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<td>Mar 2003</td>
<td>All</td>
<td>First edition</td>
<td>AA</td>
</tr>
<tr>
<td>May 2010</td>
<td>16</td>
<td>Japan location</td>
<td>AB</td>
</tr>
<tr>
<td>Sep 2010</td>
<td>16</td>
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<td>Dec 2010</td>
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PVRES can be used individually or with PVRES accessories built together to form a complete operating panel. PVRES is particularly suited to panel mounting and characterised by:

- finger-tip control
- small dimensions
- low weight
- built-in flow regulation
- accessories such as emergency stop and lamps (see page 8)

**PVRES General**

**Two Proportional Functions**

PVRES is supplied with one or two potentiometers. It is thus possible to regulate one function, or two functions at the same time.

**Flowadjustment**

Two further adjustments per function are built into PVRES. Independently of each other, these limit the signal voltage ($U_s$) and thereby the flow from proportional valve ports A and B without the movement of the remote control lever being limited.

The oil flow can be infinitely reduced down to 25% of maximum flow.

**On-off Function**

Instead of the proportional functions, PVRES can be supplied with built-in switches.

The contact functions can be either normally "ON" or normally "OFF" in neutral position.
**Electrical Remote Control Levers**

**Technical Information**

**Characteristics and Electrical System PVRES**

**Characteristic**

**Electrical System**

**2 proportional functions without using neutral position switch**

**2 proportional functions with the use of neutral position switch**

--- Signal leads
--- Supply leads
E: Emergency stop
   An emergency stop should be built into all electrical systems
F: Lead from fault monitoring
### Electrical System and Technical Data PVRES

**On-off-on function**

---

**Signal leads**
- Supply leads
- Emergency stop

An emergency stop should be built into all electrical systems.

---

### Technical Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply voltage $U_{dc}$</td>
<td>11-30 $U_{dc}$</td>
</tr>
<tr>
<td>Max. ripple</td>
<td>5%</td>
</tr>
<tr>
<td>Current consumption</td>
<td>&lt; 80 mA</td>
</tr>
<tr>
<td>Max. force</td>
<td>50 N [11.24 lbf]</td>
</tr>
<tr>
<td>Output voltage $(U_i)$</td>
<td>$U_i = 0.25 \rightarrow 0.75$</td>
</tr>
<tr>
<td>Neutral voltage $(U_i)$</td>
<td>$U_i = 0.5$</td>
</tr>
<tr>
<td>Max. load</td>
<td>Two parallel connected PVEs</td>
</tr>
<tr>
<td>Min. load impedance to 0.5 • $U_{dc}$</td>
<td>6 kΩ</td>
</tr>
<tr>
<td>Signal current max.</td>
<td>$U_{dc} = 12$ V, ±0.6 mA (resistive)</td>
</tr>
<tr>
<td>$U_{dc} = 24$ V, ±1.2 mA</td>
<td></td>
</tr>
<tr>
<td>Neutral position switch max. current</td>
<td>$U_{dc} = 12$ V, 2 A</td>
</tr>
<tr>
<td>$U_{dc} = 24$ V, 1 A</td>
<td></td>
</tr>
<tr>
<td>On-off-on switch max. current</td>
<td>$U_{dc} = 12$ V, 0.7 A</td>
</tr>
<tr>
<td>$U_{dc} = 24$ V, 0.35 A</td>
<td></td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-30 to +60°C [-22 to 140°F]</td>
</tr>
<tr>
<td>Enclosure to IEC 529</td>
<td>Over mounting flange IP 44</td>
</tr>
<tr>
<td></td>
<td>Under mounting flange IP 23</td>
</tr>
</tbody>
</table>

PVRE and PVRET must be connected to supply voltage at the same point as PVE.
## Electrical Remote Control Levers
### Technical Information
#### Code Numbers, Weights and Dimensions PVRES

### Code Numbers and Weight

<table>
<thead>
<tr>
<th>Function</th>
<th>Symbol</th>
<th>Version</th>
<th>Code no</th>
<th>Dimension mm [in]</th>
<th>Weight kg [lb]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Proportional</td>
<td><img src="image1" alt="Symbol" /></td>
<td>Standard 155B4210</td>
<td>40 x 80 x 192 [1.57 x 3.15 x 7.56]</td>
<td>0.27 [0.60]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Short</td>
<td>155B4218</td>
<td>40 x 80 x 135 [1.57 x 3.15 x 5.31]</td>
<td>0.24 [0.53]</td>
</tr>
<tr>
<td>1 Proportional</td>
<td><img src="image2" alt="Symbol" /></td>
<td>Standard 155B4211</td>
<td>40 x 80 x 235 [1.57 x 3.15 x 9.25]</td>
<td>0.40 [0.88]</td>
<td></td>
</tr>
<tr>
<td>2 Proportional</td>
<td><img src="image3" alt="Symbol" /></td>
<td>Standard 155B4212</td>
<td>80 x 80 x 192 [3.15 x 3.15 x 7.56]</td>
<td>0.38 [0.84]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Short</td>
<td>155B4219</td>
<td>80 x 80 x 135 [3.15 x 3.15 x 5.31]</td>
<td>0.32 [0.70]</td>
</tr>
<tr>
<td>1 On - off - on</td>
<td><img src="image4" alt="Symbol" /></td>
<td>Standard 155B4206</td>
<td>40 x 80 x 192 [1.57 x 3.15 x 7.56]</td>
<td>0.25 [0.55]</td>
<td></td>
</tr>
</tbody>
</table>

### Dimensions

**A, B**: Oil flow adjustment  
**C**: Deflection block  
**D**: Flat pin A 6.3 - 0.8  
**E**: Max. travel for on-off-on version  
**F**: ∅17 hole for PG 11 screwed cable entry
Electrical Remote Control Levers
Technical Information

Dimensions

A, B : Oil flow adjustment
C : Deflection block
D : Flat pin A 6.3 - 0.8
E : Max. travel for on-off-on version
F : Ø17 hole for PG 11 screwed cable entry
PVRES accessories meet the demand for simple installation, monitoring and safety. They also offer the possibility of mounting other components in connection with PVRES where uniform design is desirable.

**Emergency Stop Module**  
The module contains an emergency stop switch of the impact key type $I_{\text{nom}} = 10$ A.

**Lamp Module**  
The module contains a green lamp. 12 V and 24 V bulbs are included.

**Spacing and Mounting Modules**  
The modules are used between PVRES remote control units either as empty spacer modules or as mounting modules for switches, lamp indicators, starting keys, etc. The modules are available in widths 40 mm and 80 mm.

**Panel Mounting Rings**  
Panel mounting rings 40 mm and 80 mm are available for PVRES modules.

**PG 11 Screwed Cable Entry**  
PG screwed cable entry and locknut, suitable for all PVRES modules.
### Code Numbers and Weight

<table>
<thead>
<tr>
<th>Type</th>
<th>Symbol</th>
<th>Code number</th>
<th>Dimension</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lamp module</td>
<td><img src="image1" alt="Lamp module symbol" /></td>
<td>155B4213</td>
<td>40 x 80 [1.57 x 3.15]</td>
<td>0.22 [0.48]</td>
</tr>
<tr>
<td>Emergency stop</td>
<td><img src="image2" alt="Emergency stop symbol" /></td>
<td>155B4216</td>
<td>80 x 80 [3.15 x 3.15]</td>
<td>0.33 [0.73]</td>
</tr>
<tr>
<td>Spacer and mounting module</td>
<td><img src="image3" alt="Spacer and mounting module symbol" /></td>
<td>155B4214</td>
<td>40 x 80 [1.57 x 3.15]</td>
<td>0.15 [0.33]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>155B4215</td>
<td>80 x 80 [3.15 x 3.15]</td>
<td>0.18 [0.40]</td>
</tr>
<tr>
<td>Panel mounting plate</td>
<td><img src="image4" alt="Panel mounting plate symbol" /></td>
<td>155B4876</td>
<td>60 x 100 [2.36 x 3.94]</td>
<td>0.04 [0.09]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>155B4877</td>
<td>100 x 100 [3.94 x 3.94]</td>
<td>0.05 [0.11]</td>
</tr>
<tr>
<td>PG 11 screwed cable entry</td>
<td><img src="image5" alt="PG 11 screwed cable entry symbol" /></td>
<td>155B4875</td>
<td></td>
<td>0.01 [0.02]</td>
</tr>
</tbody>
</table>

### Dimensions

![Diagram of Lamp module](image6)

![Diagram of Emergency stop](image7)

![Diagram of Spacer and mounting module](image8)

![Diagram of Panel mounting plate](image9)

![Diagram of PG 11 screwed cable entry](image10)
PVREL is an electric remote control lever made in weather-resistant plastic. PVREL is for easy mounting in operating panels. PVREL is characterised by:

- IP 67 enclosure
- low operating forces
- robust construction
- small dimensions

The PVREL remote control lever contains a potentiometer for the control of one proportional function.

The PVREL series contains four variants. These can be ordered with or without neutral position switch.

**Standard**

Spring-centred remote control lever. PVREL series basic model.

**Hold Function**

Spring-centred with hold function. The remote control lever functions as the basic model, but by rotating the top of the handle the centre position can be displaced and a constant control signal is given. The remote control lever can still be activated from its set centre position as normal, but when released will return to its set centre point.

**Neutral Lock**

Spring-centred with neutral position lock. The neutral position lock can be released by lifting the release ring under the handle. When the lever is returned to neutral position after manoeuvring, the neutral position lock will again engage.

**Float Position**

Spring-centred with float position control. The remote control lever normally has proportional regulation in both directions, but with mechanical limitation in one direction to 3/4 of the normal activation range. The final 1/4 is used for float position control. Access to the float position control is gained by lifting the release ring under the handle and moving the lever out to its float position. Here, on releasing the ring, the remote control lever becomes locked in float position. Return from float position is gained by again lifting the release ring and bringing the lever back to the proportional range.

Correctly placed, the PVREL can comply with the grade of enclosure IP 67 above the mounting flange.
**Electrical Remote Control Levers**  
**Technical Information**  
**Characteristics PVREL**

**Characteristic**  
*PVREL with hold function*

**Signal (Us) as a function of the lever angle**

![Graph showing signal (Us) as a function of the lever angle.]

- 4.0 N (0.889 lbf)  
  7.7 N (1.731 lbf)*
- 2.4 N (0.540 lbf)  
  3.4 N (0.764 lbf)*
- 4.0 N (0.889 lbf)  
  7.7 N (1.731 lbf)*

**Float position**

![Graph showing float position.]

- 4.5 N (1.016 lbf)  
- 2.4 N (0.540 lbf)  
- 4.0 N (0.900 lbf)  
- 4.5 N (1.016 lbf)

*PVREL with hold function*
Electrical Remote Control Levers
Technical Information
Electrical System PVREL

**Electrical System**

1 proportional function **without using neutral position switch**

1 proportional function **with the use of neutral position switch**

---

**Signal leads**

**Supply leads**

E: Emergency stop

F: Lead from fault monitoring
Electrical Remote Control Levers
Technical Information
Technical Data, Code Numbers and Weight PVREL

**Technical Data**

<table>
<thead>
<tr>
<th>Functions</th>
<th>Symbol</th>
<th>Code no. without neutral position switch</th>
<th>Code no. with neutral position switch</th>
<th>Weight kg</th>
<th>Weight [lb]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring centred</td>
<td><img src="image" alt="Spring centred" /></td>
<td>155U2601</td>
<td>155U2605</td>
<td>0.32</td>
<td>0.70</td>
</tr>
<tr>
<td>With detent</td>
<td><img src="image" alt="With detent" /></td>
<td>155U2602</td>
<td>155U2606</td>
<td>0.32</td>
<td>0.70</td>
</tr>
<tr>
<td>With neutral position look</td>
<td><img src="image" alt="With neutral position look" /></td>
<td>155U2603</td>
<td>155U2607</td>
<td>0.36</td>
<td>0.79</td>
</tr>
<tr>
<td>For float position</td>
<td><img src="image" alt="For float position" /></td>
<td>155U2604</td>
<td>155U2608</td>
<td>0.36</td>
<td>0.79</td>
</tr>
</tbody>
</table>

For installation, all PVREL remote control levers are supplied with O-rings and bolt sets. The bottom cover is not included in the above mentioned code number.

**Code Numbers and Weight**

<table>
<thead>
<tr>
<th>Accessories</th>
<th>Code no.</th>
<th>Weight kg</th>
<th>Weight [lb]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottom cover, including PG-screwed connections for IP 65 under the assembly flange</td>
<td>155U2600</td>
<td>0.025</td>
<td>0.055</td>
</tr>
</tbody>
</table>
Electrical Remote Control Levers
Technical Information
Dimensions PVREL

**Dimensions**

- **F**: Float position
- **A**: Socket A 6.3-0.8
- **M**: Assembly aperture

---

**Bottom view**

- Dimensions PVREL
  - 155B349.11
  - 155B350.12

---

**Notes**

- Dimensions and tolerances are provided for the remote control lever dimensions.
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