JUMPFLEX® – 857 Series

Transducers / Relay and Optocoupler Modules
**JUMPFLEX® – 857 Series**

A Complete Product Line is Available, Bringing Each Signal into Shape.

The perfect match of housing and electronics is the key factor for a highly successful device. This is exactly what WAGO has achieved with the new 857 Series Transducers and Relay Modules.

- Isolation amplifier
- Passive isolator
- Repeater power supply
- Signal splitter
- DC relay modules
- DC relay modules with gold contacts

**Relay and Optocoupler Modules**
JUMPFLEX® - The Intelligent Solution!

- Temperature transducers for RTD
- Millivolt transducer
- Threshold value switch
- Temperature transducers for thermocouples
- Optocouplers
- AC/DC relay modules
- AC/DC relay modules with gold contacts
Multi-Talented with High Profile

For extreme applications
Extended range of temperatures from -25°C to +70°C allows for wide application areas.

Highest safety
All devices provide „safe isolation“ with 2.5kV test voltage to EN 61140.

Commoning, not discrete wiring
Same outline allows the use of a single in-line jumper.
Industry’s most compact
“True” 6.0mm (0.23 inch) width maximizes panel space.

Flexibility at its finest
Configuration via DIP switch. Many of the transducers can also be configured via software.

Clear identification
Clear marking via WMB Multi markers.

Vibration-proof, fast and maintenance-free
CAGE CLAMP®S termination for all conductor types.

- **solid**
  - 0.08mm² - 2.5mm²
  - (AWG 28 - 12)

- **fine-stranded**
  - 0.34mm² - 2.5mm²
  - (AWG 22 - 12)

- **ferruled**
  - 0.25mm² - 1.5mm²
  - (AWG 22 - 14)
Temperature Transducer
for RTDs

Temperature Transducer
for Thermocouples

Module width: 6.0mm/0.236in
Test voltage: AC 2.5kV, 50Hz, 1 min.
Transmission error: < 0.1 % of upper
Supply voltage: 16.8V … 31.2V
Temperature range: -25°C … +70°C
Approvals: CE, RoHS, Ω*

Technical Data: Transducers

Technical Data: Transducers

Item no. 857-400 857-401
Configuration DIP switch DIP switch or configuration software
Input signal 0 (1) … 5V, 0 (2) … 10V, -10 … +10V, -20 … +20mA
Output signal 0 (1) … 5V, 0 (2) … 10V, 0 (1) … 3V, 0 (2) … 10V
Load impedance ≤ 600 Ω (I-output) ≤ 600 Ω (I-output)
Max. operating frequency 100Hz / > 5kHz
Supply voltage U_{in} 24VDC 24VDC

Isolation Amplifier, Configurable with Zero/Span Adjustment

Isolation Amplifier, Configurable with Digital Output

Item no. 857-800 857-801 857-810 857-811
Configuration DIP switch DIP switch or configuration software
Input signal Pt 100, Pt 200, Pt 500, Pt 1000
Sensor connection 2-wire, 3-wire, 4-wire
Measuring range -200°C … +850°C
Cold junction compensation -
Output signal 0 (1) … 5V, 0 (2) … 10V,
0 (2) … 10mA, 0 (4) … 20mA
Output signal (can be inverted) - via configuration software - via configuration software
Load impedance ≤ 600 Ω (I-output) ≥ 600 Ω (I-output)
Max. operating frequency 100Hz / > 5kHz
Supply voltage U_{in} 24VDC 24VDC

Additional configuration options for 857-801/857-811 Series via configuration software
- Selection of additional sensor types
- Inversion of output signal
- Adjustable step response

Configuration software
- FDT frame application 759-370
- DTM (Device Tool Manager) 759-370
- WAGO USB service cable 750-923
<table>
<thead>
<tr>
<th>Item no.</th>
<th>857-421</th>
<th>857-423</th>
<th>857-819</th>
<th>857-531</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuration</td>
<td>-</td>
<td>DIP switch</td>
<td>DIP switch or configuration software</td>
<td>DIP switch, teach-in, configuration software</td>
</tr>
<tr>
<td>Input signal</td>
<td>4 … 20mA</td>
<td>0 (1) … 5V, 0 (2) … 10V, 0 (4) … 20mA</td>
<td>0 (1) … 5V, 0 (2) … 10V, 0 (4) … 20mA</td>
<td>-10 … +10V, 0 (2) … 20mA (in steps of 100)</td>
</tr>
<tr>
<td>Output signal</td>
<td>4 … 20mA</td>
<td>2 x 0 (4) … 20mA</td>
<td>0 (1) … 5V, 0 (2) … 10V, 0 (4) … 20mA</td>
<td>1 changeover contact (relay max. 6A)</td>
</tr>
<tr>
<td>Load impedance</td>
<td>600 Ω</td>
<td>2 x 300 Ω</td>
<td>≤ 600 Ω (I-output)</td>
<td>≥ 2 kΩ (U-output)</td>
</tr>
<tr>
<td>Max. operating frequency</td>
<td>100Hz Signal / &gt; 2.5kHz HART</td>
<td>100Hz / &gt; 1kHz (switchable via DIP switch)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Supply voltage $U_{IN}$</td>
<td>24VDC</td>
<td>24VDC</td>
<td>24VDC</td>
<td>24VDC</td>
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**Repeater Power Supply**

<table>
<thead>
<tr>
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<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Load impedance</td>
<td>≤ 600 Ω</td>
<td>≥ 2 kΩ</td>
<td>600 Ω</td>
<td>600 Ω</td>
<td>≤ 600 Ω (I-output)</td>
<td>600 Ω</td>
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</table>

**Signal Splitter with 2 Configurable Current Outputs**

<table>
<thead>
<tr>
<th>Item no.</th>
<th>857-421</th>
<th>857-423</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuration</td>
<td>-</td>
<td>DIP switch</td>
</tr>
<tr>
<td>Input signal</td>
<td>4 … 20mA</td>
<td>0 (1) … 5V, 0 (2) … 10V, 0 (4) … 20mA</td>
</tr>
<tr>
<td>Output signal</td>
<td>4 … 20mA</td>
<td>2 x 0 (4) … 20mA</td>
</tr>
<tr>
<td>Load impedance</td>
<td>600 Ω</td>
<td>2 x 300 Ω</td>
</tr>
<tr>
<td>Max. operating frequency</td>
<td>100Hz Signal / &gt; 2.5kHz HART</td>
<td>100Hz / &gt; 1kHz (switchable via DIP switch)</td>
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<tr>
<td>Supply voltage $U_{IN}$</td>
<td>24VDC</td>
<td>24VDC</td>
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</table>

**Millivolt Transducer**

<table>
<thead>
<tr>
<th>Item no.</th>
<th>857-421</th>
<th>857-423</th>
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</thead>
<tbody>
<tr>
<td>Configuration</td>
<td>-</td>
<td>DIP switch</td>
</tr>
<tr>
<td>Input signal</td>
<td>-100mV ... +100mV, 0mV ... 200mV to 0mV ... 1000mV (in steps of 100)</td>
<td></td>
</tr>
<tr>
<td>Output signal</td>
<td>-100mV ... +100mV, 0mV ... 200mV to 0mV ... 1000mV (in steps of 100)</td>
<td></td>
</tr>
<tr>
<td>Load impedance</td>
<td>-100mV ... +100mV, 0mV ... 200mV to 0mV ... 1000mV (in steps of 100)</td>
<td></td>
</tr>
<tr>
<td>Max. operating frequency</td>
<td>-100mV ... +100mV, 0mV ... 200mV to 0mV ... 1000mV (in steps of 100)</td>
<td></td>
</tr>
<tr>
<td>Supply voltage $U_{IN}$</td>
<td>-100mV ... +100mV, 0mV ... 200mV to 0mV ... 1000mV (in steps of 100)</td>
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</table>

For additional technical data, visit www.wago.com

8-Channel Adapter for System Wiring

<table>
<thead>
<tr>
<th>Item no.</th>
<th>857-980 (analog output)</th>
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<tbody>
<tr>
<td>Connection type, signal level</td>
<td>16-pin ribbon cable</td>
</tr>
<tr>
<td>Accessories</td>
<td>WAGO ribbon cable on request</td>
</tr>
</tbody>
</table>
Pluggable Relay and Optocoupler Modules

### Technical Data: Relay Modules

- **Module width:** 6.0mm/0.236in
- **Input voltage range:** U\textsubscript{N} -15% … +20%
- **Max. switching voltage:** 250VAC
- **Max. continuous current:** 6 A
- **Ambient operating temperature:** -25°C … +60°C
- **Approvals:** CE, r

### Technical Data: Optocoupler Modules

- **Module width:** 6.0mm/0.236in
- **Ambient operating temperature:** -20°C … +60°C
- **Approvals:** CE, r*

* pending

### Sockets with Miniature Switching Relay

<table>
<thead>
<tr>
<th>U\textsubscript{N}</th>
<th>I\textsubscript{N}</th>
<th>Item no.</th>
<th>U\textsubscript{N}</th>
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</thead>
<tbody>
<tr>
<td>12VDC</td>
<td>1.7mA</td>
<td>857-303</td>
<td>24VDC/DC</td>
</tr>
<tr>
<td>24VDC</td>
<td>10mA</td>
<td>857-304</td>
<td>115VAC/DC</td>
</tr>
<tr>
<td>48VDC</td>
<td>6.5mA</td>
<td>857-305</td>
<td>230VAC/DC</td>
</tr>
<tr>
<td>60VDC</td>
<td>5.2mA</td>
<td>857-306</td>
<td></td>
</tr>
<tr>
<td>110VDC</td>
<td>3.5mA</td>
<td>857-307</td>
<td></td>
</tr>
<tr>
<td>220VDC</td>
<td>3.2mA</td>
<td>857-308</td>
<td></td>
</tr>
</tbody>
</table>

- **Max. continuous current:** 6 A
- **Max. switching voltage:** 250VAC
- **Nominal operating mode:** 100% continuous duty
- **Mechanical life:** 5 x 10\textsuperscript{6} switching operations

### Sockets with Solid State Relay

- **Max. switching voltage:** 48VDC
- **Max. continuous current:** 0.1A

### JUMPFLEX® - 8-channel adapter for relay and optocoupler modules
Sockets with Miniature Switching Relay

**Switching Power**

<table>
<thead>
<tr>
<th>DC</th>
<th>8.5mA</th>
<th>857-354</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC</td>
<td>4mA</td>
<td>857-357</td>
</tr>
<tr>
<td>DC</td>
<td>3.5mA</td>
<td>857-358</td>
</tr>
</tbody>
</table>

**Nominal Operating Mode**

- 100% continuous duty
- 5 x 10⁶ switching operations

**Max. Continuous Current**

- 6 A
- 250V AC
- 100% continuous duty
- 5 x 10⁶ switching operations

**Max. Switching Voltage**

- 36V DC
- (250V AC/DC)

**Mechanical Life**

- 5 x 10⁶ switching operations

*In order to prevent the gold layer from being damaged, these values shall not be exceeded. Higher switching power leads to evaporation of the gold layer. The resulting deposits in the housing may cause sparkovers between the coil and the contact. In case of damaged gold layer, the values in parentheses apply.*

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**Solid State Relay**

**Max. Switching Voltage**

- 230V AC

**Max. Continuous Current**

- 1A

**Nominal Input Voltage**

<table>
<thead>
<tr>
<th>Item no.</th>
<th>24VDC</th>
<th>115V AC/DC</th>
<th>230V AC/DC</th>
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<tr>
<td>857-714</td>
<td></td>
<td>857-717</td>
<td>857-718</td>
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</tbody>
</table>

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**Miniature Switching Relay and Optocoupler**

**Pluggable Connection**

<table>
<thead>
<tr>
<th>Item no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>857-104 (24VAC/DC)</td>
</tr>
<tr>
<td>857-107 (110VAC/DC)</td>
</tr>
<tr>
<td>857-108 (230VAC/DC)</td>
</tr>
</tbody>
</table>

**Accessories**

- 14-pin ribbon cable
- 15-pin D-sub connector
- WAGO ribbon cable on request
- WAGO ribbon cable on request
Select JUMPFLEX® Transducers can also be parameterized via software (WAGOframe). WAGOframe is FDT/DTM-based software used for parameterization, start-up and diagnostics of field devices. DTM device drivers for the devices employed are required to use the WAGOframe FDT frame application. The WAGOframe FDT frame application provides a wizard, which simplifies the operation of components, such as WAGO JUMPFLEX® DTMs. This wizard guides the user through the different operating modes of DTM device drivers. Depending on the PC communication interface used, an appropriate communication cable including DTM is required.
Application Examples for Avoiding Corruption of Analog Signals

In industrial applications, there are several requirements for safe and economical signal matching that demand appropriate solutions. This is precisely where the strengths of analog technology lie. For years it has been used successfully in all branches of industry, including factory automation and process technology.

Potential Difference

The main cause of analog signal corruptions are potential differences that arise. With increasing length of the transmission, the ground resistance increases. Thus, differences of up to 200V can arise. With signals having ground reference, these ground loops can cause corruptions since particular parts of the signal are not transmitted via analog line, but via ground. Thus, there is a faulty signal assessment.

Signal Filtering

In this instance, an isolation amplifier helps since it prevents the arising of a ground current loop. The galvanic isolation of the input circuit from the output circuit breaks up this ground loop and enables perfect signal transmission. Smaller overvoltages with a lower energy level that can arise due to switching operations are dissipated safely. In addition, the output side downstream controller is protected by the galvanic isolation.

Linked Measurement Circuits

A frequent cause of potential differences is linked measurement circuits for which the reference voltage is raised by combining several signal circuits. Thanks to the use of isolation amplifiers, this problem is eliminated since galvanic isolation of the isolation amplifier eliminates the influence of various reference voltages.

The 857 Series JUMPFLEX® Transducers make a solid contribution to system safety for many problems that occur by realizing a continuous galvanic 3-way isolation with test voltages of 2.5kV between all channels (input/output/supply).