# Signal converter SCDN

# Key features

## At a glance

**Connections for up to 2 sensor transmitters**

**Flexible in use**
- Transmitter signal range scalable (e.g.: 1 ... 5 V)
- Measured value indicator can be individually configured
- Lots of integrated switching functions

**Numerous display units**
- bar
- kPa
- MPa
- psi
- mmHg
- inchHg
- inch$H_2O$
- kgf/cm²
- l/min
- l/h
- scfm
- scfh
- GPM
- mm
- inch
- V
- mA
- %

**Communication interface**

IO-Link

**Many integrated functions**
- Min./max. monitoring
- PNP/NPN, switchable
- Eco mode
- Tamper protection with security code
- Filter can be adjusted to smooth the signals
- Fast and straightforward setting of switching points via teach-in
- Easy copying of parameters to further devices

**Easy operation**
- Blue display with high-contrast white text and red switchover
- Intuitive menu navigation, as for pressure sensors SPAU and SPAN

## Product description

The signal converter detects analogue current or voltage signals from sensors (transmitters). Connection to the higher-level system is provided by 1 or 2 switching outputs or alternatively by an IO-Link interface. The signal converter has a display for visualising the signals and parameters, and can thus be used as a remote display for transmitters.

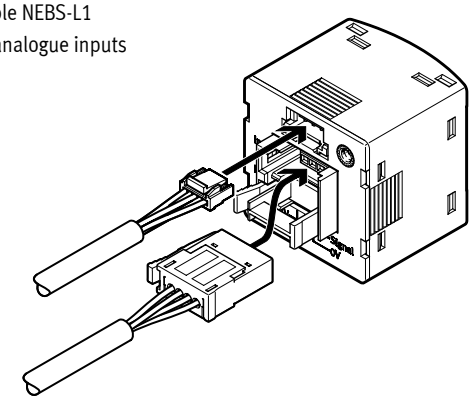
The switching outputs can be configured to monitor a threshold value, signal range or signal change. The outputs can be set as PNP or NPN and normally open (NO) or normally closed (NC).

Process values can be read out and parameters changed and transmitted to additional devices via the IO-Link interface.

**2-step connection**

[1] Connecting cable NEBS-L1

[2] Plug NECU for analogue inputs



## Area of application

- Converts analogue signals into digital switching signals
- Conversion of analogue signals in IO-Link
- Reduction in analogue signals to control systems
- Fast and decentralised signal processing to reduce the load on the control system
- Remote visualisation of process values, the display is remote
- Quantity detection, e.g. pressure transmitter, vacuum transmitter, flow transmitter
- Object detection, e.g. inductive sensors with analogue output, distance sensors
- Position detection, e.g. position transmitters for pneumatic cylinders
- Auto difference monitoring, e.g. leak test

The signal converter can be used with the following Festo products, for example.

- Pressure transmitters SPTE, SDE5-NF-V, SPTW
- Vacuum generator OVEL with SPTE
- Flow transmitters SFET-F, SFET-R
- Position transmitters SDAT, SMAT-8E, SMAT-8M
- Analogue sensor box SRAP
- Inductive sensors with analogue output SIEA

# Key features

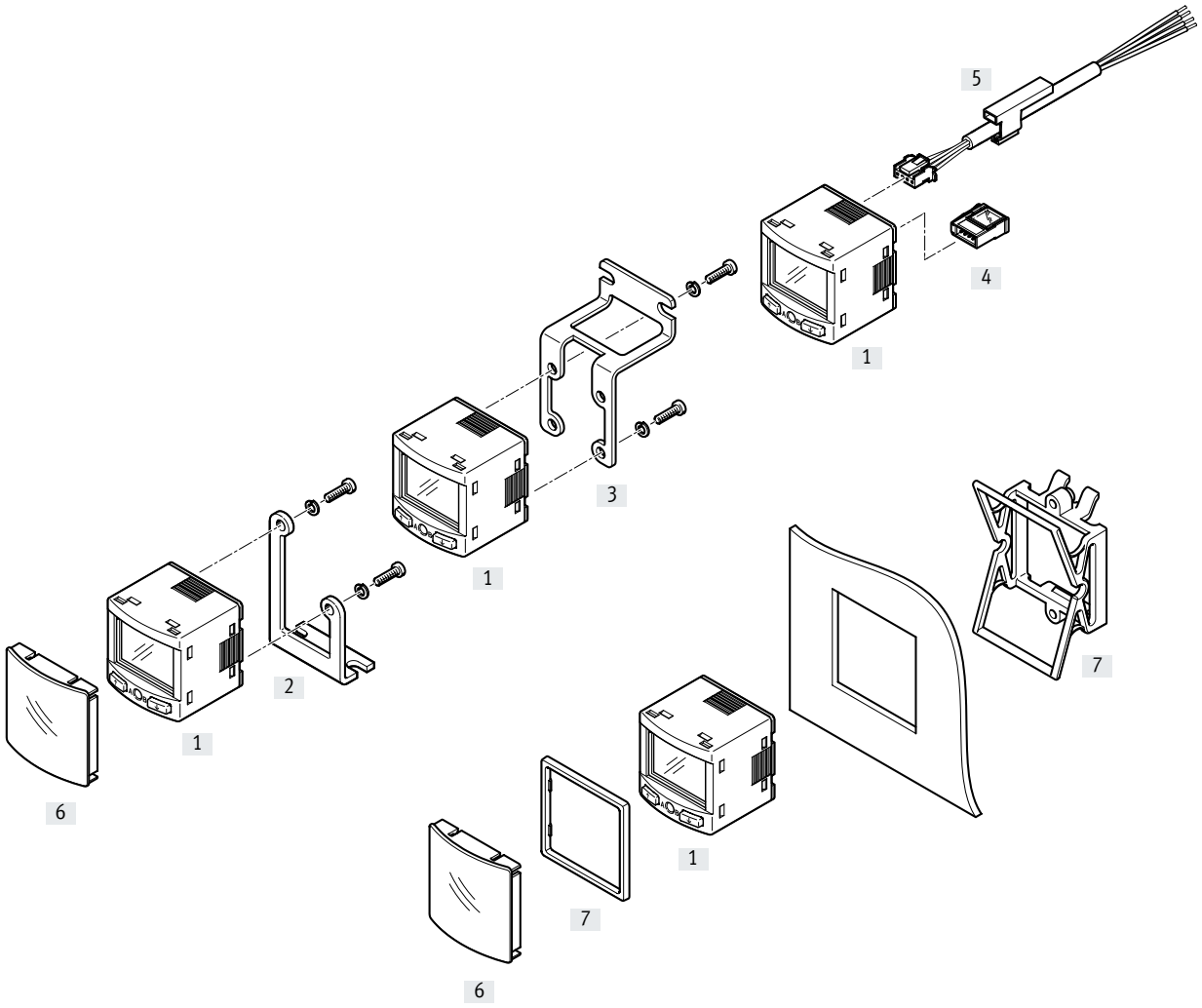
**Mounting options (shown here with SPAN)**

Front panel mounting

Manifold mounting with mounting bracket

Wall mounting

# Peripherals overview




| Accessories | | → Page |
|---|---|---|
| [1] | Signal converter SCDN | 6 |
| [2] | Mounting bracket<br>SAMH-PU-A | 9 |
| [3] | Wall mounting<br>SAMH-PN-W | 9 |
| [4] | Plug for analogue inputs<br>NECU-S-ECG4-HX-Q3 | 10 |
| **Accessories** | | → Page |
| [5] | Connecting cables<br>NEBS-L1G4-... | 10 |
| [6] | Safety guard<br>SACC-PN-G | 10 |
| [7] | Front panel mounting kit<br>SAMH-PN-F | 10 |

# Type codes

| 001 | Series | |
|---|---|---|
| **SCDN** | Signal converter | |

| 002 | Electrical input | |
|---|---|---|
| **2A** | 2 x 0 ... 20 mA | |
| **2V** | 2 x 0 ... 10 V | |

| 003 | Electrical connection, input | |
|---|---|---|
| **EC** | Socket EC | |

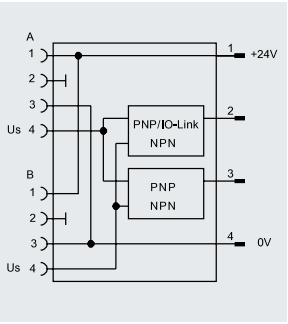
| 004 | Number of pins, input | |
|---|---|---|
| **4** | 4-pin | |

| 005 | Electrical output 1 | |
|---|---|---|
| **PNLK** | PNP/NPN/IO-Link | |

| 006 | Electrical connection | |
|---|---|---|
| **L1** | Plug type L1 | |

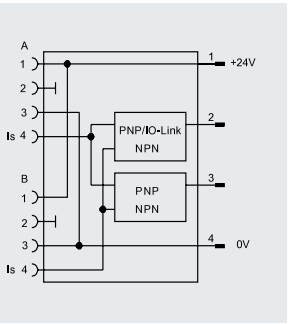
# Data sheet

Variant for 0 ... 10 V




- Connections for 2 sensor transmitters
- Device variants for 0 ... 10 V and 0 ... 20 mA
- 2 switching outputs + IO-Link
- Flexible in use owing to scaling of the signal inputs, e.g.: 1 ... 5 V and scaling of the measured value indicator e.g.: –1 ... 1 bar


Variant for 0 ... 20 mA




| General technical data | | |
|---|---|---|
| Certification | | RCM |
| | | c UL us listed (OL) |
| Certificate issuing authority | | UL E322346 |
| CE marking (see declaration of conformity) | | To EU EMC Directive |
| | | To EU RoHS Directive |
| KC mark | | KC EMC |
| Ambient temperature | [°C] | 0 ... +50 |
| Note on materials | | RoHS-compliant |

| Input signal | | –2 V | –2 A |
|---|---|---|---|
| Measured variable | | Voltage | Current |
| Signal range | [V] | 0 ... 10 | – |
| | [mA] | – | 0 ... 20 |
| Sampling interval | [ms] | 1 | |

| Output, general | | |
|---|---|---|
| Accuracy FS | [%] | 0.5 |
| Repetition accuracy | [%] | 0.2 |

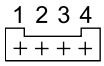
| Switching output | | |
|---|---|---|
| Switching output | | 2 x PNP or 2 x NPN, switchable |
| Switching function | | Freely programmable |
| Switching element function | | N/C or N/O, switchable |
| Max. output current | [mA] | 100 |
| Short circuit current rating | | Yes |

# Data sheet

| Electronics | | |
|---|---|---|
| Operating voltage range DC | [V] | 15 ... 30 |
| Reverse polarity protection | | For all electrical connections |
| **Electrical connection, input** | | |
| Function | | Analogue input, power supply |
| Connection type | | 2 x socket |
| Connection technology | | Connection pattern EC |
| Number of pins/wires | | 4 |
| **Electrical connection output** | | |
| Function | | Power supply, communication, switching output |
| Connection type | | Plug |
| Connection technology | | Plug pattern L1J |
| Number of pins/wires | | 4 |

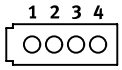
| IO-Link device to IEC 61131-9 | |
|---|---|
| Protocol | IO-Link |
| Protocol version | Device V 1.1 |
| Profile | Smart sensor profile |
| Function classes | Binary data channel (BDC) |
| | Process data variable (PDV) |
| | Identification |
| | Diagnostics |
| | Teach channel |
| Communication mode | COM2 (38.4 kBd) |
| SIO mode support | Yes |
| Port class | A |
| Process data width OUT | 0 bytes |
| Process data width IN | 5 bytes |
| Process data content IN | 14-bit PDV (measured value InA) |
| | 14 bit PDV (measured value InB) |
| | 2-bit BDC (measurement monitoring) |
| Minimum cycle time | 5 ms |
| Data memory required | 0.5 kilobyte |

**Pin allocation, output**

| Plug L1J | Pin | Wire colour[1)] | Allocation |
|---|---|---|---|
|  | 1 | Brown | Operating voltage +24 V DC |
| | 2 | Black | Switching output A / IO-Link |
| | 3 | White | Switching output B |
| | 4 | Blue | 0 V DC |

1) Wire colour applies to NEBS-L1

**Pin allocation, input**

| EC socket | Pin | Wire colour | Allocation |
|---|---|---|---|
|  | 1 | – | Operating voltage for the connected signal converter +24 V DC |
| | 2 | – | NC |
| | 3 | – | 0 V DC |
| | 4 | – | Analogue input |

# Data sheet

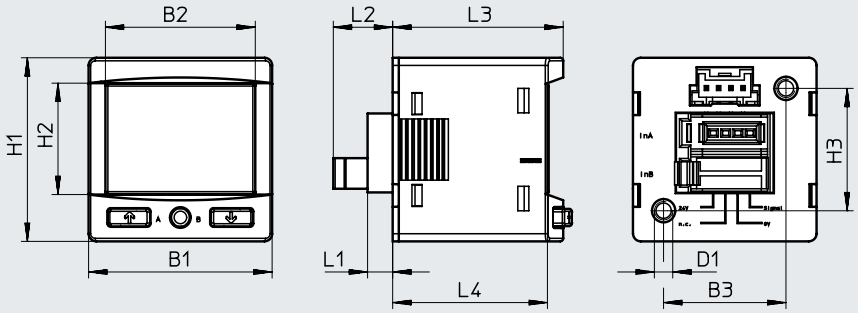
| Mechanics | | |
|---|---|---|
| Type of mounting | | Front panel mounting |
| | | Via wall/surface bracket |
| Product weight | [g] | 23 |
| Housing material | | Reinforced PA |

| Display/operation | |
|---|---|
| Display type | Multi-coloured, illuminated LCD |
| Setting options | Teach-in |
| | IO-Link |
| | Via display and buttons |
| Protection against tampering | IO-Link |
| | PIN code |

| Immission/emission | |
|---|---|
| Degree of protection | IP40 |
| Corrosion resistance class CRC[1)] | 2 |

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

**Dimensions** Download CAD data ➔ www.festo.com




| Type | B1 | B2 | B3 | D1 | H1 | H2 | H3 | L1 | L2 | L3 | L4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SCDN-2V-EC4-PNLK-L1 | 30 | 24.5 | 20 | M3 | 30 | 18.2 | 20 | 4.1 | 9.7 | 27.9 | ~25.3 |
| SCDN-2A-EC4-PNLK-L1 | | | | | | | | | | | |

**Ordering data**

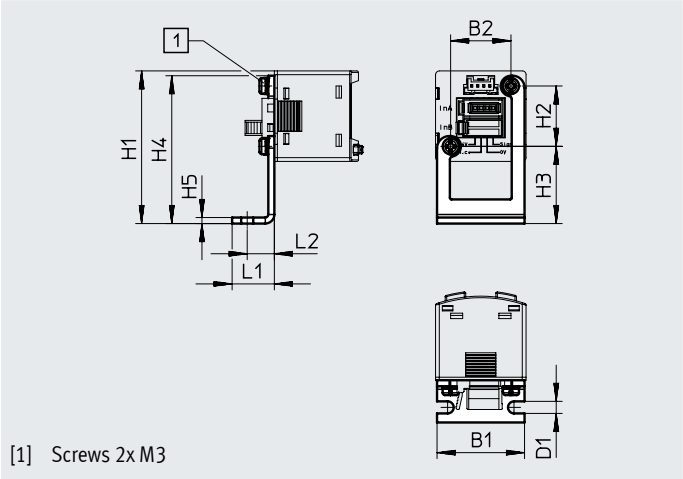
| | Measured variable | Part no. | Type |
|---|---|---|---|
|  | Voltage | **8035555** | **SCDN-2V-EC4-PNLK-L1** |
| | Current | **8035556** | **SCDN-2A-EC4-PNLK-L1** |

# Accessories – Ordering data

**Mounting bracket**
**SAMH-PU-A**

Material: High-alloy stainless steel

Note on materials: RoHS-compliant




[1] Screws 2x M3

**Ordering data**

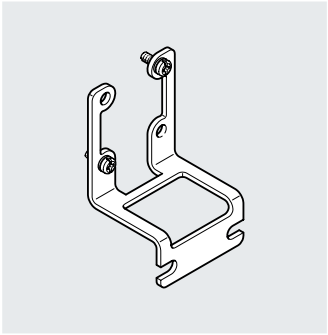
| Type | B1 | B2 | D1 @ | H1 | H2 | H3 | H4 | H5 | L1 | L2 | CRC[1] | Part no. | Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMH-PU-A | 29 | 20 | 4 | 50.6 | 20 | 25.6 | 49 | 2 | 14 | 9 | 2 | **8003354** | **SAMH-PU-A** |

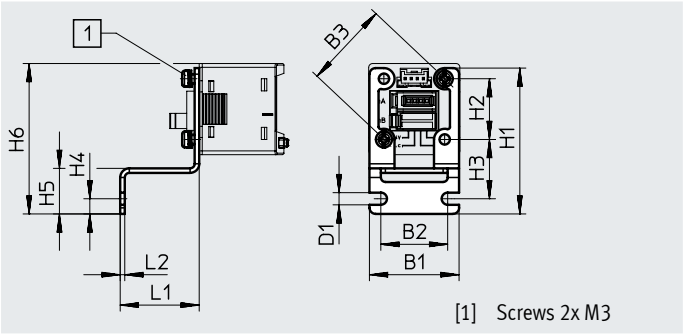
1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

**Wall mounting**
**SAMH-PN-W**

Material: High-alloy stainless steel

Note on materials: RoHS-compliant






[1] Screws 2x M3

**Dimensions and ordering data**

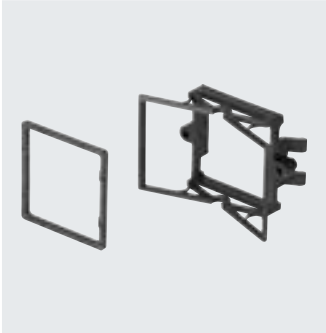
| Type | B1 | B2 | D1 @ | H1 | H2 | H3 | H4 | H5 | H6 | L1 | L2 | CRC[1] | Part no. | Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMH-PN-W | 29.5 | 22 | 4 | 48 | 20 | 19.5 | 5 | 15 | 49.5 | 26 | 1.5 | 2 | **8035563** | **SAMH-PN-W** |

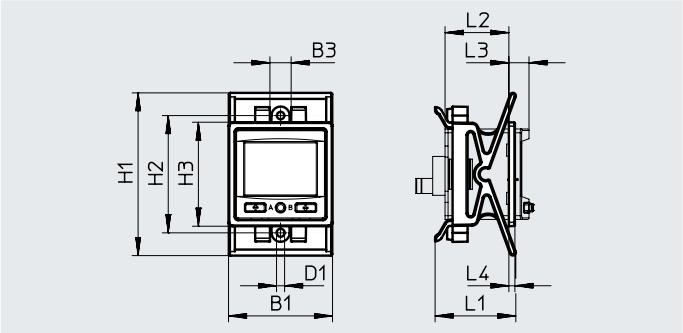
1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

# Accessories – Ordering data

**Front panel mounting kit**
**SAMH-PN-F**
Mounting kit for front panel

Material: PA, POM



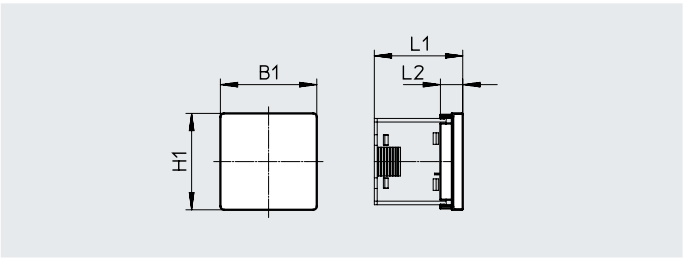



**Dimensions and ordering data**

| Type | B1 | B3 | D1 | H1 | | H2 | H3 | L1 | L2 | L3 | L4 | Part no. | Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | @ | min. | max. | | | | | | | | |
| SAMH-PN-F | 34.5 | 7 | 2.5 | 54 | 57.5 | 38.9 | 34.5 | 26.8 | ~21.2 | ~6.7 | 2 | **8035561** | **SAMH-PN-F** |

**Safety guard**
**SACC-PN-G**
To protect the display and control elements

Material: PA
Note on materials:
RoHS-compliant




**Dimensions and ordering data**

| Type | B1 | H1 | L1 | L2 | Part no. | Type |
|---|---|---|---|---|---|---|
| SACC-PN-G | 33.5 | 33.5 | ~31 | 7.7 | **8035560** | **SACC-PN-G** |

**Ordering data – Connecting cables**

| | Number of wires | Cable length [m] | Part no. | Type |
|---|---|---|---|---|
| **Socket, rectangular design L1** | | | | Data sheets → Internet: nebs |
|  | 4 | 2.5 | **572576** | **NEBS-L1G4-K-2.5-LE4** |
| | | 5 | **572577** | **NEBS-L1G4-K-5-LE4** |

**Ordering data – Plug**

| | Description | Part no. | Type |
|---|---|---|---|
| **EC plug for analogue inputs (3M Mini Clamp)** | | | Data sheets → Internet: necu |
|  | One plug required for each transmitter/signal | **570922** | **NECU-S-ECG4-HX-Q3** |