**GENERAL DESCRIPTION**

The EWPC 905/S is a new series of microprocessor based and fully programmable process controllers for dual setpoint or Neutral Zone applications. In the Neutral Zone control mode it provides two relay outputs which are located at equal values above and below the setpoint selected. This value - the Neutral Zone - is field adjustable. Furthermore, the instrument is equipped with a RS-485 port for the purpose of connecting it into a Televis system; is compatible with Televis software rel 2.3.2 or greater. In case its use with different software releases is required contact your supplier or Eliwell Customers’ Service.

The front keypad of these controllers offers several alpha-numeric menu prompts to configure the controller for each specific application (see further). Three different versions of this controller are available: EWPC 905/T/S for Temperature, EWPC 905/R/S for Relative humidity and EWPC 905/P/S for Pressure control.

**FRONT KEYPAD**

**SET** (dual setpoint control mode): pushed once the setpoint 1 value will be displayed for 5 seconds (Led “SET 1” is on). Pushed once again within 5 seconds the setpoint 2 value will be displayed (Led “SET 2” is on). The setpoint can be changed with the “UP” or “DOWN” button.

**UP**: same functions except to decrease a value.

**SET 1**: status light of Setpoint 1. On during display/change Setpoint 1 or blinking during programming.

**SET 2**: status light of Setpoint 2. On during display/change Setpoint 2.

**UP**: status light of output 1.

**DOWN**: same functions except to decrease a value.

**PARAMETER PROGRAMMING**

Programming is easily accessed by holding the “SET” button down for more than 7 seconds; the first parameter is displayed while the status light Led “SET 1” remains blinking during the programming period. Other parameters are accessed with the “UP” and “DOWN” button.

With the “SET” button, the actual setting of each parameter is displayed. To change a parameter setting, push the “SET” plus the “UP” (or “DOWN”). The system will automatically return to its normal operating mode a few seconds after the programming procedure is completed or interrupted.

**DESCRIPTION OF PARAMETERS**

- **df**: setpoint differential.
- **Fi**: Function type. The switching differential (hysteresis) can be set with positive value (make on rise) or with negative value (make on fall).
- **df2**: differential setpoint 2. Same as “df”.
- **db**: dead band (or Neutral Zone).

This is the value, which overlaps the Setpoint. This means that respectively relay 1 or relay 2 are energized. Once the relay is energized, it is disactivated once the Setpoint is reached.

- **Fi**: Function type.

Control mode selection (output 1).

- **df**: setpoint independent.
- **db**: dead band (Neutral Zone).

The right-most digit can also be set to read-out in 0 or 5 only, or in all 10 digits

- **Accuracy**: better than 0.5% of full scale
- **Resolution**: 1 °C (°F) or 0.1 °C (°F)
- **Input**: [6] Power supply (depending on model): 12 V/ or 24 V/ ±15%

**WHAT IT IS**

The EWPC 905/S is a series of microprocessor based and fully programmable process controllers for dual setpoint or Neutral Zone applications. The instrument is equipped with a RS-485 port for the purpose of connecting it into a Televis system. Three different versions of this controller are available: EWPC 905/T/S for Temperature, EWPC 905/R/S for Relative humidity and EWPC 905/P/S for Pressure control.
### DEFAULT SETTINGS - STANDARD MODELS

<table>
<thead>
<tr>
<th>Description</th>
<th>Parameter</th>
<th>Range</th>
<th>Default</th>
<th>Unit</th>
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</thead>
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<td>of</td>
<td>db</td>
<td>–12…12</td>
<td>1</td>
<td>°C / °F</td>
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<tr>
<td>of2</td>
<td>db</td>
<td>–12…12</td>
<td>1</td>
<td>°C / °F</td>
</tr>
<tr>
<td>dead band</td>
<td>db</td>
<td>1…99</td>
<td>1</td>
<td>°C / °F</td>
</tr>
<tr>
<td>Function type</td>
<td>Ft</td>
<td>nr / oi / od</td>
<td>oi</td>
<td>flag</td>
</tr>
<tr>
<td>Lower SE</td>
<td>LSE</td>
<td>–999…999</td>
<td>–80</td>
<td>°C / °F</td>
</tr>
<tr>
<td>Higher SE</td>
<td>HSE</td>
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<td>600</td>
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</tr>
<tr>
<td>Alarm temperature type</td>
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<td>Ab / re</td>
<td>Ab</td>
<td>flag</td>
</tr>
<tr>
<td>Higher ALarm</td>
<td>HAL</td>
<td>–999…999</td>
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<tr>
<td>Lower ALarm</td>
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<tr>
<td>Alarm (Fan) differential</td>
<td>AfD</td>
<td>1…50</td>
<td>1</td>
<td>°C / °F</td>
</tr>
<tr>
<td>Power-on Alarm Override</td>
<td>PAO</td>
<td>0…10</td>
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<td></td>
</tr>
<tr>
<td>temperature Alarm override</td>
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<td>minutes</td>
</tr>
<tr>
<td>compressor Probe Protection</td>
<td>cPP</td>
<td>of / on / dc</td>
<td>ofF</td>
<td>flag</td>
</tr>
<tr>
<td>compressor type Protection</td>
<td>cTP</td>
<td>nP/don/dof/dbi</td>
<td>nP</td>
<td>flag</td>
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<tr>
<td>compressor delay Protection</td>
<td>cdP</td>
<td>0…15</td>
<td>0</td>
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</tr>
<tr>
<td>output delay (at) on</td>
<td>odo</td>
<td>0…99</td>
<td>0</td>
<td>minutes</td>
</tr>
<tr>
<td>CALibration</td>
<td>CAL</td>
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<td>0</td>
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</tr>
<tr>
<td>dEvice Address</td>
<td>deA</td>
<td>0…14</td>
<td>0</td>
<td>number</td>
</tr>
<tr>
<td>Family Address</td>
<td>FAA</td>
<td>0…14</td>
<td>0</td>
<td>number</td>
</tr>
<tr>
<td>number display type</td>
<td>ndt</td>
<td>in / dE / hF</td>
<td>in</td>
<td>flag</td>
</tr>
<tr>
<td>Lower current input</td>
<td>Lci*</td>
<td>–999…999</td>
<td>0</td>
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</tr>
<tr>
<td>Higher current input</td>
<td>Hci*</td>
<td>–999…999</td>
<td>0</td>
<td>°C / °F</td>
</tr>
<tr>
<td>PASword.</td>
<td>PAS</td>
<td>0 / 1…15</td>
<td>0</td>
<td>flag</td>
</tr>
<tr>
<td>rELease firmware</td>
<td>rEL</td>
<td>/</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>Hardware code</td>
<td>Hdc</td>
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</tr>
<tr>
<td>tAble of parameters</td>
<td>tAb</td>
<td>/</td>
<td>/</td>
<td>/</td>
</tr>
</tbody>
</table>

* only for 905/R/S, 905/P/S and EWPC 905/T/S with current input

**LSE**: Lower SE. This is the lower limit below which the user cannot change the setpoint; normally set at the lowest value recommended for the sensor.

**HSE**: Higher SE. Similar to “LSE”, however setting an upper limit for the setpoint.

**Att**: Alarm temperature type (“HAL” and “LAL”). Ab = absolute; re = relative.

**HAL**: Higher ALarm. Maximum temperature alarm. When the temperature reaches a lower value the information is sent to the Televis system. Set to a negative value when parameter “Att = re”.

**AfD**: Alarm (Fan) differential.

**PAO**: Power-on Alarm Override.

**tAo**: temperature Alarm override.

**cPP**: compressor Probe Protection.

Select compressor relay status in case of room probe defect.

doF = compressor OFF in case of probe defect;

doC = compressor ON in case of probe defect;

dc = NOT AVAILABLE.

cTP: compressor type Protection.

Select the type of (short-cycle) protection best suited for the compressor; the actual delay time is programmed with the next parameter, nP = no Protection.

don = delay on start; delay applies when relay is energized.

doF = delay at switching off. Delay after stop, i.e. time between stop and subsequent start.

dbi = delay between two successive starts. Limits the number of start-ups per hour.

cdP: compressor delay Protection.

The time delay - in minutes - applicable to the previous parameter “cdP”.

odo: output delay (at) on. Time delay - in minutes - applied to activation of the relays after start-up.

**CAL**: CALibration.

Temperature read-out offset to allow for a fixed adjustment up or down due to probe location, if desired.

dEvice Address. To select the (address) label of the device in relation to the supervisory system.

**FAA**: Family Address.

To select the (family) label of the device in relation to the supervisory system.

**ndt**: number display type. Visualization number of display. in = entire; dE = decimal; hF = half.

**Lci**: Lower current input. For EWPC 905/R/S, EWPC 905/P/S and EWPC 905/T/S with current input only. Read-out corresponding to 4 mA input signal (factory set at 20% R.H. for EWPC 905/R/S).

**Hci**: Higher current input. For EWPC 905/R/S, EWPC 905/P/S and EWPC 905/T/S with current input only. Read-out corresponding to 20 mA input signal (factory set at 100% R.H. for EWPC 905/R/S).

**PAS**: PASword. Permits to set the password value. 0 = no password required to enter parameter programming; 1…15 = admitted values for the password.

**Hdc**: Hardware code. Read-only parameter indicating the hardware code of the device.

**tAb**: tAble of parameters. This shows the configuration of the parameters as set in the factory; can not be modified (for factory identification and diagnostic purposes only).

### NEUTRAL ZONE (DEAD BAND)

The Neutral Zone (Dead Band) control is obtained by setting to “nr” the parameter “Ft”. This band width is always such that the setpoint is at midpoint. Both output relays are OFF as long as the temperature remains within these two limits. The total value of the dead band is the value set with parameter “db”. As soon as the process temperature exceeds the upper band limit or falls below the lower band limit, the corresponding output relay will be energized and stay on until the temperature comes back to the setpoint.

### INSTALLATION

The instrument is designed for flush panel mount. Prepare a 29x71 mm panel cut-out; insert the instrument through the front and fasten with the U-bracket supplied with the unit. The ambient temperature around the instrument should be kept between –5 and 65 °C (23…149 °F).

Do not install the instrument in moist and/or dirty places or near heat sources; it is suitable for operation in environments with an ordinary pollution level. Leave enough room for air circulation by the cooling holes of the instrument.

### ELECTRICAL WIRING

The instrument is equipped with a screw terminal block suitable for max 2.5 mm² wiring (one wire each terminal only, in compliance with VDE norms).
Make sure that the low voltage power supply matches requirements: 12 V/±15% or 24 V/±15%.

According to the type, the probe shall be connected according to the electric diagram on the instrument body. In case of Eliwell pressure or humidity probes connected to EWPC 902/R/S or to EWPC 902/P/S, bear in mind that two-wire probes (such as EWHS 28 or EWPA) are directly supplied by the instrument, while the 4-wire probe (EWHS 31) needs an external power supplier.

Temperature probes do not require polarity insertion and can be easily by using common 2-lead wires (please note that long probes involve a worse instrument performance for EMC electromagnetic compatibility: utmost care shall be put in cabling). Probe cables shall be kept separate from line voltage and load wires for safety and EMC reasons. The coordinated European standards impose that power wires (and generally, all parts subject to dangerous voltage) shall be kept separate from very low voltage with insulation and distances suitable to ensure at least a double or reinforced insulation. EMC requirements suggest/impose to put more care in such separation by using insulating separate raceways and proper cable fixing methods. The relay output is voltage-free and independent. Do not exceed the maximum allowed power: 8(3)A 250V–. For heavier loads, an external contactor with suitable power shall be used.

ERROR ANNOUNCEMENT

The instrument is provided with only one error message “E1”, both in case of shorted sensor and in case of sensor break, or sensor absence. The “E1” error message also appears in the event of underrange of the system temperature or in the event of overrange of the system temperature.

TECHNICAL DATA

Housing: black ABS plastic, autoestinguish.

Dimensions: front 74x32 mm (2.913x1.260”), depth 67 mm (2.637”).

Mounting: flush panel mount with mounting bracket.

Protection: the instrument frontpanel is waterproof IP65; an optional snap-on cover can be supplied to provide additional protection of the rear terminal block.

Connections: screw terminal block (2.5 mm²; one wire each terminal only, in compliance with VDE norms).

Display: 12.5 mm LED (0,50”).

Push buttons: located on front panel.

Data storage: non-volatile EEPROM memory.

Operating temperature: –5...65 °C; (23…149 °F).

Storage temperature: –30...75 °C; (-22...167 °F).

Outputs: two (2) SPST relays 8(3)A 250V–.

Auxiliary output: 12 V/60 mA (for transducer power supply, e.g. humidity sensor, pressure transducer, etc.).

Inputs (depending on model): PTC / Pt100 / current (4…20 mA; Ri = 41 Ω) for EWPC 905/T/S; EWHS 28/31 for EWPC 905/R/S and EWPA 007/030 for EWPC 905/P/S.

NOTE: the four-wires EWHS 31 needs the external voltage.

Serial connection: RS-485 serial port for connection to the Televis system.

Televis system compatibility: software rel 2.3.2 or greater.

Resolution: 1 °C (°F) or 0.1 °C (°F). The right-most digit can also be set to read-out in 0 or 5 only, or in all 10 digits.

Accuracy: better than 0.5% of full scale.