# 8-Bit Analog/Digital Converters

**Hold function (H):**

The converter can, for example, by means of the hold function (H) be matched to the cycle time of a PLC. Holding and release of the conversion. The Hold input (H) is internally connected to 0 V via a resistor. In order to store the last signal, the Hold input (H) must be supplied with 24 V.

**Enable function (E):**

The Enable circuit (E) allows several converters, e.g. on an input card of a PLC, to be switched on. The Enable input (E) is connected internally to 0 V via a resistor. In order to make the connection to the PLC, **one** converter must be disconnected. The other converters are supplied with 24 V (at least 12 V). This causes the converters at the output to be highly resistive.
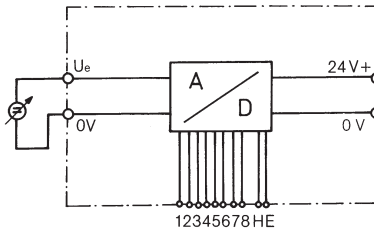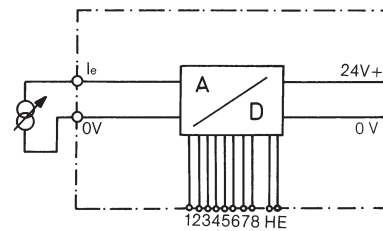
**RS/U-D8**



**RS/I-D 8**



## Functions table (example)

| Terminal | | | | | | | | Digital value/ digital value | Analog voltage |
|---|---|---|---|---|---|---|---|---|---|
| **PIN** | | | | | | | | | Analog voltage |
| **MSB** | | | | | | | **LSB** | | Analog voltage |
| E8 | E7 | E6 | E5 | E4 | E3 | E2 | E1 | | |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0 V** | |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | | |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | | |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | | |
| - | - | | | | | - | - | | |
| - | - | | | | | - | - | | |
| 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | **+10 V** | |

## Block diagram



## Block diagram



## Ordering data

| Type | Part No. | Type | Part No. | Type | Part No. | Type | Part No. |
|---|---|---|---|---|---|---|---|
| RS/U-D 8 | **1122361001** | RS/U-D 8 | **1160361001** | RS/I-D 8 | **1160561001** | RS/I-D 8 | **1168561001** |

## Technical data

| | RS/U-D 8 | RS/U-D 8 | RS/I-D 8 | RS/I-D 8 |
|---|---|---|---|---|
| **Input signal** | **–10 V…+10 V** | **0…10 V** | **0…20 mA** | **4…20 mA** |
| Max. input voltage | | | 3.5 V | 3.5 V |
| Max. input current | ≤ 55 µA | ≤ 25 µA | 25 mA | 25 mA |
| Input resistance | ≥ 200 kΩ | ≥ 400 kΩ | ≥ 51 Ω | ≥ 51 Ω |
| Max. limit frequency | 5 kHz at Full-Scale (Sinus)[1] | 5 kHz at Full-Scale (Sinus)[1] | 5 kHz at Full-Scale (Sinus)[1] | 5 kHz at Full-Scale (Sinus)[1] |
| Resolution | 78 mV c 1 LSB | 39 mV ≙ 1 LSB | 78 µA ≙ 1 LSB | 62.5 µA c 1 LSB |
| **Output signal** | **8 Bit** (1 Bit prefix) | **8 Bit** | **8 Bit** | **8 Bit** |
| Output current | ≤ 25 mA (as source) | ≤ 25 mA (as source) | ≤ 25 mA (as source) | ≤ 25 mA (as source) |
| Output level | approx. 17 V ≙ H, 0 V ≙ L | approx. 17 V ≙ H, 0 V ≙ L | approx. 17 V ≙ H, 0 V ≙ L | approx. 17 V ≙ H, 0 V ≙ L |
| Prefix | MSB: H c positive, L c negative | | | |
| Transmission error | ±1 LSB | ±1 LSB | ±1 LSB | ±1 LSB |
| Conversion time | ≤ 4 µs | ≤ 4 µs | ≤ 4 µs | ≤ 4 µs |
| Supply | 24 V–, ±20%, 35 mA | 24 V–, ±20%, 35 mA | 24 V–, ±20%, 35 mA | 24 V–, ±20%, 35 mA |
| | (plus output current) | (plus output current) | (plus output current) | (plus output current) |
| **Connection arrangement** | Terminal 1  LSB | Terminal 1  LSB | Terminal 1  LSB | Terminal 1  LSB |
| | ⋮   ⋮ | ⋮   ⋮ | ⋮   ⋮ | ⋮   ⋮ |
| | Terminal 8  MSB | Terminal 8  MSB | Terminal 8  MSB | Terminal 8  MSB |
| | Terminal 9  Enable[2] | Terminal 9  Enable[2] | Terminal 9  Enable[2] | Terminal 9  Enable[2] |
| | Terminal 10  Hold | Terminal 10  Hold | Terminal 10  Hold | Terminal 10  Hold |
| | Hold function: | Hold function: | Hold function: | Hold function: |
| | High ≙ +24 V ≙ storage of last converted value | High ≙ +24 V ≙ storage of last converted value | High ≙ +24 V ≙ storage of last converted value | High ≙ +24 V ≙ storage of last converted value |
| | Low ≙ 0 V ≙ free conversion | Low ≙ 0 V ≙ free conversion | Low ≙ 0 V ≙ free conversion | Low ≙ 0 V ≙ free conversion |
| Storage temperature | –40°C…+85°C | –40°C…+85°C | –40°C…+85°C | –40°C…+85°C |
| Operating temperature | 0°C…+50°C | 0°C…+50°C | 0°C…+50°C | 0°C…+50°C |
| EMC EN 50 081-1/50 082-2 | | | | |

[1] 1 LSB-Accuracy

[2] Enable: 24 V = tristate

0 V = free conversion