 9 A

#### Fieldbus
- 77V, 5 poles, 5 pole

#### Operating voltage
- 24 V DC (EN 60947-5-1)

#### Transfer rate
- up to 300 Mbps Full Duplex

#### Addressing
- DOP

#### Safety Input
- 24 V DC (EN 60947-5-1), max. 300 mA per PIN (1 to 5), short-circuit and overload protected, or max. 300 mA for only 1 PIN

#### Type
- for electronic sensors or mechanical switches

#### Safe output
- Actuator supply VDC
- 24 V DC (EN 60947-5-1), max. 9 A

#### Diagnostics
- Communication status via LED
- Diagnostic LED per module and channel
- Monitoring on/off voltage
- Monitoring no voltage
- Short circuit and overload
- Actuator warning
- Communication status via LED
- Diagnostics
- Communication status via LED
- Diagnostic LED per module and channel
- Monitoring on/off voltage
- Monitoring no voltage
- Short circuit and overload
- Actuator warning
- Temperature range
- 20° to 55°C (storage temperature 40° to 70°C)

#### Mounting method
- 3-hole screw mounting

### Expanded diagnostic
- 7/8”

### MVK-MC

#### CANopen

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Art No</th>
<th>Art No</th>
</tr>
</thead>
<tbody>
<tr>
<td>55962</td>
<td>55963</td>
<td>55964</td>
</tr>
</tbody>
</table>

#### Connections
- M2, A, ordered, 5 pole

#### Terminal Form/Actuator supply
- 77V, 5 poles, 2 x max 9 A

#### Fieldbus
- 77V, 5 poles, 5 pole

#### Operating voltage
- 24 V DC (EN 60947-5-1)

#### Transfer rate
- max. 1 kBit/s with switchable terminal resistors

#### Addressing
- Binary code 8, 9, 9

#### Input
- Sensor supply VDC
- 24 V DC (EN 60947-5-1), max. 200 mA per M2 female (short-circuit and overload protected)

#### Diagnostics
- Communication status via LED
- Diagnostic LED per module and channel
- Monitoring on/off voltage
- Monitoring no voltage
- Short circuit and overload
- Actuator warning
- Temperature range
- 20° to 55°C (storage temperature 40° to 70°C)

#### Mounting method
- 3-hole screw mounting

#### Notes
<table>
<thead>
<tr>
<th>Blind Plug/caps</th>
<th>Art No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screw plug M12 x 5 mm</td>
<td>956049</td>
</tr>
<tr>
<td>Blind cap 7/16&quot;</td>
<td>55.090</td>
</tr>
<tr>
<td>Screw plugs diagnostic M12 x 5 mm</td>
<td>7000 15AB1 0800000</td>
</tr>
<tr>
<td>Addressing cap</td>
<td>55.037</td>
</tr>
<tr>
<td>Labeling accessories</td>
<td>Art No</td>
</tr>
<tr>
<td>Label plates 20 x 8 mm</td>
<td>55.028</td>
</tr>
<tr>
<td>Connection accessories</td>
<td>Art No</td>
</tr>
<tr>
<td>Adaptor plug M12/M13 for inputs</td>
<td>7000-42251-0800000</td>
</tr>
<tr>
<td>Wall PushPail</td>
<td>55.0360</td>
</tr>
<tr>
<td>Second strap 6 mm²</td>
<td>4000 75005 0400004</td>
</tr>
<tr>
<td>Screw plug M12</td>
<td>55.052</td>
</tr>
</tbody>
</table>