

EWPC 905

rel. 12/96 ing

controllers with dual output

WHAT IT IS

The EWPC 905 is a series of micro-processor based and fully programmable process controllers for dual setpoint or Neutral Zone applications.

Three different versions of this controller are available: EWPC 905/T for Temperature, EWPC 905/R for Relative humidity and EWPC 905/P for Pressure control.

HOW IT IS MADE

- Dimensions: front 74x32 mm (2.913x1.260"), depth 67 mm (2.637")
- Mounting: flush panel mount with mounting bracket
- Protection: the instrument front-panel 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
- Outputs: two (2) SPST relays 8(3)A 250V AC
- Auxiliary output: 12 Vdc/60 mA (for transducer power supply, e.g. humidity sensor, pressure transducer, etc.)
- Inputs (depending on model): PTC / RTD (Ni100, Pt100) / TC (J, K) / 4...20 mA (Ri = 41 Ω) for EWPC 905/T; EWHS 28/31 for EWPC 905/R and EWPA 007/030 for EWPC 905/P
- 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
- Power supply (depending on model): 12 Vac/dc or 24 Vac/dc

GENERAL DESCRIPTION

The EWPC 905 (/T, /R, /P) is a 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.

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 for Temperature, EWPC 905/R for Relative humidity and EWPC 905/P for Pressure control. The EWPC 905 (/T, /R, /P) is supplied in the popular "32x74" ELIWELL.

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.

SET (Neutral Zone control mode): push and release to display the setpoint for 5 seconds. During this period, the Led "SET 1" is on and the setpoint can be changed with the "UP" or "DOWN" button only.

UP: used to increase the setpoint value, as well as the parameter when in programming. When held down for a few seconds, the change rate accelerates.

DOWN: same functions except to decrease a value.

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

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

Led "I": status light of output 1.

Led "II": status light of output 2.

PARAMETER PROGRAMMING

Programming is easily accessed by holding the "SET" button down for more than 4 seconds; the first parameter is displayed while the status light Led "I" 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

The following list of parameters is complete. According to the selected control mode (ON-OFF or Neutral Zone, see parameter "Ft"), only the applicable parameters will be shown and accessed.

d1: differential setpoint 1.

The switching differential (hysteresis) setpoint 1 can be set with positive value (make on rise) or with negative value (make on fall).

See parameters "HC1" and "HC2".

d2: differential setpoint 2.

Same as "d1".

db: dead band (or Neutral Zone).

This is the span above and below the setpoint beyond which relay 1, respectively relay 2 are energized; once an output is energized, the output remains ON until setpoint is reached.

LS1: Lower Set 1.

This is the lower limit below which the user cannot change the setpoint 1; normally set at the lowest value recommended for the sensor.



DEFAULT SETTINGS - STANDARD MODELS

Parameter	Description	ON - OFF	Dead Band	Unit
d1	differential set 1	1 (C) / -1 (H)	/	°C / °F
d2	differential set 2	1 (C) / -1 (H)	/	°C / °F
db	dead band	/	1	°C / °F
LS1	Low Set 1	min	min	°C / °F
LS2	Low Set 2	min	min	°C / °F
HS1	High Set 1	max	max	°C / °F
HS2	High Set 2	max	max	°C / °F
od	output delay	0	0	seconds
Lci	Low current input	20 (%R.H.)	20 (%R.H.)	various
Hci	High current input	100 (%R.H.)	100 (%R.H.)	various
CAL	CALibration	0	0	°C / °F
Ft	Function type	on	nr	flag
PSE	Probe SElection	Ni / Pt / Fe / Cr	Ni / Pt / Fe / Cr	flag
OCO	Output COnection	in	in	flag
HC1	Heating / Cooling output 1	H / C	/	flag
HC2	Heating / Cooling output 2	H / C	/	flag
rP1	relay Protection 1	ro	ro	flag
rP2	relay Protection 2	ro	ro	flag
LF1	Led Function 1	di	di	flag
LF2	Led Function 2	di	di	flag
dP	decimal Point	on / oF	oF	flag
hdd	half digit display	n	n	flag
tAb	tAble of parameters	/	/	flag

LS2: Lower Set 2.

This is the lower limit below which the user cannot change the setpoint 2; normally set at the lowest value recommended for the sensor.

HS1: Higher Set 1.

Similar to LS1, however setting an upper limit for the setpoint 1.

HS2: Higher Set 2.

Similar to LS2, however setting an upper limit for the setpoint 2.

od: output delay.

This provides a delay selection for the outputs in applications where noise may cause brief erroneous signals from the sensor to the controller.

Factory set at "0".

Lci: Lower current input.

For EWPC 905/R, EWPC 905/P and EWPC 905/T with current input only.

Read-out corresponding to 4 mA input signal (factory set at 20 %R.H for EWPC 905/R).

Hci: Higher current input.

For EWPC 905/R, EWPC 905/P and EWPC 905/T with current input only.

Read-out corresponding to 20 mA input signal (factory set at 100 %R.H for EWPC 905/R).

CAL: CALibration.

This offers an adjustment up or down of the read-out, if needed.

Factory set at "0".

Ft: Function type.

Control mode selection (output 1).

on = ON-OFF; nr = neutral zone.

PSE: Probe SElection.

Input type (for RTD or Thermocouples only).

RTD models: Ni = Ni100; Pt = Pt100.

T/C models: FE = TcJ; Cr = TcK.

OCO: Output COnection.

Setpoint dependency.

di = setpoint 2 dependent on set 1 (for 2-stage control;

in = setpoint 2 independent from set 1.

HC1: Heating/Cooling output 1.

Relay switch function output 1.

H = heating (humidification; reverse action);

C = cooling (dehumidification; direct action).

HC2: Heating/Cooling output 2.

Relay switch function output 2.

H = heating (humidification; reverse action);

C = cooling (dehumidification; direct action).

rP1: relay Protection 1.

Determines the status of the relay in case of sensor defect.

Factory set at "ro".

ro = relay open; rc = relay closed

rP2: relay Protection 2.

Same as "rP1".

LF1: Led Function 1.

Determines whether the status light "I" is ON or OFF in relation to output 1.

di = direct = light ON when output 1 is energized;

in = reverse = light OFF when output 1 is energized.

LF2: Led Function 2.

Same as "LF1".

dP: decimal Point.

Choose whether the resolution is required with or without decimal point.

oF = without decimal point;

on = with decimal point.

NOTES: (a) the decimal point of models with current or voltage input is shifted: the actual value of parameters "Lci" and "Hci" must be multiplied by 10; (b) on all versions, if a unit is changed from without decimal point to with decimal point, all parameter values expressed in degrees will automatically be divided by 10, including the setpoint !! (c) the decimal point selection is not available on models for thermocouple input.

hdd: half digit display.

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

hdd = n: e.g. 070, 071, 072 etc. (if without decimal point) or 70.0, 70.1, 70.2 etc. (if with decimal point);

hdd = y: e.g. 070, 075, 080, etc. (if without decimal point) or 70.0, 70.5, 80.0, etc. (if with decimal point).

Useful when measuring values varying rapidly (e.g. %R.H.).

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 twice 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.

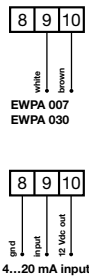
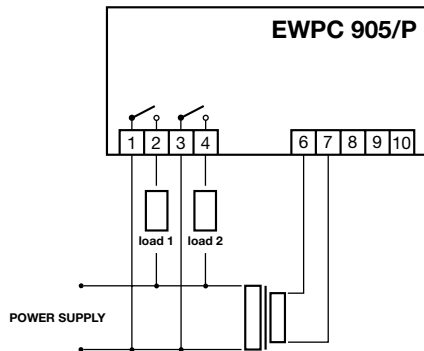
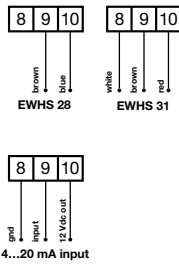
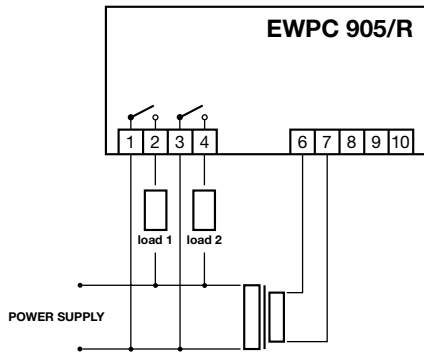
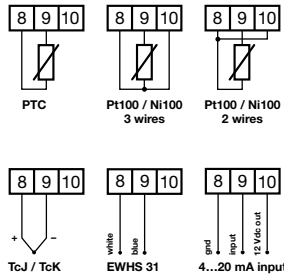
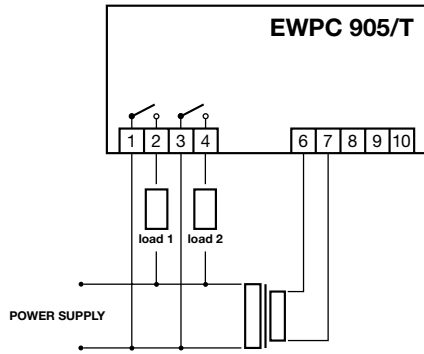
The ambient temperature around the instrument should be kept between -5 and 65 °C (23...149 °F).

Select a location which will not be subject to high humidity or condensation and allow some ventilation to provide cooling to the instrument.

ELECTRICAL WIRING

The instrument is equipped with an internal

CONNECTIONS



screw terminal block suitable for max. 2.5 mm² wiring (one wire each terminal only, in compliance with VDE norms). Make sure that the power supply corresponds with the rating shown on the instrument, i.e. 12 Vac/dc (EWPC 905/T and EWPC 905/R in this version are recognized according to VDE and UL) or 24 Vac/dc. Refer to the instrument label for the applicable terminals to be used for the sensor cable. If an ELIWELL humidity or pressure sensor is used (EWPC 905/R or EWPC 905/P) keep in mind that it can be powered by the controller (see wiring diagram). Separate the wiring of the input signals from those of the power supply and switched output wiring. The relay output contacts are voltage free and independent; do not exceed the resistive rating of 8 Amp at 250 Vac. For larger loads, please use an external contactor or relay.

ERROR ANNOUNCEMENT

Any sensor input defect will be displayed as follows: "- - -" in case of shorted sensor; "EEE" in case of sensor break, or sensor absence. The "EEE" error message also appears in the event of overrange or underderrange of the system temperature. It is recommended to doublecheck the sensor wiring before diagnosing a probe as defective.

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) 250V AC.

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

Inputs (depending on model): PTC / RTD (Ni100, Pt100) / TC (J, K) / 4...20 mA (Ri = 41 Ω) for EWPC 905/T; EWHS 28/31 for EWPC 905/R and EWPA 007/030 for EWPC 905/P.

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.

Power supply (dep. on model): 12 Vac/dc ±15% or 24 Vac/dc ±15%.

Eliwell S.p.A.

via dell'Artigianato, 65
Zona Industriale
32010 Pieve d'Alpago (BL)
Italy

Telephone +39 (0)437 986111
Facsimile +39 (0)437 989066

A Siebe Group Company