You can download all instructions, catalogs and certificates for SITRANS I free of charge at the following Internet address:
www.siemens.com/sitransi
### Overview

<table>
<thead>
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<th>Area of application</th>
<th>Description</th>
<th>Catalog page</th>
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<tr>
<td><strong>SITRANS I100 isolating power supply</strong></td>
<td>Isolating power supply for supplying 2- and 3-wire transmitters and for connecting mA sources in the hazardous area</td>
<td>SITRANS I100 Isolating power supply with HART for rail mounting, with intrinsically-safe input. 7/3</td>
</tr>
<tr>
<td><strong>SITRANS I200 output isolator</strong></td>
<td>Output isolator for controlling valve positioners, i/p converters or indicators in the hazardous area</td>
<td>SITRANS I200 Output isolator with HART for rail mounting, with intrinsically-safe output 7/6</td>
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</tbody>
</table>
Analog input 0/4 ... 20 mA

The isolating power supplies are used for the intrinsically safe operation of 2- and 3-wire transmitters and for connecting to intrinsically safe mA sources.

The 2- and 3-wire transmitters are supplied with auxiliary power from the transmitter supply unit.

For 2-wire transmitters the isolators transfer the HART communication signal bidirectionally.

## Benefits
- Active output 0/4 ... 20 mA
- Suitable for 2-, 3-wire transmitters, 2-wire HART transmitters and mA sources
- Intrinsically safe input [Ex ia] IIc
- Galvanic isolation between input, output and auxiliary power
- Open-circuit and short-circuit monitoring and messaging for input and output (can be switched off)
- Installation possible in Zone 2 and Div. 2
- Can be used up to SIL 2 (IEC 61508)

### Technical specifications

<table>
<thead>
<tr>
<th>Zones</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>20</th>
<th>21</th>
<th>22</th>
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<tr>
<td>Ex i interfaces</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Installation in</td>
<td>X</td>
<td></td>
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</tbody>
</table>

## Design

The HART isolating power supply is comprised of a compact plastic enclosure (IP30) and is equipped with push-in screw terminals.

On the front are a green LED for indicating the power supply status and a red LED for signaling errors.

The auxiliary power supply can be connected individually using push-in screw terminals or jointly for up to 40 units using pac-Bus.

### Analog input 0/4 ... 20 mA

The isolating power supplies are used for the intrinsically safe operation of 2- and 3-wire transmitters and for connecting to intrinsically safe mA sources.

The 2- and 3-wire transmitters are supplied with auxiliary power from the transmitter supply unit.

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## Benefits
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- Galvanic isolation between input, output and auxiliary power
- Open-circuit and short-circuit monitoring and messaging for input and output (can be switched off)
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- Can be used up to SIL 2 (IEC 61508)
Isolating power supplies and output isolators

SITRANS I100

Rated conditions
Degree of protection of enclosure IP30
Degree of protection of terminals IP20
Ambient conditions
- Ambient temperature -20 ... +60 °C (+4 ... +140 °F)
- Storage temperature -40 ... +80 °C (+40 ... +176 °F)
- Relative humidity ≤ 95 % (no condensation)

Electromagnetic compatibility
Tested under the following standards and regulations:
EN 61326-1 Use in the industrial environment

Mechanical specifications
Screw terminals
- One-wire connection
  - Rigid 0.2 ... 2.5 mm² (0.00031 ... 0.0039 in²)
  - Flexible 0.2 ... 2.5 mm² (0.00031 ... 0.0039 in²)
  - Flexible with end ferrules (without/with plastic ferrule) 0.25 ... 2.5 mm² (0.00039 ... 0.0039 in²)
- Two-wire connection
  - Rigid 0.2 ... 1 mm² (0.00031 ... 0.00155 in²)
  - Flexible 0.2 ... 1.5 mm² (0.00031 ... 0.0023 in²)
  - Flexible with end ferrules 0.25 ... 1 mm² (0.00039 ... 0.00155 in²)

Weight approx. 160 g (0.35 lb)

Type of installation On DIN rail according to EN 50022 (NS35/15; NS35/7.5)

Enclosure material PA 6.6

Fire resisting class (UL-94) V0

Auxiliary power
Rated voltage UN 24 V DC
Voltage range 18 ... 32.1 V ≤ 3.6 $V_{SS}$
Residual ripple within voltage range 70 mA
Rated current (UN, 20 mA) 1.7 W
Power consumption (UN, 20 mA) 1.3 W
Power loss (at UN, RL = 250 Ω) Green "PWR" LED
Operation indicator Yes
Reverse polarity protection Yes (no faulty module/output states)
Undervoltage monitoring

Galvanic isolation
- Test voltage according to EN 60079-11
  - Ex i input to output 1.5 kV AC
  - Ex i input to auxiliary power 1.5 kV AC
  - Ex i input to Error contact 1.5 kV AC
- Test voltage according to EN 50178
  - Output to auxiliary power 350 V AC
  - Error contact to auxiliary power and output 350 V AC

Error detection Ex i input
- Open circuit < 2 mA
- Short-circuit > 22 mA
- Output behavior $I_{out} = 0$
- Output current at $I_{in} = 0$ $I_{out} = 0$ mA

Error detection output
- Open circuit < 2 mA

Error messaging Ex i input/output
- Settings (LF switch)
- Error indication

Error messaging and power supply failure
- Contact (30 V/100 mA), closed to ground in case of error
- pac-Bus, floating contact (30 V/100 mA)

Certificates and approvals
Explosion protection ATEX
- EC type-examination certificate DMT 03 ATEX E 010 X
- Degree of protection II 3 (1) G Ex nA nC [ia] IIC T4 II (1) D [Ex iaD]

Installation
In Zone 2, Div. 2 and in the safe area

Other approvals
USA (FM) (available soon)
Kanada (CSA) (available soon)
Shipping (DNV)

Safety specifications (CENELEC)
- Max. voltage $U_0$ 27 V
- Max. current $I_0$ 88 mA
- Max. power $P_0$ 576 mW
- Max. connectable capacitance $C_0$ for IIC/IIB 90 nF/705 nF
- Max. connectable inductance $L_0$ for IIC/IIB 2.3 mH/14 mH
- Internal capacitance $C_i$ and inductance $L_i$
- Negligible
- Insulation voltage $U_m$
  - 253 V
- When connecting mA sources:
  - Max. output voltage $U_o$
  - Max. connectable voltage $U_i$
  - Max. connectable current $I_i$
  - Internal capacitance $C_i$ and inductance $L_i$
- For more information and value combinations see certification.
Isolating power supplies and output isolators

Isolating power supplies with HART

SITRANS I100

Selection and Ordering data

<table>
<thead>
<tr>
<th>Order No.</th>
<th>SITRANS I100 Isolating Power Supply with HART</th>
</tr>
</thead>
<tbody>
<tr>
<td>7NG4124-0AA00</td>
<td>For rail mounting, for supplying 2-/3-wire transmitters and for mA sources, output 0/4 ... 20 mA, with intrinsically safe input</td>
</tr>
</tbody>
</table>

Accessories

- **pac-Bus basic set**
  - With 5 single elements and 1 terminal set (beginning and end)
  - Order No. 7NG4998-1AA

- **pac-Bus extension set**
  - With 5 single elements
  - Order No. 7NG4998-1AB

Available ex stock.

Dimensional drawings

- SITRANS I100 isolating power supply with HART, dimensions in mm (inch)

Schematics

- Hazardous area
  - Division 1
  - Zone 0/1
- Safe area
  - Division 2
  - Zone 2

Field device

SPS / PCS

SITRANS I100 isolating power supply with HART, connection diagram

SITRANS I100 isolating power supply with HART, output configuration
Overview

Analog output 0/4 ... 20 mA for HART

The output isolators are used for the intrinsically safe operation of valve positioners, i/p converters or indicators. Operation of intrinsically safe HART valve positioners (e.g., SIPART PS2 and SITRANS VP300) is also possible. The units transfer a superimposed HART communication signal bidirectionally.

Benefits

- For HART output signals 0/4 ... 20 mA
- Intrinsically safe output [Ex ia] IIC
- Galvanic isolation between input, output and auxiliary power
- Open-circuit and short-circuit monitoring and messaging (can be switched off)
- Installation possible in Zone 2 and Div. 2
- Can be used up to SIL 2 (IEC 61508)

Design

The HART output isolator is comprised of a compact plastic housing (IP30) and is equipped with push-in screw terminals. On the front are a green LED for indicating the power supply status and a red LED for signaling errors.

The auxiliary power supply can be connected individually using push-in screw terminals or jointly for up to 40 units using pac-Bus.

Technical specifications

<table>
<thead>
<tr>
<th>SITRANS I200 output isolator with HART</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input</strong></td>
<td></td>
</tr>
<tr>
<td>Input signal</td>
<td>0/4 ... 20 mA with HART</td>
</tr>
<tr>
<td>Functional range</td>
<td>0 ... 24 mA</td>
</tr>
<tr>
<td>Max. input current</td>
<td>50 mA</td>
</tr>
<tr>
<td>Input resistance (changeable switch L)</td>
<td>225 Ω / 550 Ω</td>
</tr>
<tr>
<td>Communication signal</td>
<td>Bidirectional HART transmission, 0.5 kHz ... 30 kHz</td>
</tr>
<tr>
<td><strong>Ex i output</strong></td>
<td></td>
</tr>
<tr>
<td>Output signal</td>
<td>0/4 ... 20 mA with HART</td>
</tr>
<tr>
<td>Connectable load resistance</td>
<td>0 ... 800 Ω</td>
</tr>
<tr>
<td>Min. load resistance for short-circuit monitoring</td>
<td>150 Ω</td>
</tr>
<tr>
<td>Residual ripple</td>
<td>≤ 50 mV</td>
</tr>
<tr>
<td>No-load voltage</td>
<td>≤ 25.6 V</td>
</tr>
<tr>
<td>Response time (10 % ... 90 %)</td>
<td>≤ 25 ms</td>
</tr>
<tr>
<td>Transfer behavior</td>
<td>1:1</td>
</tr>
<tr>
<td>Input/Output</td>
<td>(0 ... 20 mA -- 0 ... 20 mA, 4 ... 20 mA -&gt; 4 ... 20 mA)</td>
</tr>
<tr>
<td><strong>Measuring accuracy</strong></td>
<td></td>
</tr>
<tr>
<td>Accuracy, typical data expressed as % of calibrated span at U₀, 23 °C</td>
<td></td>
</tr>
<tr>
<td>Linearity error</td>
<td>≤ 0,1 %</td>
</tr>
<tr>
<td>Offset error</td>
<td>≤ 0,1 %</td>
</tr>
<tr>
<td>Temperature influence</td>
<td>≤ 0,1 %/10 K</td>
</tr>
<tr>
<td>Power supply effect within voltage range</td>
<td>≤ 0,01 %</td>
</tr>
<tr>
<td>Load resistance effect</td>
<td>≤ 0,02 %</td>
</tr>
</tbody>
</table>

Rated conditions

- Degree of protection of enclosure: IP30
- Degree of protection of terminals: IP20
- Ambient conditions:
  - Ambient temperature: -20 °C ... +70 °C (-4 ... +158 °F) (see operating instructions)
  - Storage temperature: -40 ... +80 °C (-40 ... +176 °F)
  - Relative humidity (no condensation): ≤ 95 %
- Electromagnetic compatibility: Tested under the following standards and regulations: EN 61326-1 Use in the industrial environment
Isolating power supplies and output isolators

Output isolators with HART

SITRANS I200

Mechanical specification

<table>
<thead>
<tr>
<th>Screw terminals</th>
</tr>
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<tbody>
<tr>
<td>• One-wire connection</td>
</tr>
<tr>
<td>- Rigid 0.2 ... 2.5 mm² (0.00031 ... 0.0039 in²)</td>
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<tr>
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<tr>
<td>- Flexible with end ferrules (without/plastic ferrule) 0.25 ... 2.5 mm² (0.00039 ... 0.0039 in²)</td>
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<tr>
<td>• Two-wire connection</td>
</tr>
<tr>
<td>- Rigid 0.2 ... 1 mm² (0.00031 ... 0.00155 in²)</td>
</tr>
<tr>
<td>- Flexible 0.2 ... 1.5 mm² (0.00031 ... 0.0023 in²)</td>
</tr>
<tr>
<td>- Flexible with end ferrules 0.25 ... 1 mm² (0.00039 ... 0.00155 in²)</td>
</tr>
</tbody>
</table>

Weight

Approx. 160 g (0.35 lb)

Type of installation

On DIN rail according to EN 50022 (NS35/15; NS35/7.5)

Mounting position

Vertical or horizontal

Enclosure material

PA 6.6

Fire protecting class (UL-94)

V0

Auxiliary power

Rated voltage $U_N$

24 V DC

Voltage range

18 ... 31.2 V

Residual ripple within voltage range

≤ 3.6 $V_{SS}$

Rated current ($U_N$, 20 mA)

80 mA

Power consumption ($U_N$, 20 mA)

1.3 W

Power loss (at $U_N$, $R_L = 500 \, \Omega$)

1.1 W

Operation indicator

Green "PWR" LED

Reverse polarity protection

Yes

Undervoltage monitoring

Yes (no faulty module/output states)

Galvanic isolation

• Test voltage according to EN 60079-11
  - Ex i output to input 1.5 kV AC
  - Ex i output to auxiliary power 1.5 kV AC
  - Error contact to Ex i output 1.5 kV AC
• Test voltage according to EN 50178
  - Input to auxiliary power 350 V AC
  - Error contact to auxiliary power and input 350 V AC

Error detection Ex i output

• Open circuit > 10 kΩ
• Short-circuit < 15 Ω
• Input behavior > 6 kΩ
• Open-circuit detection only for input current ≥ 3.6 mA
• Settings (LF switch) Activated/deactivated
• Error indication LED red "LF"
• Error messaging and power supply failure
  - Contact (30 V/100 mA), closed to ground in case of error
  - pac-Bus, floating contact (30 V/100 mA)

Certificates and approvals

• Explosion protection ATEX
  DMT 03 ATEX E 012 X
  II 3 (1) G Ex nA nC [ia] IIC T4
  II (1) D [Ex iaD]
• Degree of protection
• Installation
  In Zone 2, Div. 2 and in the safe area
• Other approvals
  USA (FM) (available soon)
  Canada (CSA) (available soon)
  Shipping (DNV)

Safety specifications (CENELEC)

• Max. voltage $U_o$
  25.6 V
• Max. current $I_o$
  96 mA
• Max. power $P_o$
  605 mW
• Max. connectable capacitance $C_o$
  103 nF/800 nF
• Max. connectable inductance $L_o$
  1.9 mH/11 mH
• Internal capacitance $C_i$ and inductance $L_i$
  Negligible
• Insulation voltage $U_{m}$
  253 V

For more information and value combinations see certification.

Selection and Ordering data

Order No.

<table>
<thead>
<tr>
<th>SITRANS I200 output isolator with HART</th>
<th>7NG4131-0AA00</th>
</tr>
</thead>
<tbody>
<tr>
<td>For rail mounting, input 0/4 ... 20 mA, output 0/4 ... 20 mA, intrinsically safe</td>
<td></td>
</tr>
</tbody>
</table>

Accessories

| pac-Bus basic set With 5 single elements and 1 terminal set (beginning and end) | 7NG4998-1AA |
| pac-Bus extension set With 5 single elements | 7NG4998-1AB |
| Available ex stock. |

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Isolating power supplies and output isolators

Output isolators with HART

SITRANS I200

Dimensional drawings

SITRANS I200 output isolator with HART, dimensions in mm (inch)

Schematics

SITRANS I200 output isolator with HART, connection diagram