Our purpose is to create market-leading site standard solutions with high signal integrity and simplicity for our customers, concentrating on innovation in six core business areas: Temperature, I.S. Interfaces, Communication Interfaces, Multifunctional, Isolation and Display.

Our products are individually outstanding, but when our point-to-point temperature measurement devices, I.S. interfaces, backplanes, multifunctional signal devices and future-proof communication interfaces are combined, our solutions are truly unrivalled.

We will be our customer’s trusted partner for the best and most innovative signal conditioning solutions in the process and factory automation industries.

We provide a wide range of benefits to our customers through innovative solutions and close collaboration:

- The highest signal integrity from your measurement point to control system
- Maximum uptime based on our Install and Forget® philosophy
- Easy and cost-effective deployment and monitoring with intuitive communication interfaces
- Site standard devices that are easily programmable to suit your specific application
- Day-to-day delivery

Since 1974, we have been dedicated to perfecting our core competence of innovating high precision technology with low power consumption. With a dedicated R&D center that is integrated with our lean production facility at our headquarters in Denmark, we are today one of the leading companies within signal conditioning.
### MULTIFUNCTIONAL TRANSMITTERS

**INPUT:**
- RTD, TC, linear resistance, mV, mA, V, potentiometer

**OUTPUT:**
- mA, V, relays

<table>
<thead>
<tr>
<th>TYPE</th>
<th>Isolated universal converter</th>
<th>Universal uni/bipolar signal transmitter</th>
<th>Universal transmitter</th>
<th>Universal transmitter</th>
<th>Universal trip amplifier</th>
</tr>
</thead>
</table>

**TECHNICAL SPECIFICATIONS:**
- Ambient temperature: -25°C to +70°C
- Supply voltage, universal AC / DC: 21.6...253 V / 19.2...300 V
- Max. required power: 1.2 W
- Isolation voltage, test / operation: 2.5 kVAC / 250 VAC
- Response time: 0.1...1.0 s
- Signal dynamics, input / output: 24 bit / 16 bit
- Accuracy: < ±0.01% of span
- Temperature coefficient: < ±0.01% of span / °C
- NAMUR: NE 21, NE 43
- Channels: 1
- Programming: 4500 series devices

**APPLICATION GUIDE:**
- mA / V / temperature input
- Bipolar mA / V input
- Lin. R / potentiometer input
- 4...20 mA Tx input
- V-curve function
- Buffered voltage output
- Analog / relay output
- Custom sensor linearization
- Process signal calibration
- Power rail option

---

**INPUT:**
- mA, measurement range / min. span: ±0.23 mA / 16 mA
- V, measurement range / min. span: ±0.12 VDC / 0.8 V
- RTD, measurement range / min. span: -200...+850°C / ±25°C
- Lin. R, measurement range / min. span: 0.10000 Ω / -
- Load: (at voltage output)
- Load (at power output)
- Reference voltage / Z-wire supply

**OUTPUT:**
- mA, signal range / min. span: ±0.23 mA / 16 mA
- V, signal range / min. span: ±0.10 VDC / 0.8 VDC
- Load (at current output)
- Load (at power output)
- Relays

---

**TECHNICAL SPECIFICATIONS:**
- Ambient temperature: -25°C to +70°C
- Supply voltage, universal AC / DC: 21.6...253 V / 19.2...300 V
- Max. required power: 1.2 W
- Isolation voltage, test / operation: 2.5 kVAC / 250 VAC
- Response time: 0.1...1.0 s
- Signal dynamics, input / output: 24 bit / 16 bit
- Accuracy: < ±0.01% of span
- Temperature coefficient: < ±0.01% of span / °C
- NAMUR: NE 21, NE 43
- Channels: 1
- Programming: 4500 series devices

---

**APPLICATION GUIDE:**
- mA / V / temperature input
- Bipolar mA / V input
- Lin. R / potentiometer input
- 4...20 mA Tx input
- V-curve function
- Buffered voltage output
- Analog / relay output
- Custom sensor linearization
- Process signal calibration
- Power rail option

---

**Notes:**
- Of span = Of the presently selected range
## TYPE 4179 4184

### INPUT:
- **mV, mA, A, V, potentiometer**

### OUTPUT:
- **mA, V**

### TECHNICAL SPECIFICATIONS:
- **Ambient temperature**
- **Supply voltage, universal AC / DC**
- **Max. required power**
- **Isolation voltage, test / operation**
- **Response time**
- **Signal dynamics, input / output**
- **Accuracy**
- **Temperature coefficient**
- **NAMUR**
- **Channels**
- **Programming**

### APPROVALS:
- **ATEX, Zone 2**
- **IECEx, Zone 2**
- **FM, Zone 2 - DIV 2**
- **UL 61010 / 508**
- **DNV-GL**
- **EAC**
- **SIL 2, Hardware Assessment**

### APPLICATION GUIDE:
- **mA / V / temperature input**
- **Bipolar mA / V input**
- **Lin. R / potentiometer input**
- **4...20 mA Tx input**
- **V-curve function**
- **Buffered voltage output**
- **Active / passive current output**
- **Analog / relay output**
- **Custom sensor linearization**
- **Process signal calibration**
- **Power rail option**
**MULTIFUNCTIONAL TRANSMITTERS**

**APPLICATION GUIDE:**
- SIL 2 Full Assessment IEC 61508
- UL 61010 / 508
- ATEX, Zone 2
- FM, Zone 2
- CE marking
- IECEx, Zone 2
- IECEx certificate

**INPUT:**
- mA, V, mA, V, potentiometer
- RTD, TC, linear resistance
- mA, V, relays

**OUTPUT:**
- mA, V, relays

**INPUT:**
- mA, measurement range / min. span
- V, measurement range / min. span
- mV, measurement range / min. span
- mA, measurement range / min. span
- V, measurement range / min. span
- mV, measurement range / min. span

**OUTPUT:**
- mA, V, relays

**TECHNICAL SPECIFICATIONS:**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>5114A</th>
<th>5115A</th>
<th>5116A</th>
<th>5131A</th>
<th>9116A</th>
</tr>
</thead>
<tbody>
<tr>
<td>INPUT</td>
<td>Programmable transmitter</td>
<td>Signal calculator</td>
<td>Programmable transmitter w. limit switch</td>
<td>2-wire programmable transmitter</td>
<td>Universal converter</td>
</tr>
<tr>
<td>OUTPUT</td>
<td>mA, V, relays</td>
<td>mA, V, relays</td>
<td>mA, V, relays</td>
<td>mA, V, relays</td>
<td>mA, V, relays</td>
</tr>
</tbody>
</table>

**INPUT:**
- mA, measurement range / min. span
- V, measurement range / min. span
- mV, measurement range / min. span
- mA, measurement range / min. span
- V, measurement range / min. span
- mV, measurement range / min. span

**OUTPUT:**
- mA, V, relays

**TECHNICAL SPECIFICATIONS:**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>5114A</th>
<th>5115A</th>
<th>5116A</th>
<th>5131A</th>
<th>9116A</th>
</tr>
</thead>
<tbody>
<tr>
<td>INPUT</td>
<td>Programmable transmitter</td>
<td>Signal calculator</td>
<td>Programmable transmitter w. limit switch</td>
<td>2-wire programmable transmitter</td>
<td>Universal converter</td>
</tr>
<tr>
<td>OUTPUT</td>
<td>mA, V, relays</td>
<td>mA, V, relays</td>
<td>mA, V, relays</td>
<td>mA, V, relays</td>
<td>mA, V, relays</td>
</tr>
</tbody>
</table>

**APPLICATION GUIDE:**
- SIL 2 Full Assessment IEC 61508
- UL 61010 / 508
- ATEX, Zone 2
- FM, Zone 2
- CE marking
- IECEx, Zone 2
- IECEx certificate

**INPUT:**
- mA, V / temperature input
- Bipolar mV input
- Lin. R / potentiometer input
- 4...20 mA Tx input
- Dual input - math functions
- Buffered voltage output
- Active / passive current output
- Analog / relay output
- Custom sensor linearization
- Process signal calibration
- Power rail option

**OUTPUT:**
- mA, V, relays

**TECHNICAL SPECIFICATIONS:**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>5114A</th>
<th>5115A</th>
<th>5116A</th>
<th>5131A</th>
<th>9116A</th>
</tr>
</thead>
<tbody>
<tr>
<td>INPUT</td>
<td>Programmable transmitter</td>
<td>Signal calculator</td>
<td>Programmable transmitter w. limit switch</td>
<td>2-wire programmable transmitter</td>
<td>Universal converter</td>
</tr>
<tr>
<td>OUTPUT</td>
<td>mA, V, relays</td>
<td>mA, V, relays</td>
<td>mA, V, relays</td>
<td>mA, V, relays</td>
<td>mA, V, relays</td>
</tr>
</tbody>
</table>

**APPLICATION GUIDE:**
- SIL 2 Full Assessment IEC 61508
- UL 61010 / 508
- ATEX, Zone 2
- FM, Zone 2
- CE marking
- IECEx, Zone 2
- IECEx certificate

**INPUT:**
- mA, V / temperature input
- Bipolar mV input
- Lin. R / potentiometer input
- 4...20 mA Tx input
- Dual input - math functions
- Buffered voltage output
- Active / passive current output
- Analog / relay output
- Custom sensor linearization
- Process signal calibration
- Power rail option

**OUTPUT:**
- mA, V, relays

**TECHNICAL SPECIFICATIONS:**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>5114A</th>
<th>5115A</th>
<th>5116A</th>
<th>5131A</th>
<th>9116A</th>
</tr>
</thead>
<tbody>
<tr>
<td>INPUT</td>
<td>Programmable transmitter</td>
<td>Signal calculator</td>
<td>Programmable transmitter w. limit switch</td>
<td>2-wire programmable transmitter</td>
<td>Universal converter</td>
</tr>
<tr>
<td>OUTPUT</td>
<td>mA, V, relays</td>
<td>mA, V, relays</td>
<td>mA, V, relays</td>
<td>mA, V, relays</td>
<td>mA, V, relays</td>
</tr>
</tbody>
</table>
**INPUT:**
- Frequency, pulse, V, mA, Pt100, TC, mV

**OUTPUT:**
- mA, V, pulse, relays

### TECHNICAL SPECIFICATIONS:
- **Ambient temperature:** -20...+60°C
- **Supply voltage, AC / DC:** 21.6...253 V / 19.2...300 V
- **Max. required power, 1 / 2 channels:** 2.5 W / 3 W
- **Isolation voltage, test / operation:** 2.3 kW / 250 VAC
- **Response time:** ≤ 1 s
- **Signal dynamics, input / output:** 24 bit
- **Accuracy:** ≤ ±0.01% of span
- **Temperature coefficient:** ≤ ±0.01% of span / °C

### APPROVALS:
- ATEX, Zone 2
- IECEx, Zone 2
- FM, Zone 2 - DIV 2
- UL 61010 / 508
- DNV-GL
- SIL 2, Hardware Assessment
- SIL 2 Full Assessment IEC 61508

### APPLICATION GUIDE:
- Frequency to analog converter
- Analog to frequency converter
- Lin. R / potentiometer input
- Concurrent f/I and f/f
- Pulse converter / scaler
- Pulse isolator 1:1
- Dual input - math functions
- Digital output
- Relay output
- Process signal calibration
- Power rail option

**TYPE**

<table>
<thead>
<tr>
<th>4222</th>
<th>5202A</th>
<th>5223A</th>
<th>5225A</th>
<th>9202A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universal I/F converter</td>
<td>Pulse isolator</td>
<td>Programmable f/I - f/f converter</td>
<td>Programmable f/I - f/f converter</td>
<td>Pulse isolator</td>
</tr>
</tbody>
</table>

**INPUT:**
- Sensor type
- Hz, measurement range / min. span
- Min. pulse width
- V, measurement range / min. span
- RTD, measurement range / min. span
- Lin. R, measurement range / pot.-meter
- Sensor connection, wires
- TC types

**OUTPUT:**
- mA, signal range / min. span
- V, signal range / min. span
- Hz, signal range / min. span
- Pulse output
- Relays
- Max. output frequency
- Sensor supply

**TECHNICAL SPECIFICATIONS:**
- Ambient temperature
- Supply voltage, AC / DC
- Max. required power, 1 / 2 channels
- Isolation voltage, test / operation
- Response time
- Signal dynamics, input / output
- Accuracy
- Temperature coefficient
- NAMUR
- Channels
- Programming

**APPROVALS:**
- ATEX, Zone 2
- IECEx, Zone 2
- FM, Zone 2 - DIV 2
- UL 61010 / 508
- DNV-GL
- EAC
- SIL 2, Hardware Assessment
- SIL 2 Full Assessment IEC 61508

---

* = FMEDA report  
** = Full assessment acc. to IEC 61508

*1.5 W (2 relays) / 1.8 W (4 relays)

**Of span** = Of the presently selected range
## ISOLATORS

### TECHNICAL SPECIFICATIONS:

- **Ambient temperature**: -25...+70°C
- **Supply voltage, AC / DC**: 0...16.8...31.2 VDC
- **Max. required power**: 0.65 W
- **Isolation voltage, test / operation**: 2.5 kVAC / 250 VAC
- **Response time**: < 7 ms
- **Signal dynamics, input / output**: Analog signal chain
- **Accuracy**: < ±0.05% of span / °C
- **Temperature coefficient**: < ±0.015% of span / °C
- **NAMUR**: NE 21
- **Channels**: 1
- **Programming**: No

### APPROVALS:

- **ATEX, Zone 2**: ✔
- **IECEx, Zone 2**: ✔
- **FM, Zone 2 - DIV 2**: ✔
- **UL 61010 / 508**: ✔
- **DNV-GL**: ✔

### APPLICATION GUIDE:

- **Signal repeater**: ✔
- **Signal converter**: ✔
- **Signal splitter**: ✔
- **mA / V bipolar input**: ✔
- **4...20 mA Tx input**: ✔
- **Buffered voltage output**: ✔
- **mA / V output**: ✔
- **Active / passive mA output**: ✔
- **Mounting in Zone 2 / Div 2**: ✔
- **Power rail option**: ✔

### Input:

- **mA, V, potentiometer**
- **mA, V**

### Output:

<table>
<thead>
<tr>
<th>TYPE</th>
<th>3103</th>
<th>3104</th>
<th>3105</th>
<th>3108</th>
<th>3109</th>
<th>3117</th>
</tr>
</thead>
<tbody>
<tr>
<td>INPUT:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mA, V, measurement range / min. span</td>
<td>0...23 mA / 1:1</td>
<td>0...23 mA / 16 mA</td>
<td>0...23 mA / 16 mA</td>
<td>0...23 mA / 1:1</td>
<td>0...23 mA / 16 mA</td>
<td>-23...+23 mA</td>
</tr>
<tr>
<td>V, measurement range / min. span</td>
<td>0...10.25 VDC / 4 VDC</td>
<td>0...10.25 VDC / 4 VDC</td>
<td>0...10.25 VDC / 4 VDC</td>
<td>0...10.25 VDC / 4 VDC</td>
<td>±5 and ±10 VDC</td>
<td></td>
</tr>
</tbody>
</table>

| OUTPUT:  |      |      |      |      |      |      |
| mA, V, signal range / min. span | 0...23 mA / 1:1 | 0...23 mA / 16 mA | 0...23 mA / 16 mA | 0...23 mA / 1:1 | 0...23 mA / 16 mA | 0...23 mA / 16 mA |
| Load (μ current output) | ≤ 600 Ω | ≤ 600 Ω | ≤ 600 Ω | ≤ 300 Ω per channel | ≤ 300 Ω per channel | ≤ 600 Ω |
| V, signal range / min. span | 0...10 VDC / 4 VDC | 0...10 VDC / 4 VDC | 0...10 VDC / 4 VDC | 0...10 VDC / 4 VDC | 0...10 VDC / 4 VDC | ±10 VDC / 4 VDC |
| Load (μ voltage output) | ≥ 10 kΩ | ≥ 10 kΩ | ≥ 10 kΩ | ≥ 10 kΩ | ≥ 10 kΩ | ≥ 10 kΩ |

### Specifications:

- **Ambient temperature**: -25...+70°C
- **Supply voltage, AC / DC**: 0...16.8...31.2 VDC
- **Max. required power**: 0.65 W
- **Isolation voltage, test / operation**: 2.5 kVAC / 250 VAC
- **Response time**: < 7 ms
- **Signal dynamics, input / output**: Analog signal chain
- **Accuracy**: < ±0.05% of span / °C
- **Temperature coefficient**: < ±0.015% of span / °C
- **NAMUR**: NE 21
- **Channels**: 1
- **Programming**: No

### Approvals:

- **ATEX, Zone 2**: ✔
- **IECEx, Zone 2**: ✔
- **FM, Zone 2 - DIV 2**: ✔
- **UL 61010 / 508**: ✔
- **DNV-GL**: ✔

### Application Guide:

- **Signal repeater**: ✔
- **Signal converter**: ✔
- **Signal splitter**: ✔
- **mA / V bipolar input**: ✔
- **4...20 mA Tx input**: ✔
- **Buffered voltage output**: ✔
- **mA / V output**: ✔
- **Active / passive mA output**: ✔
- **Mounting in Zone 2 / Div 2**: ✔
- **Power rail option**: ✔

* = @ 24 VDC

Of span = Of the presently selected range
## ISOLATORS

<table>
<thead>
<tr>
<th>TYPE</th>
<th>3118</th>
<th>3185</th>
<th>3186</th>
<th>5104A</th>
<th>5106A</th>
<th>6185</th>
</tr>
</thead>
<tbody>
<tr>
<td>INPUT:</td>
<td>Bipolar isolated converter / splitter</td>
<td>Loop-powered isolator</td>
<td>2-wire transmitter isolator</td>
<td>Repeater / power supply</td>
<td>HART transparent repeater</td>
<td>Loop-powered isolator</td>
</tr>
<tr>
<td>mA, V,</td>
<td>mA, measurement range / min. span: -23...+23 mA</td>
<td>0.23 mA / 1:1</td>
<td>3.5...23 mA / 1:1</td>
<td>0.23 mA / 16 mA</td>
<td>3.5...23 mA / 1:1</td>
<td>0.23 mA / 1:1</td>
</tr>
<tr>
<td>HART communication</td>
<td>V, measurement range / min. span: ±5 and ±10 VDC</td>
<td>≤ 300 Ω per channel</td>
<td>20% of selec. max. value</td>
<td>Reference voltage / 2-wire supply: -/+ Vloop, 2.5 VDC</td>
<td>-/+ 17.1 VDC</td>
<td>-/+ 17 VDC</td>
</tr>
<tr>
<td>OUTPUT:</td>
<td>mA, V,</td>
<td>mA, signal range / min. span: 0.23 mA / 16 mA</td>
<td>0.23 mA / 1:1</td>
<td>3.5...23 mA / 1:1</td>
<td>0.23 mA / 16 mA</td>
<td>3.5...23 mA / 1:1</td>
</tr>
<tr>
<td>HART communication</td>
<td>Load (@ current output): ≤ 600 Ω</td>
<td>≤ 300 Ω per channel</td>
<td>≤ 600 Ω</td>
<td>≤ 600 Ω</td>
<td>≤ 600 Ω</td>
<td>≤ 600 Ω</td>
</tr>
<tr>
<td>mA, V,</td>
<td>V, signal range / min. span: 0.10 VDC / 0.8 VDC</td>
<td>≥ 10 kΩ</td>
<td>≥ 10 kΩ</td>
<td>20% of selec. max. value</td>
<td>20% of selec. max. value</td>
<td></td>
</tr>
<tr>
<td>HART communication</td>
<td>Load (@ voltage output): ≥ 10 kΩ</td>
<td>≥ 10 kΩ</td>
<td>≥ 10 kΩ</td>
<td>20% of selec. max. value</td>
<td>20% of selec. max. value</td>
<td></td>
</tr>
</tbody>
</table>

### TECHNICAL SPECIFICATIONS:

- **Ambient temperature**: -25...+70°C
- **Supply voltage, AC / DC**: 21.6...253 V / 19.2...300 V
- **Max. required power, 1 / 2 channels**: ≤ 30 mW per channel
- **Isolation voltage, test / operation**: 2.5 kVAC / 250 VAC
- **Response time**: ≤ 5 ms
- **Accuracy**: < ±0.05% of span
- **Temperature coefficient**: < ±0.01% of span / °C
- **NAMUR**: Channels 1 or 2
- **Programming**: DIP switch
- **Approvals**: ATEX, Zone 2
- **Mounting in Zone 2 / Div 2**: Yes
- **Power rail option**: Yes

### APPLICATION GUIDE:

- **Signal repeater**
- **Signal converter**
- **Signal splitter**
- **mA / V bipolar input**
- **mA / V 4...20 mA Tx input**: Yes
- **Buffered voltage output**: Yes
- **Active / passive input signal**: Yes
- **mA / V output**: Yes
- **Active / passive mA output**: Yes
- **Mounting in Zone 2 / Div 2**: Yes
- **Power rail option**: Yes

* = @ 24 VDC

*Of span = Of the presently selected range
### ISOLATORS

<table>
<thead>
<tr>
<th>TYPE</th>
<th>9106A</th>
<th>9107A</th>
<th>9203A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INPUT:</strong></td>
<td>HART transparent repeater</td>
<td>HART transparent driver</td>
<td>Solenoid / alarm driver</td>
</tr>
<tr>
<td>mA, HART communication</td>
<td>mA, HART communication</td>
<td>mA, HART communication</td>
<td></td>
</tr>
<tr>
<td>mA, measurement range / min. span</td>
<td>3.5...23 mA / 16 mA</td>
<td>3.5...23 mA / 16 mA</td>
<td>3.5...23 mA / 16 mA</td>
</tr>
<tr>
<td>V, measurement range / min. span</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. offset</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reference voltage / 2-wire supply</td>
<td>- / &gt; 16 VDC</td>
<td>- / &gt; 16 VDC</td>
<td>- / &gt; 16 VDC</td>
</tr>
<tr>
<td>Sensor type</td>
<td></td>
<td></td>
<td>NPN / PNP / switch</td>
</tr>
</tbody>
</table>

| **OUTPUT:** | mA, signal range / min. span | mA, signal range / min. span | mA, signal range / min. span |
| mA, HART communication | 3.5...23 mA / 16 mA | 3.5...23 mA / 16 mA | 3.5...23 mA / 16 mA |
| Pulse output | | Valves etc. | |

### TECHNICAL SPECIFICATIONS:

- **Ambient temperature:** -20...+60°C
- **Supply voltage, AC / DC:** - 19.2...31.2 VDC / 19.2...31.2 VDC / 19.2...31.2 VDC
- **Max. required power, 1 / 2 channels:** ≤ 1.1 W / ≤ 1.9 W ≤ 1.0 W / ≤ 1.8 W ≤ 1.9...2.5 W / 3.1 W
- **Isolation voltage, test / operation:** 2.6 kVAC / 250 VAC 2.6 kVAC / 250 VAC 2.6 kVAC / 250 VAC
- **Response time:** ≤ 5 ms ≤ 5 ms < 10 ms
- **Accuracy:** Analog signal chain Analog signal chain
- **Temperature coefficient:** ≤ ±16 µA / °C ≤ ±0.01% of span / °C
- **Reference voltage / 2-wire supply:** 19.2...31.2 VDC 19.2...31.2 VDC 19.2...31.2 VDC
- **Max. offset:** ≤ ±16 µA ≤ ±16 µA
- **Isolation voltage, test / operation:** 2.6 kVAC / 250 VAC 2.6 kVAC / 250 VAC 2.6 kVAC / 250 VAC
- **Response time:** ≤ 5 ms ≤ 5 ms < 10 ms
- **Accuracy:** Analog signal chain Analog signal chain
- **Temperature coefficient:** ≤ ±16 µA / °C ≤ ±0.01% of span / °C
- **NAMUR:** NE 21 NE 21 NE 21
- **Channels:** 1 or 2 1 or 2 1 or 2
- **Programming:** 4500 series devices 4500 series devices 4500 series devices

### APPROVALS:

- ATEX, Zone 2
- IECEx, Zone 2
- FM, Zone 2 - DIV 2
- UL 61010 / 508
- DNV-GL
- EAC
- SIL 2/3 Full Assessment IEC 61508

### APPLICATION GUIDE:

- Signal repeater
- Signal driver
- Signal splitter
- Solenoid / alarm driver
- mA input
- 4...20 mA Tx input
- Active / passive mA output
- HART signal transparent
- Mounting in Zone 2 / Div 2
- Power rail option

= Full assessment acc. to IEC 61508
## TEMPERATURE TRANSMITTERS

### TYPE

<table>
<thead>
<tr>
<th>TYPE</th>
<th>3101</th>
<th>3102</th>
<th>3111</th>
<th>3112</th>
<th>3113</th>
</tr>
</thead>
<tbody>
<tr>
<td>INPUT:</td>
<td>TC converter</td>
<td>Pt100 converter</td>
<td>TC converter - isolated</td>
<td>Pt100 converter - isolated</td>
<td>HART 7 temperature converter</td>
</tr>
<tr>
<td>OUTPUT:</td>
<td>mA, HART communication</td>
<td>mA, HART communication</td>
<td>mA, HART communication</td>
<td>mA, HART communication</td>
<td>mA, HART communication</td>
</tr>
</tbody>
</table>

### INPUT:
- RTD, linear resistance, TC, mA, mA, mV, mA, potentiometer
- mA,
- HART communication

### OUTPUT:
- mA, signal range / min. span
- Input: RTD, measurement range / min. span
- Lin. R, measurement range / min. span
- Sensor connection, wires
- TC types: J & K
- Max. offset
- Cold junction compensation: Internal, Internal / external

### TECHNICAL SPECIFICATIONS:
- Ambient temperature
- Supply voltage, DC
- Max. required power
- Isolation voltage, test / operation
- Response time
- Signal dynamics, input / output
- Accuracy
- Temperature coefficient
- NAMUR
- Channels
- Programming
- Approvals: ATEX, Zone 2 / IECEx, Zone 2 / FM, Zone 2 - DIV 2 / UL 61010 / 508 / DNV-GL / EAC

### APPLICATION GUIDE:
- RTD / TC / mV input
- mA / V output
- Loop-powered
- Galvanically isolated
- HART protocol
- Mounting in Zone 2 / DIV 2
- Process signal calibration
- Power rail option

---

* = @ 24 VDC
Of span = Of the presently selected range
## Temperature Transmitters

### Type
- **3331**: Temperature converter, loop-powered - isolated
- **3333**: Pt100 converter, loop-powered
- **3337**: HART 7 temperature converter, loop-powered

### Input:
- **RTD, linear resistance, TC, mV**
- **mA, V, HART communication**

### Technical Specifications:
- **Ambient temperature**: -25...70°C
- **Supply voltage, DC**: 5.5...35 VDC
- **Max. required power**: 0.8 W
- **Isolation voltage, test / operation**: 2.5 kVAC / 250 VAC
- **Response time**: < 30 ms
- **Signal dynamics, input / output**: 23 bit / 18 bit
- **Accuracy**: ±0.05% of span
- **Temperature coefficient**: ±0.01% of span / °C
- **NAMUR**: NE 21, NE 43, NE 21, NE 43, NE 21, NE 43
- **Channels**: 1
- **Programming**: DIP switch
- **Approvals**:
  - ATEX, Zone 2
  - IECEX, Zone 2
  - FM, Zone 2 - DIV 2
  - UL 61010 / 508
  - DNV-GL
  - LAC
- **Application Guide**:
  - **RTD / TC / mV Input**: ✓ / ✓ / ✓
  - **mA / V output**: ✓ / ✓ / ✓
  - **Loop-powered**: ✓
  - **Galvanically isolated**: ✓
  - **HART protocol**: ✓
  - **Mounting in Zone 2 / DIV 2**: ✓ / ✓
  - **Process signal calibration**: ✓

### Output:
- **mA, signal range / min. span**: 3.5...23 mA / 16 mA
- **Load (@ current output)**: ≤ (Vsupply-5.5)/0.023 [Ω]

---

### Type 3331
- **Temperature converter, loop-powered - isolated**

### Type 3333
- **Pt100 converter, loop-powered**

### Type 3337
- **HART 7 temperature converter, loop-powered**

---

**Surface-mounted**

**HART protocol**

**Mounting in Zone 2 / DIV 2**

**Process signal calibration**

**Of span** = Of the presently selected range
## TEMPERATURE TRANSMITTERS

<table>
<thead>
<tr>
<th>TYPE</th>
<th>5331A</th>
<th>5332A</th>
<th>5333A</th>
<th>5334A</th>
<th>5335A</th>
<th>5337A</th>
</tr>
</thead>
<tbody>
<tr>
<td>INPUT:</td>
<td>2-wire</td>
<td>2-wire</td>
<td>2-wire</td>
<td>2-wire</td>
<td>2-wire</td>
<td>2-wire</td>
</tr>
<tr>
<td></td>
<td>programmable</td>
<td>programmable</td>
<td>transmitter</td>
<td>transmitter</td>
<td>transmitter</td>
<td>transmitter</td>
</tr>
<tr>
<td></td>
<td>RTD</td>
<td>RTD</td>
<td>transmitter</td>
<td>transmitter</td>
<td>with HART 5</td>
<td>with HART 7</td>
</tr>
<tr>
<td></td>
<td>transmitter</td>
<td>transmitter</td>
<td></td>
<td></td>
<td>protocol</td>
<td>protocol</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OUTPUT:</td>
<td>mA</td>
<td>mA</td>
<td>mA</td>
<td>mA</td>
<td>mA</td>
<td>mA</td>
</tr>
<tr>
<td></td>
<td>signal range / min. span</td>
<td>signal range / min. span</td>
<td>signal range / min. span</td>
<td>signal range / min. span</td>
<td>signal range / min. span</td>
<td>signal range / min. span</td>
</tr>
<tr>
<td></td>
<td>3.5...23 mA / 16 mA</td>
<td>3.5...23 mA / 16 mA</td>
<td>3.5...23 mA / 16 mA</td>
<td>3.5...23 mA / 16 mA</td>
<td>3.5...23 mA / 16 mA</td>
<td>3.5...23 mA / 16 mA</td>
</tr>
</tbody>
</table>

## TECHNICAL SPECIFICATIONS:

<table>
<thead>
<tr>
<th></th>
<th>5331A</th>
<th>5332A</th>
<th>5333A</th>
<th>5334A</th>
<th>5335A</th>
<th>5337A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature</td>
<td>-40...+85°C</td>
<td>-40...+85°C</td>
<td>-40...+85°C</td>
<td>-40...+85°C</td>
<td>-40...+85°C</td>
<td>-40...+85°C</td>
</tr>
<tr>
<td>Supply voltage, DC</td>
<td>7.2...35 VDC</td>
<td>7.2...35 VDC</td>
<td>8...35 VDC</td>
<td>8...35 VDC</td>
<td>8...35 VDC</td>
<td>8...35 VDC</td>
</tr>
<tr>
<td>Max. required power</td>
<td>0.8 W</td>
<td>0.8 W</td>
<td>0.8 W</td>
<td>0.8 W</td>
<td>0.8 W</td>
<td>0.8 W</td>
</tr>
<tr>
<td>Isolation voltage, test / operation</td>
<td>1500 VAC / 50 V</td>
<td>1500 VAC / 50 V</td>
<td>1500 VAC / 50 V</td>
<td>1500 VAC / 50 V</td>
<td>1500 VAC / 50 V</td>
<td>1500 VAC / 50 V</td>
</tr>
<tr>
<td>Response time</td>
<td>1.50 s</td>
<td>1.50 s</td>
<td>1.50 s</td>
<td>1.50 s</td>
<td>1.50 s</td>
<td>1.50 s</td>
</tr>
<tr>
<td>Signal dynamics, input / output</td>
<td>20 bit / 16 bit</td>
<td>20 bit / 16 bit</td>
<td>19 bit / 16 bit</td>
<td>18 bit / 16 bit</td>
<td>22 bit / 16 bit</td>
<td>22 bit / 16 bit</td>
</tr>
<tr>
<td>Accuracy</td>
<td>≤ ±0.05% of span</td>
<td>≤ ±0.05% of span</td>
<td>≤ ±0.05% of span</td>
<td>≤ ±0.05% of span</td>
<td>≤ ±0.05% of span</td>
<td>≤ ±0.05% of span</td>
</tr>
<tr>
<td>Temperature coefficient</td>
<td>≤ ±0.01% of span / °C</td>
<td>≤ ±0.01% of span / °C</td>
<td>≤ ±0.01% of span / °C</td>
<td>≤ ±0.01% of span / °C</td>
<td>≤ ±0.01% of span / °C</td>
<td>≤ ±0.01% of span / °C</td>
</tr>
<tr>
<td>NAMUR</td>
<td>NE 21, NE 43</td>
<td>NE 43</td>
<td>NE 43</td>
<td>NE 21, NE 43</td>
<td>NE 21, NE 43, NE89</td>
<td>NE 21, NE 43, NE89</td>
</tr>
<tr>
<td>Channels</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Programming</td>
<td>5909</td>
<td>5909</td>
<td>5909</td>
<td>5909</td>
<td>5909</td>
<td>5909/HART 5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## APPROVALS:

- **ATEX, Zone 2**
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
- **IECEx, Zone 2**
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
- **CSA, Zone 2 - DIV 2**
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
- **FM, Zone 2 - DIV 2**
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
- **INMETRO**
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
- **NEPSI**
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
- **DNV-GL**
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
- **EAC**
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
- **SIL 2, Hardware Assessment**
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes

## APPLICATION GUIDE:

- **RTD / TC / mV input**
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
- **Lin. R / potentiometer input**
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
- **Dual input (4 terminals)**
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
- **Custom sensor linearization**
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
- **mA output**
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
- **Loop-powered**
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
- **Galvanically isolated**
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
- **HART protocol**
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
- **Mounting in Zone 2 / DIV 2**
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
- **Process signal calibration**
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes

* = FMEDA report
Of span = Of the presently selected range
# Temperature Transmitters

**5343A**

- **RTD, linear resistance, TC, mV, potentiometer**
- **mA, HART communication, Profibus PA, Foundation Fieldbus**

**5350A**

- **Profibus PA / Foundation Fieldbus transmitter**

**5437A**

- **2-wire HART 7 temperature transmitter**

## Input

<table>
<thead>
<tr>
<th>TYPE</th>
<th>2-wire level transmitter</th>
<th>Profibus PA / Foundation Fieldbus transmitter</th>
<th>2-wire HART 7 temperature transmitter</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inputs:</strong></td>
<td>mV, measurement range: -800...+800 mV</td>
<td>±800 mV, -0.1...+1.7 V</td>
<td>mA, signal range / min. span: 3.5...23 mA / 16 mA</td>
</tr>
<tr>
<td></td>
<td>mV, min. span: 2.5 mV</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RTD, measurement range / min. span: -200...+850°C / -</td>
<td>-200...+650°C / 10°C</td>
<td>mV, signal range / min. span: 3.5...23 mA / 16 mA</td>
</tr>
<tr>
<td></td>
<td>Lin. R, measurement range / min. span: 0...10 kΩ / -</td>
<td>0...100 kΩ / 250</td>
<td>mA, signal range / min. span: 3.5...23 mA / 16 mA</td>
</tr>
<tr>
<td></td>
<td>Potentiometer: 0...100 kΩ / 1 kΩ</td>
<td>0...100 kΩ / 10%</td>
<td>mA, signal range / min. span: 3.5...23 mA / 16 mA</td>
</tr>
<tr>
<td></td>
<td>Sensor connection, wires: 2 - 3 - 4</td>
<td>2 - 3 - 4</td>
<td>mA, signal range / min. span: 3.5...23 mA / 16 mA</td>
</tr>
<tr>
<td></td>
<td>TC types: BEJKLNRSTUW3W5</td>
<td>BEJKLNRSTUW3W5</td>
<td>mA, signal range / min. span: 3.5...23 mA / 16 mA</td>
</tr>
<tr>
<td></td>
<td>Max. offset: 50% of select. max. value</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cold junction compensation: internal / external</td>
<td>internal / external</td>
<td>internal / external</td>
</tr>
</tbody>
</table>

## Technical Specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>Ambient temperature: -40...+85°C</th>
<th>-40...+85°C</th>
<th>-50...+85°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Supply voltage, DC: 8...35 VDC</td>
<td>9...32 VDC</td>
<td>7.5...48 VDC</td>
</tr>
<tr>
<td></td>
<td>Max. required power: 0.8 W</td>
<td>&lt; 350 mW</td>
<td>&lt; 850 mW</td>
</tr>
<tr>
<td></td>
<td>Isolation voltage, test / operation: 1500 VAC / 55 VAC</td>
<td>2.5 kVAC / 55 VAC</td>
<td>2.5 kVAC / 55 VAC</td>
</tr>
<tr>
<td></td>
<td>Response time: 0.33...60 s / 1.50 s</td>
<td>70 ms</td>
<td>70 ms</td>
</tr>
<tr>
<td></td>
<td>Signal dynamics, input / output: 19 bit / 16 bit / 24 bit / 18 bit</td>
<td>24 bit / 18 bit</td>
<td>24 bit / 18 bit</td>
</tr>
<tr>
<td></td>
<td>Accuracy: ≤ ±0.1% of span</td>
<td>≤ ±0.05% of MV</td>
<td>≤ ±0.05% of span</td>
</tr>
<tr>
<td></td>
<td>Temperature coefficient: ≤ ±0.01% of span / °C</td>
<td>≤ ±0.002% of MV / °C</td>
<td>≤ ±0.005% of span / °C</td>
</tr>
<tr>
<td></td>
<td>Channels: 1</td>
<td>1</td>
<td>1 or 2*</td>
</tr>
<tr>
<td></td>
<td>Programming:</td>
<td></td>
<td>5909 / HART 7 / HART 5</td>
</tr>
</tbody>
</table>

## Approvals

- ATEX, Zone 2
- IECEx, Zone 2
- CSA, Zone 2 - DIV 2
- FM, Zone 2 - DIV 2
- INMETRO
- NEPSI
- DNV-GL / EU-RO marine
- EAC
- SIL 2, Hardware Assessment
- SIL 2/3 Full Assessment IEC 61508

## Application Guide

- RTD / TC / mV Input
- Lin. R / potentiometer input
- Dual input (4 terminals)
- True dual input (7 terminals)
- Custom sensor linearization
- mA output
- Loop-powered
- Galvanically isolated
- HART protocol
- Mounting in Zone 2 / DIV 2
- Process signal calibration

---

* = Full Assessment acc. to IEC 61508  
(✓) = Approval pending  
* = Single or true dual inputs  
Of span = Of the presently selected range  
Of MV = Of the present measurement value
## TEMPERATURE TRANSMITTERS

### INPUT:
- **Type**: 6331A, 6333A, 6334A, 6335A, 6337A, 6350A
- **Input**: 2-wire programmable transmitter
- **RTD, linear resistance, TC, mA, mA, HART communication, Profibus PA, Foundation Fieldbus**

### TECHNICAL SPECIFICATIONS:
- **Ambient temperature**: -40...+85°C
- **Supply voltage, DC**: 7.2...35 VDC
- **Max required power, 1/2 channels**: 0.8 W / 1.6 W
- **Isolation voltage, test / operation**: 1500 VAC / 50 V
- **Response time**: 1.60 s
- **Signal dynamics, input / output**: 3.5...23 mA / 16 mA
- **TC types**: BEJKLNRSTUW3W5
- **Max. offset**: 50% of selec. max. value
- **Cold junction compensation**: Internal / external
- **Accuracy**: ≤ ±0.05% of span, < ±0.005% of span / °C
- **Temperature coefficient**: ≤ ±0.01% of span / °C
- **NAMUR**: NE 21, NE 43
- **Channels**: 1 or 2
- **Programming**: 5909
- **Approvals**: ATEX, Zone 2, CSA, Zone 2, FM, Zone 2, DIV 2, UL 61010 / 508, DNV-GL, EAC, SIL 2, Hardware Assessment, SIL 2 Full Assessment IEC 61508

### APPLICATION GUIDE:
- **RTD / TC / mA input**: ✅ / ✅ / ✅ / ✅ / ✅ / ✅ / ✅ / ✅ / ✅ / ✅
- **Lin. R / potentiometer input**: ✅ / ✅ / ✅ / ✅
- **Dual input (4 terminals)**: ✅
- **Custom sensor linearity**: ✅
- **mA output**: ✅
- **Loop-powered**: ✅
- **Galvanically isolated**: ✅
- **HART protocol**: ✅
- **Mounting in Zone 2 / DIV 2**: ✅
- **Process signal calibration**: ✅
TEMPERATURE TRANSMITTERS

### TECHNICAL SPECIFICATIONS:

- **Ambient temperature:** -50...+85°C
- **Supply voltage, DC:** 7.5...48 VDC
- **Max. required power, 1 / 2 channels:** ≤ 0.8 W / ≤ 1.4 W
- **Isolation voltage, test / operation:** 2.5 kVAC / 250 VAC
- **Response time:** 2.5 ms / 24 bit / 18 bit
- **Signal dynamics, input / output:** ≤ 1.6 s / 24 bit
- **Accuracy:** ≤ ±0.05% of span / ≤ ±0.05% of span / ≤ ±0.1% of span
- **Temperature coefficient:** ≤ ±0.005% of span / °C / ≤ ±0.005% of span / °C / ≤ ±0.01% of span / °C
- **NAMUR:** NE 21 / NE 43 / NE 44 / NE 89 / NE 107
- **Channels:** 1 or 2
- **Programming:** 5909 / HART 7 / HART 5

### APPROVALS:

- ATEX, Zone 2
- IECEx, Zone 2
- CSA, Zone 2 - DIV 2
- FM, Zone 2 - DIV 2
- INMETRO / NEPSI
- UL 61010 / 508
- DNV-GL / EU-RO marine
- EAC
- SIL 2, Hardware Assessment
- SIL 2/3 Full Assessment IEC 61508

### APPLICATION GUIDE:

- **RTD / mV Input:** ✓ / ✓ / ✓
- **Lin. R / potentiometer input:** ✓ / ✓ / ✓
- ** mA output:** ✓
- **Loop-powered:** ✓
- **Galvanically isolated:** ✓
- **HART protocol:** ✓
- **Process signal calibration:** ✓

### INPUT:

- mA, measurement range / min. span
- mV measurement range
- mV, min. span
- RTD, measurement range / min. span
- Lin. R, measurement range / min. span
- Potentiometer

### OUTPUT:

- mA, signal range / min. span
- mV, signal range
- mA, measurement range / min. span

---

### TYPE 6437A

- **Input:**
  - RTD, linear resistance
  - TC, mA, mA, potentiometer
- **Output:**
  - mA, HART communication

### TYPE 7501

- **Input:**
  - RTD, linear resistance
  - TC, mA, mA, potentiometer
- **Output:**
  - mA, HART communication

### TYPE 9113A

- **Input:**
  - RTD, linear resistance
  - TC, mA, mA, potentiometer
- **Output:**
  - mA, HART communication
## I.S. TEMPERATURE TRANSMITTERS

### TYPE

<table>
<thead>
<tr>
<th>Type</th>
<th>5331D</th>
<th>5332D</th>
<th>5333D</th>
<th>5334B</th>
<th>5335D</th>
<th>5337D</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INPUT:</strong></td>
<td>2-wire programmable transmitter</td>
<td>2-wire programmable RTD transmitter</td>
<td>2-wire programmable transmitter</td>
<td>2-wire transmitter with HART 5 protocol</td>
<td>2-wire transmitter with HART 7 protocol</td>
<td></td>
</tr>
<tr>
<td><strong>INPUT:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mV, measurement range / min. span</td>
<td>-12...800 mV / 5 mV</td>
<td>-12...150 mV / 5 mV</td>
<td>-800...+800 mV / 2.5 mV</td>
<td>-800...+800 mV / 2.5 mV</td>
<td>-800...+800 mV / 2.5 mV</td>
<td>-800...+800 mV / 2.5 mV</td>
</tr>
<tr>
<td>RTD, measurement range / min. span</td>
<td>-200...+850°C / 25°C</td>
<td>-200...+850°C / 25°C</td>
<td>-200...+850°C / 25°C</td>
<td>-200...+850°C / 10°C</td>
<td>-200...+850°C / 10°C</td>
<td>-200...+850°C / 10°C</td>
</tr>
<tr>
<td>Lin. R, measurement range / min. span</td>
<td>0...5000 Ω / 30 Ω</td>
<td>0...5000 Ω / 30 Ω</td>
<td>0...10 kΩ / 30 Ω</td>
<td>0...7000 Ω / 25 Ω</td>
<td>0...7000 Ω / 25 Ω</td>
<td>0...7000 Ω / 25 Ω</td>
</tr>
<tr>
<td>Potentiometer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensor connection, wires</td>
<td>2 - 3 - 4</td>
<td>2 - 3 - 4</td>
<td>2 - 3 - 4</td>
<td>2 - 3 - 4</td>
<td>2 - 3 - 4</td>
<td>2 - 3 - 4</td>
</tr>
<tr>
<td>TC types</td>
<td>BEKLNRTUW3W5L</td>
<td>BEKLNRTUW3W5L</td>
<td>BEKLNRTUW3W5L</td>
<td>BEKLNRTUW3W5L</td>
<td>BEKLNRTUW3W5L</td>
<td>BEKLNRTUW3W5L</td>
</tr>
<tr>
<td>Max. offset</td>
<td>Internal / external</td>
<td>Internal / external</td>
<td>Internal / external</td>
<td>Internal / external</td>
<td>Internal / external</td>
<td>Internal / external</td>
</tr>
<tr>
<td><strong>OUTPUT:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mA, signal range / min. span</td>
<td>3.5...23 mA / 16 mA</td>
<td>3.5...23 mA / 16 mA</td>
<td>3.5...23 mA / 16 mA</td>
<td>3.5...23 mA / 16 mA</td>
<td>3.5...23 mA / 16 mA</td>
<td>3.5...23 mA / 16 mA</td>
</tr>
<tr>
<td><strong>TECHNICAL SPECIFICATIONS:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-40...+85°C</td>
<td>-40...+85°C</td>
<td>-40...+85°C</td>
<td>-40...+85°C</td>
<td>-40...+85°C</td>
<td>-40...+85°C</td>
</tr>
<tr>
<td>Supply voltage, DC</td>
<td>7.2...30 VDC</td>
<td>7.2...30 VDC</td>
<td>8.3...30 VDC</td>
<td>8.3...30 VDC</td>
<td>8.3...30 VDC</td>
<td>8.3...30 VDC</td>
</tr>
<tr>
<td>Max. required power</td>
<td>0.7 W</td>
<td>0.7 W</td>
<td>0.7 W</td>
<td>0.7 W</td>
<td>0.7 W</td>
<td>0.7 W</td>
</tr>
<tr>
<td>Isolation voltage, test / operation</td>
<td>1500 VAC / 50 V</td>
<td>1500 VAC / 50 V</td>
<td>1500 VAC / 50 V</td>
<td>1500 VAC / 50 V</td>
<td>1500 VAC / 50 V</td>
<td>1500 VAC / 50 V</td>
</tr>
<tr>
<td>Response time</td>
<td>1.50 s</td>
<td>1.50 s</td>
<td>1.50 s</td>
<td>1.50 s</td>
<td>1.50 s</td>
<td>1.50 s</td>
</tr>
<tr>
<td>Signal dynamics, input / output</td>
<td>20 bit / 16 bit</td>
<td>20 bit / 16 bit</td>
<td>19 bit / 16 bit</td>
<td>18 bit / 16 bit</td>
<td>22 bit / 16 bit</td>
<td>22 bit / 16 bit</td>
</tr>
<tr>
<td>Accuracy</td>
<td>≤ ±0.05% of span</td>
<td>≤ ±0.05% of span</td>
<td>≤ ±0.05% of span</td>
<td>≤ ±0.05% of span</td>
<td>≤ ±0.05% of span</td>
<td>≤ ±0.05% of span</td>
</tr>
<tr>
<td>Temperature coefficient</td>
<td>&lt; ±0.01% of span / °C</td>
<td>&lt; ±0.01% of span / °C</td>
<td>&lt; ±0.01% of span / °C</td>
<td>&lt; ±0.01% of span / °C</td>
<td>&lt; ±0.01% of span / °C</td>
<td>&lt; ±0.01% of span / °C</td>
</tr>
<tr>
<td>NAMUR</td>
<td>NE 21, NE 43</td>
<td>NE 21, NE 43</td>
<td>NE 43</td>
<td>NE 21, NE 43</td>
<td>NE 21, NE 43, NE89</td>
<td>NE 21, NE 43, NE89</td>
</tr>
<tr>
<td>Channels</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Programming</td>
<td>FMEDA report</td>
<td>FMEDA report</td>
<td>FMEDA report</td>
<td>FMEDA report</td>
<td>FMEDA report</td>
<td>FMEDA report</td>
</tr>
</tbody>
</table>

### APPLIICATIONS:

- **ATEX:**
- **IECEx:**
- **FM:**
- **CSA:**
- **INMETRO:**
- **DNV-GL:**
- **EAC Ex:**
- **NEPSI:**
- **SIL 2 Hardware Assessment:**

### APPROVALS:

- **ATEX**
- **IECEx**
- **FM**
- **CSA**
- **INMETRO**
- **DNV-GL**
- **EAC Ex**
- **NEPSI**
- **SIL 2 Hardware Assessment**

### APPLICATION GUIDE:

- **RTD / TC / mV input:**
- **Lin. R / potentiometer input:**
- **Dual input (4 terminals):**
- **Custom sensor linearization:**
- **mA output:**
- **Loop-powered:**
- **Galvanically isolated:**
- **HART protocol:**
- **Process signal calibration:**

---

* = FMEDA report

Of span = Of the presently selected range
## I.S. Temperature Transmitters

### TYPE

<table>
<thead>
<tr>
<th>TYPE</th>
<th>5343B</th>
<th>5350B</th>
<th>5437D</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INPUT:</strong></td>
<td>2-wire level transmitter</td>
<td>Profibus PA / Foundation Fieldbus transmitter</td>
<td>2-wire HART temperature transmitter</td>
</tr>
<tr>
<td><strong>OUTPUT:</strong></td>
<td>mA, HART communication, Profibus PA, Foundation Fieldbus</td>
<td>mA, signal range / min. span</td>
<td>mA, signal range / min. span</td>
</tr>
</tbody>
</table>

### INPUT:
- **RTD, linear resistance, TC, mV, potentiometer**
- **mA, HART communication, Profibus PA, Foundation Fieldbus**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>5343B</th>
<th>5350B</th>
<th>5437D</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>mA, measurement range</strong></td>
<td>-800...+800 mV</td>
<td>-800...+800 mV</td>
<td>-800...+800 mV</td>
</tr>
<tr>
<td><strong>mV, min. span</strong></td>
<td>0...100 mV</td>
<td>0...100 mV</td>
<td>0...100 mV</td>
</tr>
<tr>
<td><strong>RTD, measurement range / min. span</strong></td>
<td>0...100 kΩ / 1 kΩ</td>
<td>0...100 kΩ / 1 kΩ</td>
<td>0...100 kΩ / 1 kΩ</td>
</tr>
<tr>
<td><strong>Lin. R, measurement range / min. span</strong></td>
<td>0...100 kΩ / 1 kΩ</td>
<td>0...100 kΩ / 1 kΩ</td>
<td>0...100 kΩ / 1 kΩ</td>
</tr>
<tr>
<td><strong>Potentiometer</strong></td>
<td>2...3 - 4</td>
<td>2...3 - 4</td>
<td>2...3 - 4</td>
</tr>
<tr>
<td><strong>Sensor connection, wires</strong></td>
<td>BEJKLNSTUW3W5</td>
<td>BEJKLNSTUW3W5</td>
<td>BEJKLNSTUW3W5</td>
</tr>
<tr>
<td><strong>TC types</strong></td>
<td>0...100 kΩ / 1 kΩ</td>
<td>0...100 kΩ / 1 kΩ</td>
<td>0...100 kΩ / 1 kΩ</td>
</tr>
<tr>
<td><strong>Max. offset</strong></td>
<td>50% of sel. max. value</td>
<td>50% of sel. max. value</td>
<td>50% of sel. max. value</td>
</tr>
<tr>
<td><strong>Cold junction compensation</strong></td>
<td>Internal / external</td>
<td>Internal / external</td>
<td>Internal / external</td>
</tr>
</tbody>
</table>

### OUTPUT:
- **mA, signal range / min. span**
  - 3.5...23 mA / 16 mA
  - Profibus PA/Foundation F.
  - 3.5...23 mA / 16 mA

### TECHNICAL SPECIFICATIONS:
- **Ambient temperature**
  - -40...+85°C
- **Supply voltage, DC**
  - 8...30 VDC
  - 9...32 VDC
  - 7.5...30 VDC
- **Max. required power**
  - 0.7 W
  - < 350 mW
  - < 850 mW
- **Isolation voltage, test / operation**
  - 1500 VAC / 50 VAC
  - 2.5 kVAC / 42 VAC
- **Response time**
  - 0.33...60 s
  - 1.50 s
  - ≤ 70 ms
- **Signal dynamics, input / output**
  - 19 bit / 16 bit
  - 13 bit / 11 bit
  - 24 bit / 18 bit
- **Accuracy**
  - ≤ ±0.1% of span
  - ≤ ±0.05% of span
  - ≤ ±0.05% of span
- **Temperature coefficient**
  - ≤ ±0.05% of span / °C
  - ≤ ±0.005% of span / °C
  - ≤ ±0.005% of span / °C
- **NAMUR**
  - NE 43
  - NE 21, NE 43
  - NE 21 / 43 / 89 / 107
- **Channels**
  - 1
  - 1
  - 1 or 2*
- **Programming**
  - 5909
  - Profibus PA/Foundation F.
  - 5909 / HART 7 / HART 5

### APPROVALS:
- **ATEX**
  - ✓
  - ✓
  - ✓
- **IECEx**
  - ✓
  - ✓
  - ✓
- **FM**
  - ✓
  - ✓
  - ✓
- **CSA**
  - ✓
  - ✓
  - ✓
- **INMETRO**
  - ✓
  - ✓
  - ✓
- **DNV-GL / EU-RO marine**
  - ✓
  - ✓
  - ✓
- **EAC Ex**
  - ✓
  - ✓
  - ✓
- **NEPSI**
  - ✓
  - ✓
  - ✓
- **SIL 2, Hardware Assessment**
  - ✓
  - ✓
  - ✓
- **SIL 2/3 Full Assessment IEC 61508**
  - ✓
  - ✓
  - ✓

### APPLICATION GUIDE:
- **RTD / TC / mV Input**
  - ✓
  - ✓
  - ✓
- **Lin. R / potentiometer input**
  - ✓
  - ✓
  - ✓
- **Dual input (4 terminals)**
  - ✓
  - ✓
  - ✓
- **True dual input (7 terminals)**
  - ✓
  - ✓
  - ✓
- **Custom sensor linearization**
  - ✓
  - ✓
  - ✓
- **mA output**
  - ✓
  - ✓
  - ✓
- **Bus-powered PA/FF**
  - ✓
  - ✓
  - ✓
- **Loop-powered**
  - ✓
  - ✓
  - ✓
- **Galvanically isolated**
  - ✓
  - ✓
  - ✓
- **HART protocol**
  - ✓
  - ✓
  - ✓

---

* = Full Assessment acc. to IEC 61508
(✓) = Approval pending
* = Single or true dual inputs
- = Of span
- = Of the presently selected range
- = Of MV
- = Of the present measurement value
## I.S. Temperature Transmitters

### TYPE

#### INPUT:
- **6331B**: 2-wire programmable transmitter
- **6333B**: 2-wire programmable transmitter
- **6334B**: 2-wire transmitter
- **6335D**: 2-wire HART 5 transmitter
- **6337D**: 2-wire HART 7 transmitter
- **6350B**: Profibus PA / Foundation Fieldbus transmitter

#### OUTPUT:
- **6331B**: 2-wire Programmable Transmitter Input
- **6333B**: 2-wire Programmable Transmitter Input
- **6334B**: 2-wire Programmable Transmitter Input
- **6335D**: 2-wire Programmable Transmitter Input
- **6337D**: 2-wire Programmable Transmitter Input
- **6350B**: 2-wire Programmable Transmitter Input

### TECHNICAL SPECIFICATIONS:

<table>
<thead>
<tr>
<th>Specification</th>
<th>6331B</th>
<th>6333B</th>
<th>6334B</th>
<th>6335D</th>
<th>6337D</th>
<th>6350B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ambient temperature</strong></td>
<td>-45...+85°C</td>
<td>-40...+85°C</td>
<td>-40...+85°C</td>
<td>-40...+85°C</td>
<td>-40...+85°C</td>
<td>-40...+85°C</td>
</tr>
<tr>
<td><strong>Max. required power</strong></td>
<td>0.7 W / 1.4 W</td>
<td>0.7 W / 1.4 W</td>
<td>0.7 W / 1.4 W</td>
<td>0.7 W / 1.4 W</td>
<td>0.7 W / 1.4 W</td>
<td>0.7 W / 1.4 W</td>
</tr>
<tr>
<td><strong>Isolation voltage</strong></td>
<td>1500 VAC / 50 V</td>
<td>1500 VAC / 50 V</td>
<td>1500 VAC / 50 V</td>
<td>1500 VAC / 50 V</td>
<td>1500 VAC / 50 V</td>
<td>1500 VAC / 50 V</td>
</tr>
<tr>
<td><strong>Response time</strong></td>
<td>1.50 s</td>
<td>1.50 s</td>
<td>1.50 s</td>
<td>1.50 s</td>
<td>1.50 s</td>
<td>1.50 s</td>
</tr>
<tr>
<td><strong>Signal dynamics, input / output</strong></td>
<td>20 bit / 16 bit</td>
<td>19 bit / 16 bit</td>
<td>18 bit / 16 bit</td>
<td>22 bit / 16 bit</td>
<td>22 bit / 16 bit</td>
<td>24 bit / 16 bit</td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td>±0.05% of span</td>
<td>±0.05% of span</td>
<td>±0.05% of span</td>
<td>±0.05% of span</td>
<td>±0.05% of span</td>
<td>±0.05% of span</td>
</tr>
<tr>
<td><strong>Temperature coefficient</strong></td>
<td>&lt; ±0.1% of span / °C</td>
<td>&lt; ±0.1% of span / °C</td>
<td>&lt; ±0.1% of span / °C</td>
<td>&lt; ±0.05% of span / °C</td>
<td>&lt; ±0.05% of span / °C</td>
<td>&lt; ±0.05% of span / °C</td>
</tr>
<tr>
<td><strong>NAMUR</strong></td>
<td>NE 21, NE 43</td>
<td>NE 43</td>
<td>NE 21, NE 43</td>
<td>NE 21, NE 43</td>
<td>NE 21, NE 43</td>
<td>NE 21, NE 43</td>
</tr>
<tr>
<td><strong>Channels</strong></td>
<td>1 or 2</td>
<td>1 or 2</td>
<td>1 or 2</td>
<td>1 or 2</td>
<td>1 or 2</td>
<td>1 or 2</td>
</tr>
<tr>
<td><strong>Programming</strong></td>
<td>5909</td>
<td>5909</td>
<td>5909</td>
<td>5909</td>
<td>5909</td>
<td>5909</td>
</tr>
</tbody>
</table>

### APPROVALS:
- **ATEX**
- **IECEx**
- **FM**
- **CSA**
- **UL**
- **DNV-GL**
- **EAC Ex**
- **SIL 2, Hardware Assessment**

### APPLICATION GUIDE:
- **RTD / TC / mV input**
- **Lin. R / potentiometer input**
- **Dual input (4 terminals)**
- **Custom sensor linearization**
- **mA output**
- **Bus-powered PA/FF**
- **Loop-powered**
- **Galvanically isolated**
- **HART protocol**
- **Process signal calibration**

---

*Of span = Of the presently selected range
*Of MV = Of the present measurement value

---

* = FMEDA report
## I.S. Temperature Transmitters

### TYPE
- **6437D**
- **7501**

### INPUT:
- RTD, linear resistance, TC, mV, potentiometer

### OUTPUT:
- mA, HART communication

### TECHNICAL SPECIFICATIONS:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature</td>
<td>-50...+85°C</td>
</tr>
<tr>
<td>Supply voltage, DC</td>
<td>7.5...30 VDC</td>
</tr>
<tr>
<td>Max. required power, 1 / 2 channels</td>
<td>&lt; 850 mW</td>
</tr>
<tr>
<td>Isolation voltage, test / operation</td>
<td>2.5 kVAC / 42 VAC</td>
</tr>
<tr>
<td>Signal dynamics, input / output</td>
<td>20 ms / 21 bit / 16 bit</td>
</tr>
<tr>
<td>Response time</td>
<td>2.6 bit / 18 bit / 1.60 s</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±0.05% of span / ±0.005% of span</td>
</tr>
<tr>
<td>Temperature coefficient</td>
<td>±0.005% of span / °C</td>
</tr>
<tr>
<td>NAMUR</td>
<td>NE 21 / 43 / 44 / 89 / 107</td>
</tr>
<tr>
<td>Channels</td>
<td>1 or 2*</td>
</tr>
<tr>
<td>Programming</td>
<td>3909 / HART 7 / HART 5 / LOI / HART</td>
</tr>
</tbody>
</table>

### APPROVALS:
- ATEX
- IECEx
- FM
- CSA
- INMETRO
- EU-RO marine
- EAC Ex
- NEPSI
- SIL 2 Hardware Assessment
- SIL 2/3 Full Assessment IEC 61508

### APPLICATION GUIDE:
- RTD / TC / mV Input
- Lin. R / potentiometer input
- Dual input (4 terminals)
- True dual input (8 terminals)
- Custom sensor linearization
- mA output
- Bus-powered PA/FF
- Loop-powered
- Galvanically isolated
- HART protocol
- Process signal calibration

### Notes:
- = Full assessment acc. to IEC 61508
- (√) = Approval pending
- = Single or true dual inputs
- LOI = Local operator interface
- Of span = Of the presently selected range
I.S. INTERFACES

**TYPE**

<table>
<thead>
<tr>
<th>9106B</th>
<th>9107B</th>
<th>9113B</th>
<th>9116B</th>
<th>9202B</th>
<th>9203B</th>
</tr>
</thead>
<tbody>
<tr>
<td>INPUT: mA, mV, V, potentiometer, RTD, Lin, R, TC, Hz, HART communication</td>
<td>mA, mV, V, potentiometer, RTD, Lin, R, TC, Hz, HART communication</td>
<td>Temperature / mA converter</td>
<td>Universal converter</td>
<td>Pulse isolator</td>
<td>Solenoid / alarm driver</td>
</tr>
</tbody>
</table>

**INPUT:**
- mA, measurement range / min. span: 3.5...23 mA / 16 mA
- V, measurement range / min. span: 0...23 mA / 16 mA
- RTD, measurement range / min. span: -200...+650°C / 25°C
- Lin, R, measurement range / min. span: 0...10000 Ω
- Potentiometer: 10...10000 Ω
- Sensor connection, wires: 2...3...4
- TC types: BEJKLNRTUW3W5Lr
- Hz, measurement range / min. span: 0.5 kHz
- Min. pulse width: 100 µs

**OUTPUT:**
- mA, signal range / min. span: 3.5...23 mA / 16 mA
- Pulse output: NPN / relay
- Hz, signal range: Valves etc.
- Relay: 1 x SPST, AC: 500 VA

**TECHNICAL SPECIFICATIONS:**
- Ambient temperature: -20...+60°C
- Supply voltage, DC: 19.2...31.2 VDC
- Max. required power, 1 / 2 channels: ≤ 1.9 W / ≤ 1.8 W
- Isolation voltage, test / operation: 2.6 kVAC / 250 VAC
- Response time: ≤ 5 ms / 5 ms
- Signal dynamics, input / output: Analog signal chain
- Accuracy: ≤ ±16 µA / ≤ ±0.01% of span
- Temperature coefficient: ≤ ±0.01% of span / °C
- NAMUR: NE 21, NE 43
- Channels: 1 or 2
- Programming: 4500 series devices

**APPLICATION GUIDE:**
- AI barrier
- AO barrier
- DI barrier
- DO barrier
- mA / V / temperature input: NPN / PNP / switch
- mA / V Tx input: ±0.1% of span
- Active / passive mA output: ±0.01% of span / °C
- HART signal transparent
- Process signal calibration
- Power rail option: ±0.01% of span / °C

**APPROVALS:**
- ATEX
- IECEx
- FM
- INMETRO
- UL 61010
- DNV-GL
- EAC Ex
- SIL 2/3 Full Assessment IEC 61508

Of span = Of the presently selected range
- Full assessment acc. to IEC 61508
## Technical Specifications:

<table>
<thead>
<tr>
<th>Type</th>
<th>Ex repeater / power supply</th>
<th>Ex-isolated driver</th>
<th>HART transparent repeater</th>
<th>HART transparent driver</th>
<th>Programmable transmitter</th>
<th>Signal calculator</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input:</strong></td>
<td>mA, mV, V, potentiometer, RTD, linear resistance, TC, HART communication</td>
<td>mA, V, relays, HART communication</td>
<td>mA, V, relays, HART communication</td>
<td>mA, V, relays, HART communication</td>
<td>mA, V, relays, HART communication</td>
<td>mA, V, relays, HART communication</td>
</tr>
<tr>
<td><strong>Output:</strong></td>
<td>mA, V, relays, HART communication</td>
<td>mA, V, relays, HART communication</td>
<td>mA, V, relays, HART communication</td>
<td>mA, V, relays, HART communication</td>
<td>mA, V, relays, HART communication</td>
<td>mA, V, relays, HART communication</td>
</tr>
</tbody>
</table>

### Technical Details:

**Input:**
- mA, measurement range / min. span: 0.23 mA / 16 mA
- V, measurement range / min. span: 0.10 VDC / 0 VDC
- mV, measurement range / min. span: ≤ 600 mV
- RTD, measurement range / min. span: ≤ ±0.05% of span
- Lin. R, measurement range / min. span: ≤ ±0.05% of span
- Potentiometer: ≤ ±0.01% of span / °C
- Sensor connection, wires: 20% of selec. max. value

**Output:**
- mA, signal range / min. span: 0.23 mA / 16 mA
- V, signal range / min. span: ≤ 10 mA
- Load (@ current output): 600 Ω
- Max. offset: 20% of selec. max. value

**Technical Specifications:**
- Ambient temperature: 20...-60°C
- Supply voltage, AC / DC: 21.6...253 V / 19.2...300 V
- Max. required power, 1 / 2 channels: 2.1 W / 2.8 W
- Isolation voltage, test / operation: 3.75 kVAC / 250 VAC
- Response time: ≤ 25 ms
- Signal dynamics, input / output: Analog signal chain
- Accuracy: ≤ ±0.1% of span
- Temperature coefficient: < ±0.01% of span / °C
- NAMUR: NE 21
- Channels: 1 or 2
- Programming: DIP Switch

### Approvals:
- ATEX
- FM
- CSA
- UL
- DNV-GL
- EAC Ex

### Application Guide:
- AI barrier
- AO barrier
- DI barrier
- DO barrier
- RTD / TC input
  - mA / V input: ✓
  - 4...20 mA Tx input: ✓
- Lin. R / potentiometer input
  - mA / V input: ✓
- Active / passive mA output: ✓
- Process signal calibration: ✓

### I.S. Interfaces:
- Type 5104B
  - DIP Switch: 1 or 2
  - NE 21
  - < ±0.01% of span / °C
  - ≤ ±0.1% of span
  - Analog signal chain
  - ≤ 25 ms
  - 3.75 kVAC / 250 VAC
  - 2.1 W / 2.8 W
  - 20% of selec. max. value
  - 0...10 VDC / 0.5 VDC
  - ≤ 300 Ω
  - 3.5...23 mA / 16 mA
  - 20% of selec. max. value
  - 0...250 VDC / 5 mV
  - 0...250 VDC / 5 mV
  - 20% of selec. max. value
  - 0...25 VDC / 5 mV

- Type 5105B
  - DIP Switch: 1 or 2
  - NE 21
  - < ±0.01% of span / °C
  - ≤ ±0.1% of span
  - Analog signal chain
  - < 25 ms
  - 3.75 kVAC / 250 VAC
  - 1.4 W / 2.1 W
  - 20% of selec. max. value
  - 0...10 VDC / 0.8 VDC
  - ≤ 600 Ω
  - 0...23 mA / 16 mA
  - 20% of selec. max. value
  - 0...25 VDC / 5 mV
  - 0...25 VDC / 5 mV
  - 20% of selec. max. value
  - 0...25 VDC / 5 mV

- Type 5106B
  - DIP Switch: 1 or 2
  - NE 21
  - < ±0.01% of span / °C
  - ≤ ±0.1% of span
  - Analog signal chain
  - < 25 ms
  - 3.75 kVAC / 250 VAC
  - 2.0 W / 2.8 W
  - 20% of selec. max. value
  - 0...10 VDC / 0.5 VDC
  - ≤ 600 Ω
  - 0...23 mA / 16 mA
  - 20% of selec. max. value
  - 0...25 VDC / 5 mV
  - 0...25 VDC / 5 mV
  - 20% of selec. max. value
  - 0...25 VDC / 5 mV

- Type 5107B
  - DIP Switch: 1 or 2
  - NE 21
  - < ±0.01% of span / °C
  - ≤ ±0.1% of span
  - Analog signal chain
  - < 25 ms
  - 3.75 kVAC / 250 VAC
  - 1.3 W / 2.0 W
  - 20% of selec. max. value
  - 0...10 VDC / 0.5 VDC
  - ≤ 600 Ω
  - 0...23 mA / 16 mA
  - 20% of selec. max. value
  - 0...25 VDC / 5 mV
  - 0...25 VDC / 5 mV
  - 20% of selec. max. value
  - 0...25 VDC / 5 mV

- Type 5114B
  - DIP Switch: 1 or 2
  - NE 21
  - < ±0.01% of span / °C
  - ≤ ±0.1% of span
  - Analog signal chain
  - < 25 ms
  - 3.75 kVAC / 250 VAC
  - 1.4 W / 2.1 W
  - 20% of selec. max. value
  - 0...10 VDC / 0.5 VDC
  - ≤ 600 Ω
  - 0...23 mA / 16 mA
  - 20% of selec. max. value
  - 0...25 VDC / 5 mV
  - 0...25 VDC / 5 mV
  - 20% of selec. max. value
  - 0...25 VDC / 5 mV

- Type 5115B
  - DIP Switch: 1 or 2
  - NE 21
  - < ±0.01% of span / °C
  - ≤ ±0.05% of span
  - Analog signal chain
  - < 25 ms
  - 3.75 kVAC / 250 VAC
  - 5109 B
  - 20% of selec. max. value
  - 0...10 VDC / 0.5 VDC
  - ≤ 770 Ω
  - 0...23 mA / 16 mA
  - 20% of selec. max. value
  - 0...25 VDC / 5 mV
  - 0...25 VDC / 5 mV
  - 20% of selec. max. value
  - 0...25 VDC / 5 mV
## I.S. INTERFACES

<table>
<thead>
<tr>
<th>TYPE</th>
<th>5116B</th>
<th>5131B</th>
<th>5202B</th>
<th>5203B</th>
<th>5223B</th>
<th>5420B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INPUT:</strong></td>
<td>mA, mV, V, potentiometer, RTD, linear resistance, TC, Hz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>OUTPUT:</strong></td>
<td>mA, V, relays</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### TECHNICAL SPECIFICATIONS:

<table>
<thead>
<tr>
<th>Feature</th>
<th>5116B</th>
<th>5131B</th>
<th>5202B</th>
<th>5203B</th>
<th>5223B</th>
<th>5420B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature</td>
<td>-25...+60°C</td>
<td>-20...+60°C</td>
<td>-20...+60°C</td>
<td>-20...+60°C</td>
<td>-20...+60°C</td>
<td>-20...+60°C</td>
</tr>
<tr>
<td>Max. required power, 1 / 2 channels</td>
<td>2.4 W / 1.6 W</td>
<td>0.8 W / 1.6 W</td>
<td>1.8 W / 2.5 W</td>
<td>2.0 W / 2.5 W</td>
<td>3 W / 2.5 W</td>
<td>2.5 W / 2.5 W</td>
</tr>
<tr>
<td>Isolation voltage, test / operation</td>
<td>3.75 kV / 250 VAC</td>
<td>3.75 kV / 250 VAC</td>
<td>3.75 kV / 250 VAC</td>
<td>3.75 kV / 250 VAC</td>
<td>3.75 kV / 250 VAC</td>
<td>3.75 kV / 250 VAC</td>
</tr>
<tr>
<td>Response time</td>
<td>250 ms...60 s</td>
<td>250 ms...60 s</td>
<td>60 ms...1000 s</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Signal dynamics, input / output</td>
<td>22 bit / 16 bit</td>
<td>22 bit / 16 bit</td>
<td>- / 16 bit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td>± 0.05% of span</td>
<td>± 0.05% of span</td>
<td>± 0.01% of span</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature coefficient</td>
<td>&lt; ±0.01% of span / °C</td>
<td>&lt; ±0.001% of span / °C</td>
<td>&lt; ±0.01% of span / °C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NAMUR</td>
<td>NE 21, NE 43</td>
<td>NE 21, NE 43</td>
<td>NE 21</td>
<td>NE 21</td>
<td>NE 21</td>
<td></td>
</tr>
<tr>
<td>Channels</td>
<td>1 or 2</td>
<td>1 or 2</td>
<td>1 or 2</td>
<td>1 or 2</td>
<td>1 or 2</td>
<td></td>
</tr>
<tr>
<td>Programming</td>
<td>5909 + DIP switch</td>
<td>DIP switch</td>
<td>DIP switch</td>
<td>DIP switch</td>
<td>5909 + DIP switch</td>
<td>No</td>
</tr>
</tbody>
</table>

### APPROVALS:

- **ATEX**
- **IECEx**
- **FM**
- **CSA**
- **UL**
- **DNV-GL**
- **EAC Ex**
- **SIL 2, Hardware Assessment**

### APPLICATION GUIDE:

- **AI barrier**
- **AO barrier**
- **DI barrier**
- **DO barrier**
- **mA / V / temperature input**
- **4...20 mA / V input**
- **mA / V / relay output**
- **Active / passive mA output**
- **Process signal calibration**

**Note:** = FMEDA report

Of span = Of the presently selected range
## INPUT:
- **RTD, TC, mV, mA, V, potentiometer, frequency, pulse**

## OUTPUT:
- Display, mA, relays

### TECHNICAL SPECIFICATIONS:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>5531A</th>
<th>5531B1</th>
<th>5714</th>
<th>5715</th>
<th>5725</th>
</tr>
</thead>
<tbody>
<tr>
<td>mA, measurement range / min. span</td>
<td>3.6...23 mA / 16 mA</td>
<td>3.6...23 mA / 16 mA</td>
<td>0.23 mA / 16 mA</td>
<td>0.23 mA / 16 mA</td>
<td>0.23 mA / 16 mA</td>
</tr>
<tr>
<td>mA, measurement range / min. span</td>
<td>0.12 VDC / 0.8 V</td>
<td>0.12 VDC / 0.8 V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensor type</td>
<td>All standard sensors</td>
<td>All standard sensors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. measurement range / min. span</td>
<td>-200...+850°C</td>
<td>-200...+850°C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lin. R, measurement range / min. span</td>
<td>0.10000 (Ω / -)</td>
<td>0.10000 (Ω / -)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potentiometer</td>
<td>10 (Ω...100 kΩ)</td>
<td>10 (Ω...100 kΩ)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensor connection, wires</td>
<td>2 - 3 - 4</td>
<td>2 - 3 - 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TC types</td>
<td>BEKLMNSTUW3W5Lr</td>
<td>BEKLMNSTUW3W5Lr</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cold junction compensation</td>
<td>Internal</td>
<td>Internal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reference voltage / 2-wire supply</td>
<td>- / +15 VDC</td>
<td>- / +15 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensor supply</td>
<td>5.17 VDC</td>
<td>5.17 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display, digit / type</td>
<td>4-digit / LCD</td>
<td>4-digit / LCD</td>
<td>4-digit / LED</td>
<td>4-digit / LED</td>
<td>4-digit / LED</td>
</tr>
<tr>
<td>Display, digit height</td>
<td>16 mm</td>
<td>16 mm</td>
<td>16 mm</td>
<td>16 mm</td>
<td>16 mm</td>
</tr>
<tr>
<td>mA, signal range / min. span</td>
<td>0.23 mA / 16 mA</td>
<td>0.23 mA / 16 mA</td>
<td>0.23 mA / 16 mA</td>
<td>0.23 mA / 16 mA</td>
<td>0.23 mA / 16 mA</td>
</tr>
<tr>
<td>Relay</td>
<td>2 x SPDT, AC: 500 VA</td>
<td>4 x SPDT, AC: 500 VA</td>
<td>2 x SPDT, AC: 500 VA</td>
<td>2 x SPDT, AC: 500 VA</td>
<td>2 x SPDT, AC: 500 VA</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-20...+60°C</td>
<td>-20...+60°C</td>
<td>-20...+60°C</td>
<td>-20...+60°C</td>
<td>-20...+60°C</td>
</tr>
<tr>
<td>Supply voltage, universal AC / DC</td>
<td>- / +1.5 VDC</td>
<td>- / +1.5 VDC</td>
<td>21.6...253 V / 19.2...300 V</td>
<td>21.6...253 V / 19.2...300 V</td>
<td>21.6...253 V / 19.2...300 V</td>
</tr>
<tr>
<td>Max. required power</td>
<td>&lt; 35 mW</td>
<td>&lt; 35 mW</td>
<td>3.5 W</td>
<td>3.5 W</td>
<td>3.5 W</td>
</tr>
<tr>
<td>Isolation voltage, test / operation</td>
<td>&lt; 230 VAC / 250 VAC</td>
<td>&lt; 230 VAC / 250 VAC</td>
<td>2.3 VAC / 250 VAC</td>
<td>2.3 VAC / 250 VAC</td>
<td>2.3 VAC / 250 VAC</td>
</tr>
<tr>
<td>Response time</td>
<td>&lt; 1 s</td>
<td>&lt; 1 s</td>
<td>&lt; 400 ms / &lt; 1 s</td>
<td>&lt; 400 ms / &lt; 1 s</td>
<td>&lt; 400 ms / &lt; 1 s</td>
</tr>
<tr>
<td>Accuracy</td>
<td>≤ ±0.1% of span</td>
<td>≤ ±0.1% of span</td>
<td>≤ ±0.1% of reading</td>
<td>≤ ±0.1% of reading</td>
<td>≤ ±0.1% of reading</td>
</tr>
<tr>
<td>Temperature coefficient</td>
<td>≤ ±0.01% of span / °C</td>
<td>≤ ±0.01% of span / °C</td>
<td>≤ ±0.01% of reading / °C</td>
<td>≤ ±0.01% of reading / °C</td>
<td>≤ ±0.01% of reading / °C</td>
</tr>
<tr>
<td>NAMUR</td>
<td>NE 43</td>
<td>NE 43</td>
<td>NE 43</td>
<td>NE 43</td>
<td>NE 43</td>
</tr>
<tr>
<td>Programming</td>
<td>Switch / front keys</td>
<td>Switch / front keys</td>
<td>Front keys</td>
<td>Front keys</td>
<td>Front keys</td>
</tr>
</tbody>
</table>

### APPROVALS:

- ATEX, Zone 2
- UL 508
- DNV-GL / EU-RO marine
- EAC

### APPLICATION GUIDE:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>5531A</th>
<th>5531B1</th>
<th>5714</th>
<th>5715</th>
<th>5725</th>
</tr>
</thead>
<tbody>
<tr>
<td>mA / V / mV input</td>
<td>✓ / -</td>
<td>✓ / -</td>
<td>✓ / ✓</td>
<td>✓ / ✓</td>
<td>✓ / ✓</td>
</tr>
<tr>
<td>Temperature input</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Lin. R / potentiometer input</td>
<td>✓ / ✓</td>
<td>✓ / ✓</td>
<td>✓ / ✓</td>
<td>✓ / ✓</td>
<td>✓ / ✓</td>
</tr>
<tr>
<td>Frequency input</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Custom sensor linearization</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>4...20 mA Tx input</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Loop-powered</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>mA output</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>2 / 4 relay outputs</td>
<td>✓ / -</td>
<td>✓ / -</td>
<td>✓ / -</td>
<td>✓ / -</td>
<td>✓ / -</td>
</tr>
<tr>
<td>Process signal calibration</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Mounting in Zone 2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
## I.S. DISPLAYS

### TYPE

<table>
<thead>
<tr>
<th>TYPE</th>
<th>5531B</th>
<th>5531B2</th>
</tr>
</thead>
<tbody>
<tr>
<td>INPUT:</td>
<td>Loop-powered LCD indicator</td>
<td>Loop-powered LCD indicator in I.S. enclosure</td>
</tr>
<tr>
<td>OUTPUT:</td>
<td>Display</td>
<td>Display</td>
</tr>
</tbody>
</table>

### INPUT:

| mA, measurement range / min. span | 3.6...23 mA / 16 mA |

### OUTPUT:

| Display, digit / type | 4-digit / LCD |
| Display, digit height | 16 mm |

### TECHNICAL SPECIFICATIONS:

| Ambient temperature | -20...+60°C |
| Supply voltage, universal AC / DC | -15 VDC / -15 VDC |
| Max. required power | < 35 mW |
| Isolation voltage, test / operation | < 1 s |
| Response time | < 1 s |
| Temperature coefficient | ≤ ±0.1% of span / °C |
| NAMUR | |
| Programming | Switch / front keys |

### APPROVALS:

| ATEX | ✔ | ✔ |
| DNV-GL | ✔ | ✔ |
| EAC Ex | ✔ | ✔ |

### APPLICATION GUIDE:

| Loop-powered | ✔ | ✔ |
| Mounting in Zone 1 / 21 | ✔ | ✔ |
| Field enclosure | ✔ | ✔ |

Of span = Of the presently selected range
### TECHNICAL SPECIFICATIONS:

<table>
<thead>
<tr>
<th>TYPE</th>
<th>3405</th>
<th>9410</th>
<th>9421</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INPUT:</strong></td>
<td>Power connector unit</td>
<td>Power control unit</td>
<td>Power supply</td>
</tr>
<tr>
<td>AC, DC voltage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stabilized VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **INPUT:** | | |
| Supply voltage, AC | 85.132 VAC or 187.264 VAC |
| Supply voltage, DC | 16.8...31.2 VDC, 21.6...26.4 VDC |
| Supply voltage, back-up | 21.6...26.4 VDC |

| **OUTPUT:** | | |
| Voltage | 16.8...31.2 VDC, 21.6...26.4 VDC, 24 VDC |
| Current | 4 ADC, 4.8 ADC |
| Power, max. | 96 W, 115 W |
| Status relay | 1 x SPDT, AC: 500 VA |

| **TECHNICAL SPECIFICATIONS:** |
| Ambient temperature | -25...+70°C, -20...+60°C, -20...+60°C |
| Max. required power | 96 W, ≤ 135 W |
| Isolation, test | 2.6 kVAC, 4.3 kVAC |
| Short circuit protection | No, Yes, Yes |
| Output ripple | Same as input, Same as input, 200 mV peak / peak |
| Channels | 1, 1, 1 |
| Programming | No, No, No |

| **APPROVALS:** |
| ATEX, Zone 2 | ✓, ✓, ✓ |
| IECEx, Zone 2 | ✓, ✓ |
| CSA, Zone 2 - DIV 2 | ✓, ✓ |
| FM, Zone 2 - DIV 2 | ✓, ✓ |
| UL 61010 / 508 | ✓, ✓, ✓, ✓, ✓ |
| DNV-GL | ✓, ✓ |
| EAC | ✓ |
| INMETRO, Zone 2 | ✓ |
| SIL 2 Full Assessment IEC 61508 | ✓ |

| **APPLICATION GUIDE:** |
| 115 / 230 VAC mains supply | ✓ |
| 24 VDC output | ✓ |
| 60 W power rail connector unit | ✓ |
| 96 W power rail connector unit | ✓ |
| Redundancy power rail function | ✓ |
| Collective status signal monitor | ✓ |
| Internal fuse | ✓ |
| Mounting in Zone 2 / Div 2 | ✓, ✓, ✓ |
### Technical Specifications:

<table>
<thead>
<tr>
<th>Type</th>
<th>Valve Controller</th>
<th>Trip Amplifier</th>
<th>mV Transmitter</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input, DC:</strong></td>
<td>mA, V, potentiometer, frequency, pulse, joystick, load cell, mV</td>
<td>mA, V, potentiometer, frequency, pulse, joystick, load cell, mV</td>
<td>mA, V, potentiometer, frequency, pulse, joystick, load cell, mV</td>
</tr>
<tr>
<td><strong>Input, AC:</strong></td>
<td>A, V</td>
<td>mA, V</td>
<td>mA, V, relays</td>
</tr>
<tr>
<td>mA, DC measurement range / min. span</td>
<td>0.20 mA / 16 mA</td>
<td>0.20 mA / 10 mA</td>
<td>0.20 mA / 10 mA</td>
</tr>
<tr>
<td>V, DC measurement range / min. span</td>
<td>-10...+10 VDC / 0.8 VDC</td>
<td>0.250 VDC / 0.5 VDC</td>
<td>-40...+100 mV / 10 mV</td>
</tr>
<tr>
<td>A, AC measurement range / min. span</td>
<td>0.1 ARMS / 0.5 ARMS</td>
<td>0.1 ARMS / 0.5 ARMS</td>
<td>0.1 ARMS / 0.5 ARMS</td>
</tr>
<tr>
<td>V, AC measurement range / min. span</td>
<td>0.250 VRMS / 0.5 VRMS</td>
<td>0.250 VRMS / 0.5 VRMS</td>
<td>0.250 VRMS / 0.5 VRMS</td>
</tr>
<tr>
<td>Potentiometer</td>
<td>&gt; 1 kΩ</td>
<td>&gt; 1 kΩ</td>
<td>&gt; 1 kΩ</td>
</tr>
<tr>
<td>Digital input</td>
<td>3 x PNP</td>
<td>1 x NPN / 1 x PNP</td>
<td>1 x NPN / 1 x PNP</td>
</tr>
<tr>
<td>Max. offset</td>
<td>70% of selec. max. value</td>
<td>70% of selec. max. value</td>
<td>70% of selec. max. value</td>
</tr>
<tr>
<td>Excitation / reference voltage</td>
<td>-10...-10 VDC</td>
<td>5...13 VDC</td>
<td>-10...-10 VDC</td>
</tr>
</tbody>
</table>

### Output:

<table>
<thead>
<tr>
<th>Type</th>
<th>Valve Controller</th>
<th>Trip Amplifier</th>
<th>mV Transmitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>mA, signal range / min. span</td>
<td>3000 mA</td>
<td>0.20 mA / 5 mA</td>
<td>0.20 mA / 5 mA</td>
</tr>
<tr>
<td>V, signal range / min. span</td>
<td>Supply-0.5 VDC</td>
<td>0.10 VDC / 0.25 VDC</td>
<td>Supply-0.5 VDC / 0.25 VDC</td>
</tr>
<tr>
<td>Max. offset</td>
<td>50% of selec. max. value</td>
<td>50% of selec. max. value</td>
<td>50% of selec. max. value</td>
</tr>
<tr>
<td>Relays</td>
<td>2 x SPST, AC 500 VA</td>
<td>2 x SPST, AC 500 VA</td>
<td>1 or 2 relays</td>
</tr>
<tr>
<td>Display, digit / type</td>
<td>3-digit / LED</td>
<td>3-digit / LED</td>
<td>3-digit / LED</td>
</tr>
</tbody>
</table>

### Technical Specifications:

- **Ambient temperature**: -20...+60°C
- **Supply voltage, universal AC / DC**: 216.253V / 192...300V
- **Supply voltage, DC**: 12 or 24 VDC / 192.288 VDC
- **Max. required power**: 2.2 W / 1.5 W DC / 2 W, UNI / 2.2 W / max. 7.2 W
- **Isolation voltage, test / operation**: 375 kVAC / 250 VAC
- **Response time**: < 75 ms / 250 ms, 60 s / 60 ms, 999 s
- **Signal dynamics, input / output**: 12 bit / - / 16 bit / - / 17 bit / 16 bit
- **Setpoint adjustment / repetition**: 0.1% / 0.1%
- **Delay / hysteresis**: 0.989 s / 0.999 s
- **Temperature coefficient**: < ±0.01% of span / °C / < ±0.01% of span / °C
- **Channels**: 1 or 2 outputs / 1 input, 2 relays / 1
- **Programming**: Switch / front keys / Switch / front keys / Switch / front keys

### Approvals:

- DNV-GL
- EAC
- ...
# SPECIAL PRODUCTS

## TYPE 2255

<table>
<thead>
<tr>
<th>INPUT, DC:</th>
<th>1/1 - 1/1 converter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency, pulse</td>
<td></td>
</tr>
</tbody>
</table>

### INPUT, AC:
- **A, V**

### OUTPUT:
- mA, V, relays, pulse

### INPUT: PV / SP
- A, AC measurement range / min. span
- V, AC measurement range / min. span
- Max. offset
- Sensor type: All standard sensors / I
- Hz, measurement range / min. span: 0...20 kHz / 0.001 Hz
- Min. pulse width: 25 µs
- Sensor supply: 5...15 VDC

### OUTPUT:
- mA, signal range / min. span: 0...20 mA / 5 mA
- V, signal range / min. span: 0...10 VDC / 0.25 VDC
- Max. offset: 50% of selec. max. value
- Load (@ current output): ≤ 600 Ω
- Pulse output: NPN
- Max. output frequency: 1000 Hz
- Relays: 1 x SPDT, AC: 300 VA
- Display, digit / type: 3-digit / LED

### TECHNICAL SPECIFICATIONS:
- Ambient temperature: -20...+60°C
- Supply voltage, universal AC / DC: 19.2...28.8 VDC
- Max. required power: 2.4 W
- Isolation voltage, test / operation: 1.4 kVAC / 150 VAC
- Response time: 50 ms / 999 s
- Signal dynamics, input / output: - / 16 bit
- Accuracy: < ±0.01% of span / °C
- Channels: 1
- Programming: Switch / front keys

### APPROVALS:
- EAC

### APPLICATION GUIDE:
- Frequency / pulse applications:
- mA / V output:
- Relay output:
A user-friendly and reliable mounting solution between the DCS/PLC/SIS system and isolators/I.S. interfaces

SIGNAL TYPES

**INPUT**
- Active signal
- Passive input
- Passive device
- Active input

**OUTPUT**
- Active output
- Passive PLC
- Passive output
- Active PLC
**PReset**
PReset is an easy-to-use menu-driven software program for set-up of PR products via a standard PC and a programming interface. PReset gives a high degree of flexibility for each product and when the menus are completed, the data is transmitted to the unit which is then ready for operation.

**Loop Link 5909**
Loop Link 5909 is a USB communications interface for configuration and monitoring of PR electronics’ PC-programmable devices. PR devices available in the configuration program PReset ver. 5.0 or higher, can be programmed by way of Loop Link 5909.
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>276USB</td>
<td>Viator USB HART modem</td>
</tr>
<tr>
<td>3400T</td>
<td>Electromechanical counter</td>
</tr>
<tr>
<td>4801</td>
<td>Modbus gateway</td>
</tr>
<tr>
<td>4802</td>
<td>Modbus RTU/Profinet Gateway</td>
</tr>
<tr>
<td>5909</td>
<td>Loop Link communications interface</td>
</tr>
<tr>
<td>5910</td>
<td>CJC connector, channel 1</td>
</tr>
<tr>
<td>5910Ex</td>
<td>CJC connector for I.S. / Ex devices, channel 1</td>
</tr>
<tr>
<td>5913</td>
<td>CJC connector, channel 2</td>
</tr>
<tr>
<td>5913Ex</td>
<td>CJC connector for I.S. / Ex devices, channel 2</td>
</tr>
<tr>
<td>7002</td>
<td>Spring clip</td>
</tr>
<tr>
<td>7005</td>
<td>Shunt resistor 0.1 Ω</td>
</tr>
<tr>
<td>7006</td>
<td>Shunt resistor 1 Ω</td>
</tr>
<tr>
<td>7007</td>
<td>2-digit digital potentiometer</td>
</tr>
<tr>
<td>7008</td>
<td>3-digit digital potentiometer</td>
</tr>
<tr>
<td>7009</td>
<td>10-turn potentiometer, 200 Ω</td>
</tr>
<tr>
<td>7010</td>
<td>10-turn potentiometer, 20 kΩ</td>
</tr>
<tr>
<td>7011</td>
<td>Dial for 10-turn potentiometer</td>
</tr>
<tr>
<td>7012</td>
<td>1-turn potentiometer, 1 kΩ</td>
</tr>
<tr>
<td>7014</td>
<td>Shunt resistor 0.5 Ω</td>
</tr>
<tr>
<td>7015</td>
<td>1-turn potentiometer, 10 kΩ</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td>8341</td>
<td>Inductive proximity sensor, NAMUR</td>
</tr>
<tr>
<td>8342</td>
<td>Inductive proximity sensor, NAMUR</td>
</tr>
<tr>
<td>8343</td>
<td>Inductive proximity sensor, NPN</td>
</tr>
<tr>
<td>8344</td>
<td>Inductive proximity sensor, NPN</td>
</tr>
<tr>
<td>8421</td>
<td>DIN rail fitting</td>
</tr>
<tr>
<td>8501</td>
<td>Field enclosure</td>
</tr>
<tr>
<td>8509</td>
<td>M12 interface cable for 5909 Loop Link</td>
</tr>
<tr>
<td>8510</td>
<td>8 unit 4511 Modbus cable</td>
</tr>
<tr>
<td>8511</td>
<td>4511 Y-splitter Modbus cable</td>
</tr>
<tr>
<td>8513</td>
<td>RJ45 Modbus termination</td>
</tr>
<tr>
<td>8514</td>
<td>3 x RJ45 female Y-splitter</td>
</tr>
<tr>
<td>8515</td>
<td>RJ45 female to female cable adapter</td>
</tr>
<tr>
<td>8516</td>
<td>RJ45 female to female shielded cable adapter</td>
</tr>
<tr>
<td>8517</td>
<td>3 x RJ45 female shielded Y-splitter</td>
</tr>
<tr>
<td>8550</td>
<td>7501 M20 plug with silicone O-ring for alu enclosure</td>
</tr>
<tr>
<td>8550-F</td>
<td>7501 M20 plug with FKM O-ring for alu enclosure</td>
</tr>
<tr>
<td>8550-S</td>
<td>7501 M20 plug with silicone O-ring for stainless steel enclosure</td>
</tr>
<tr>
<td>8550-SF</td>
<td>7501 M20 plug with FKM O-ring for stainless steel enclosure</td>
</tr>
<tr>
<td>8551</td>
<td>7501 ½NPT plug for alu enclosure</td>
</tr>
<tr>
<td>8551-S</td>
<td>7501 ½NPT plug for stainless steel enclosure</td>
</tr>
<tr>
<td>Code</td>
<td>Item Description</td>
</tr>
<tr>
<td>------</td>
<td>-------------------------------------------------------</td>
</tr>
<tr>
<td>8552</td>
<td>Pipe-mounting bracket for 7501</td>
</tr>
<tr>
<td>8555</td>
<td>Display with LOI for 7501</td>
</tr>
<tr>
<td>8556</td>
<td>Display without LOI for 7501</td>
</tr>
<tr>
<td>8557</td>
<td>Bracket spare part for display and transmitter (for 7501)</td>
</tr>
<tr>
<td>8558</td>
<td>Bracket spare part for transmitter only (for 7501)</td>
</tr>
<tr>
<td>9400_1</td>
<td>Power rail 15 mm profile</td>
</tr>
<tr>
<td>9400_2</td>
<td>Power rail 7.5 mm profile</td>
</tr>
<tr>
<td>9402</td>
<td>Extra end covers for power rail</td>
</tr>
<tr>
<td>9404</td>
<td>Module stop for rail</td>
</tr>
</tbody>
</table>
POWER RAIL

The data sheet specifies the maximum required power at nominal operating values, e.g. 24 V supply voltage, 60°C ambient temperature, 600 Ω load, and 20 mA output current.

In typical applications, the devices are not running at worst-case conditions, specifically when many devices are located together. For engineering purposes, 70% (P70%) of maximum required power is often used.

3000 power rail
The number of 3000 devices that can be powered from different power sources is listed in the table below:

<table>
<thead>
<tr>
<th></th>
<th>Using a PR converter device as power feed-in</th>
<th>3405 power feed-in</th>
<th>9410 power feed-in</th>
</tr>
</thead>
<tbody>
<tr>
<td>P70%</td>
<td>Up to 25 devices</td>
<td>Up to 160 devices</td>
<td>Up to 250 devices</td>
</tr>
<tr>
<td>P100%</td>
<td>Up to 18 devices</td>
<td>Up to 115 devices</td>
<td>Up to 184 devices</td>
</tr>
</tbody>
</table>

The devices can be stacked vertically or horizontally.

9000 power rail
The number of 9000 devices that can be powered from the 9400 power sources is listed in the table below:

<table>
<thead>
<tr>
<th></th>
<th>9410 power feed-in</th>
</tr>
</thead>
<tbody>
<tr>
<td>P70%</td>
<td>Up to 150 devices</td>
</tr>
<tr>
<td>P100%</td>
<td>Up to 120 devices</td>
</tr>
</tbody>
</table>

ENVIRONMENTAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specifications</th>
<th>PR 2200 series</th>
<th>PR 3000 series</th>
<th>PR 4000 series</th>
<th>PR 5000 series</th>
<th>PR 5300 series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specifications range</td>
<td>-20°C to +60°C</td>
<td>-25°C to +70°C (3105: 0°C to +70°C)</td>
<td>-20°C to +60°C</td>
<td>-20°C to +60°C</td>
<td>-40°C to +85°C</td>
</tr>
<tr>
<td>Relative humidity</td>
<td>&lt; 95% RH (non-cond.)</td>
<td>&lt; 95% RH (non-cond.)</td>
<td>&lt; 95% RH (non-cond.)</td>
<td>&lt; 95% RH (non-cond.)</td>
<td>&lt; 95% RH (non-cond.)</td>
</tr>
<tr>
<td>Protection degree</td>
<td>IP50</td>
<td>IP20</td>
<td>IP20</td>
<td>IP20</td>
<td>IP68 / IP00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specifications</th>
<th>PR 5400 series</th>
<th>PR 5500 / 5700 series</th>
<th>PR 6300 series</th>
<th>PR 7500 series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specifications range</td>
<td>-50°C to +85°C</td>
<td>-20°C to +60°C</td>
<td>-40°C to +85°C</td>
<td>-20°C to +60°C</td>
</tr>
<tr>
<td>Relative humidity</td>
<td>&lt; 99% RH (non-cond.)</td>
<td>&lt; 95% RH (non-cond.)</td>
<td>&lt; 95% RH (non-cond.)</td>
<td>0...100% RH (cond.)</td>
</tr>
<tr>
<td>Protection degree</td>
<td>IP68 / IP00</td>
<td>IP65 from front (5500) / IP65 / Type 4X, UL50E</td>
<td>IP20</td>
<td>IP54 / IP66 / IP68 / type 4X</td>
</tr>
</tbody>
</table>

ENCLOSURE SPECIFICATIONS

<table>
<thead>
<tr>
<th>Dimensions (mm)</th>
<th>Height</th>
<th>Width</th>
<th>Depth</th>
<th>Panel cut-out</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>PR 2200 series</td>
<td>80.5</td>
<td>35.5</td>
<td>84.5+socket</td>
<td>Cycoloy/Noryl</td>
<td></td>
</tr>
<tr>
<td>PR 3000 series</td>
<td>113</td>
<td>6.1</td>
<td>115</td>
<td>Cycoloy</td>
<td></td>
</tr>
<tr>
<td>PR 4000 / 6000 / 9000 series</td>
<td>109</td>
<td>23.5</td>
<td>104</td>
<td>Cycoloy</td>
<td></td>
</tr>
<tr>
<td>PR 5000 series</td>
<td>109</td>
<td>23.5</td>
<td>130</td>
<td>Cycoloy</td>
<td></td>
</tr>
<tr>
<td>PR 5300 series</td>
<td>20.2</td>
<td>Ø44</td>
<td>130</td>
<td>Cycoloy</td>
<td></td>
</tr>
<tr>
<td>PR 5400 series</td>
<td>20.2</td>
<td>Ø44</td>
<td>130</td>
<td>Cycoloy</td>
<td></td>
</tr>
<tr>
<td>PR 5500 / 5700 series</td>
<td>48</td>
<td>96</td>
<td>120</td>
<td>44.5 x 91.5</td>
<td>Noryl</td>
</tr>
<tr>
<td>PR 7500 series</td>
<td>109</td>
<td>145</td>
<td>125.5</td>
<td>Aluminum</td>
<td></td>
</tr>
</tbody>
</table>
Benefit today from

PERFORMANCE MADE SMARTER

PR electronics is the leading technology company specialized in making industrial process control safer, more reliable and more efficient. Since 1974, we have been dedicated toperfecting our core competence of innovating high precision technology with low power consumption. This dedication continues to set new standards for products communicating, monitoring and connecting our customers’ process measurement points to their process control systems.

Our innovative, patented technologies are derived from our expansive R&D facilities and from having a great understanding of our customers’ needs and processes. We are guided by principles of simplicity, focus, courage and excellence, enabling some of the world’s greatest companies to achieve PERFORMANCE MADE SMARTER.