EWLP 120 rel. 5/99 ing

temperature recorder

WHAT IT IS

EWLP 120 is a data recorder capable to measure temperature, humidity or pressure from two different locations.
It is provided with a micro gate input and a relay for alarm signal control.

HOW IT IS MADE

- **Size: 161x192 mm, depth 94 mm**
- **Housing: ABS plastic**
- **Mount: wall mount through special fixing holes**
- **Protection grade: IP65**
- **Connections: screw terminal block**
- **Storage: on non-volatile memory - capacity 1.600 readings**
- **Printer type: 24 columns with 7x5 matrix on thermal non-photo sensitive paper, paper width 57 mm**
- **Outputs: on relay (in exchange) for external alarm repetition**
- **Inputs: 2 PTC or PT100 temperature probes; the second input can be matched with a humidity or pressure input. One input for micro gate and one for backup battery**
- **Resolution: 0.5 °C, 0.5 Bar and 0.5 %RH**
- **Accuracy: 0.5 °C, 0.5 Bar and 0.5 %RH**
- **Power supply: 230 Vac**

GENERAL DESCRIPTION

The EWLP 120 data recorder is an electronic device designed to measure temperature, humidity or pressure from two different locations.
Due to the use of a microprocessor it can store up to 1600 reading points, with user programmable storage intervals. Stored data can be printed with messages in several languages.
The instrument can be connected to PTC or Pt100 probes; alternatively the current input port can be used for pressure or humidity. It is available in a 161x192 mm ABS plastic case, 94 mm deep.

COMMANDS ON FRONT PANEL

(response to key pressure is delayed by approximately 0.5 seconds).

RECORDING 1
The pressure of this key starts recording related to sensor n. 1; the related led turns on and the display indicates the value read by probe 1.
A further key pressure stops recording related to sensor 1; the related led turns off and the display indicates the value read by the probe of sensor 2, when enabled, otherwise the OFF message is displayed.

RECORDING 2
The pressure of this key starts recording related to sensor n. 2; the related led turns on and the display indicates the value read by probe 2.
A further key pressure stops recording related to sensor 2; the related led turns off.
When the two probes are set to STAND BY (disabled data recording) the display indicates the OFF message.
When both probes are enabled (enabled data recording) the led on indicates the zone whose value is displayed, the blinking reminds that the related zone is enabled for recording.

CLEAR
The key pressure after print clears from memory the recordings related to the report printed and enables the recording again.

PRG
When held pressed for 3 seconds in STAND BY (OFF message displayed) with no stored data it allows to enter or exit parameters programming mode. In case stored data are present, the display shows the ErPr alarm code.

MUTE
The key pressure in data recording allows to silence the alarm by disabling the related relay; the code on the display will continue to show the alarm presence.

▲ (UP)
When pressed in programming mode it allows to skip to the following parameter or increase its value. In recording mode it selects to display the value related either to sensor 1 or sensor 2.

▼ (DOWN)
When pressed in programming mode it allows to skip to the following parameter or increase its value. In temperature recording mode it selects to display the current time.

LABEL/VALUE
When pressed in parameters programming mode it allows to switch from the parameter label display to its value, and vice-versa.

PRINT
The key pressure starts the printing of recorded data; while printing the display shows letter P (print), recording is suspended and all keys are disabled.

At the end of print the display shows the messages OFF and “Prnt” (print) alternatively; a further key pressure repeats the print while the pressure of key CLEAR rubs all data from memory and restarts data recording.

FEED

The pressure of this key allows to move the paper forward.

PARAMETERS PROGRAMMING

Hold the “PRG” key pressed for 3 seconds in STAND BY mode (OFF message displayed) and no data stored; the display shows the first parameter (Po1). The pressure of the “UP” (or “DOWN”) key while in programming mode allows to skip to the following (previous) parameter or increase (decrease) its value. The pressure of key “Label/Value” while in parameters programming mode allows to switch from parameters label display to value display and vice-versa. Hold button “PRG” pressed for 3 seconds to exit programming mode.

WARNING: new values are only stored when programming mode is exited. Check time indicated by parameters Po1 and Po2 to control the clock.

PARAMETERS DESCRIPTION

Po1: minutes setting (01…59).

Po2: hours setting (00…23).

Po3: weekday setting:

1 = Monday;
2 = Tuesday;
3 = Wednesday;
4 = Thursday;
5 = Friday;
6 = Saturday;
7 = Sunday.

Po4: month day setting (01…31).

Po5: month setting (01…12).

Po6: year setting.

Po7: setting of the instrument recognition code (4 digits maximum); this code appears as heading on every report.

Po8: data storage interval setting; values from 1…240 minutes (default 30 minutes).

Po9: maximum alarm value setting for sensor n. 1; when the threshold is exceeded after the delay time set through parameter Po14, the alarm relay is triggered and the alarm value related to letter P is printed if the print is enabled through parameter Po13.

Po10: minimum alarm value setting for sensor n. 1; when the threshold is exceeded after the delay time set through parameter Po14, the alarm relay is triggered and the alarm value related to letter N is printed if the print is enabled through parameter Po13. The value of this parameter shall be lower than or equal to P9; otherwise the negative set will be set to P9 when programming mode is exited.

Po11: maximum alarm value setting for sensor n. 2; when the threshold is exceeded after the delay time set through parameter Po14, the alarm relay is triggered and the alarm value related to letter P is printed if the print is enabled through parameter Po13.

Po12: minimum alarm value setting for sensor n. 2; when the threshold is exceeded after the delay time set through parameter Po14, the alarm relay is triggered and the alarm value related to a symbol is printed if the print is enabled through parameter Po13.

The value of this parameter shall be lower than or equal to P11; otherwise the negative set will be set to P11 when programming mode is exited.

Po13: print enabled in case of alarm (default 0) where:

0 = alarm print disabled;
1 = print enabled for maximum alarms only (Po9 - Po11);
2 = print enabled for minimum alarms only(Po10 - Po12);
3 = print enabled for minimum and maximum alarms (Po9 - Po10 - Po11 - Po12).

Po14: alarm delay time and open door setting; values from 1…60 minutes (default 30 minutes).

Po15: allows to change the value read by probe n. 1; values from –5…5 (default 0).

Po16: allows to change the value read by probe n. 2; values from –5…5 (default 0).

Po17: language selection for printed messages (default 1):

1 = Italian;
2 = English;
3 = French;
4 = German;
5 = Spanish.

NOTE: the measurement unit related to probe n. 2 is automatically selected (°F or %RH or Bar) according to the configuration of dip switch KD1.

ALARM CODES

EE01: memory error - possible loss of all set data, alarm relay triggered and data recording stopped. After this alarm print the recorded data - that could be wrong - and at the end of the report the message “LOST RECORDS - CHECK PARAMETERS” will be printed.

Device check procedure: enter programming mode and check the set parameters; if they correspond to those previously set, change one parameter; in case the alarm is still present when exiting programming mode, contact an authorised servicing centre otherwise re-enter programming mode and correct previously changed data.

FULL: full memory. The alarm relay is triggered. The recorded data need to be printed. 100 more recordings are available in the device since the alarm appears. When the memory is full recording continue overwriting the first recorded data. At the end of print the message “PARTIAL RECORDINGS DUE TO FULL MEMORY” will be printed.

EndP: paper missing: slightly open the side pads, extract the paper support. To insert a new paper roll fit the support between the two pads with a light pressure. Then insert the paper into the upper slot and load it using the FEED button.

If this alarm occurred while printing, press the PRINT key to restart the report, that will begin from day on which it was interrupted.

ALP1: alarm related to probe n. 1 and alarm relay triggering. On the report the alarm occurrence will be indicated by the following symbols:

Z (zone 1 or 2), SET, * to indicate the alarm, NEG (negative) and POS (positive).

When the measured temperature exceeds the range defined through parameters Po9 and Po10 for more than the time set through parameter Po14, the alarm code is displayed. Such code is automatically recalled as the temperature returns within the range.

ALP2: alarm related to probe n. 2 and alarm relay triggering. On the report the alarm occurrence will be indicated by the following symbols:

Z (zone 1 or 2), SET, * to indicate the alarm, NEG (negative) and POS (positive).

When the measured temperature exceeds the range defined through parameters Po11 and Po12 for more than the time set through parameter Po14, the alarm code is displayed. Such code is automatically recalled as the temperature returns within the range.

ErP1: probe n. 1 faulty and alarm relay triggering; replace the faulty probe; instead of the value message “--.-” will be printed, while the display will show message ErP1 and “--.-” alternatively.

ErP2: probe n. 2 faulty and alarm relay triggering; replace the faulty probe; instead of the value message “--.-” will be printed, while the display will show message ErP2 and “--.-” alternatively.

ErCL: clock module faulty, alarm relay triggering, the instrument is automatically set to OFF and recordings interrupted; the display shows alarm information ErCL and OFF alternatively; if the ▼ key is pressed to display the current time the display indicates “- -”. After this alarm print the recorded data; at the end of the report the message “CHECK PARAMETERS FOR CLOCK ERROR” will be printed. Device check procedure: enter programming mode and check the parameters set by Po1 to Po6; if they correspond to those previously set, change one parameter; in case the alarm is still present when exiting programming mode, contact an authorised servicing centre otherwise re-enter programming mode and correct previously changed data.

Erdr: door open for a time exceeding parameter Po14; alarm relay triggering. The alarm stops automatically as the door is closed.

ErPr: alarm code informing that no new value can be set for parameters as data are already stored in memory. The following process shall be performed to change parameters: put the instrument in place and

set both inputs to OFF, print data through the PRINT key and press CLEAR to clear memories; access parameters programming mode through the PRG button.
ErFd: alarm code informing the printer paper tray is blocked.
Use the FEED key to feed the paper and check its proper position; if the alarm code disappears the print restarts automatically, if the alarm code is still present contact a servicing centre to replace the printer unit.
ErPE: faulty sensor for paper detection; contact a servicing centre to replace the printer unit.
WARNING: if message "RECORDING ERROR" is printed on the "time and temperature" line, the data recorded at that time was not correct and is not reported.

MECHANICAL MOUNT

The instrument is designed for wall mount, through the special fixing holes provided. The operating temperature for correct operation is 0…50 °C.

ELECTRICAL CONNECTIONS

Remove the terminal block cover and make connections according to the diagram inside the cover.

List of operations to be performed.

WARNING: connection to mains shall be performed as last operation from an externally accessible point.

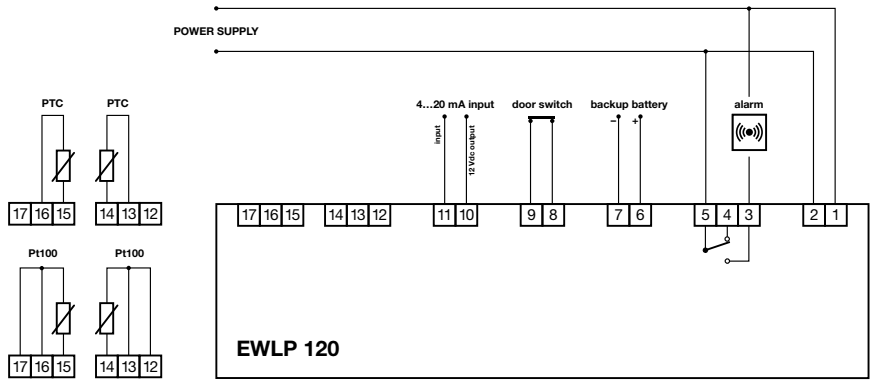
1) Select the probe type and operating mode through the configuration dip switches.
   DIP SWITCH KD1
   - terminal n. 1 in ON = input n. 1 and 2 enabled to recording;
   - terminal n. 1 in OFF = input n. 1 only enabled to recording;
   - terminal n. 2 in ON = input n. 2 set to temperature measurement;
   - terminal n. 2 in OFF = input n. 2 set for 4...20 mA (humidity or pressure) electronic transducer;
   - terminal n. 3 in ON = input n. 2 connected to a 0...99 %RH humidity electronic transducer;
   - terminal n. 3 in OFF = input n. 2 connected to a 0...30 Bar pressure electronic transducer;
   - terminal n. 4 = not used.
   DIP SWITCH KD2
   - position 1 = PT100 (RTD) temperature probe;
   - position 2 = PTC temperature probe.

WARNING: do not turn switch KD2 when the instrument is on.

2) Connect temperature probes supplied:
   - for zone n. 1 to terminals: 12-13-14 (see connection diagram referred to the probe type);
   - for zone n. 2 to terminals: 15-16-17 (see connection diagram referred to the probe type);
   - the humidity or pressure transducer alternatively to zone 2 probe to terminals: 10-11 (see connection diagram and check the transducer power supply is 14 …18 Vdc).
3) When connecting the open door input remove the jumper and connect wires to terminals n. 8-9.
4) Connect the alarm relay output to terminals n. 3-4-5, maximum current 8(2)A 250V AC.
5) In case the "external backup battery kit" was purchased connect to terminals n. 6-7 paying attention to the wire polarity. In case of power failure the device will turn display and leds off and disable the printer to continue recording while limiting power consumption.
6) Connect the power supply cable to terminals 1/2, checking the cable plug is accessible as the instrument is not provided with an ON-OFF power switch (but do not insert the power supply plug).
7) Close the terminal block cover using screws "A".
8) First connect the instrument power plug then, if purchased, the Backup Battery Key plug and proceed to the parameters programming.
9) When the instrument is started the display shows the three central dashes for about 1 second.

NOTE: probes, transducer and micro gate cables shall be placed in other raceways than power cables.

CONNECTIONS



HINTS

1) Once the instrument has been configured the operations to be performed are:

a) enable or disable zone recordings through button RECORDING 1 and 2. Regardless the selected reading range the zone disable or enable time is printed on the report; when one of the two zones is set to OFF the print reports OFF;

b) with both zones in STAND BY (disabled) the display shows OFF, with both zones in ON, enabled recording, the led on indicates the zone whose temperature is displayed while the blinking led indicates the zone is enabled;

c) to get a printed report of recorded data and continue recordings:
   - press the PRINT button;
   - the data print begins, the display shows message P; recordings, open door input and buttons are disabled; at the end of print the display shows messages OFF and "Prnt" (print) alternatively. In this condition prints can be repeated through the PRINT button, in case the previously printed report was not readable;
   - press key CLEAR to clear memories related to the last report and restart recordings;
   - at the end of the report the message "RECORDING STOP" is printed;

d) to get a printed report of recorded data switch the instrument OFF:
   - press buttons RECORDING 1 and 2 - the display shows OFF;
   - press button PRINT;
   - the data print begins, the display shows message P; recordings, open door input and buttons are disabled; at the end of print the display shows messages OFF and "Prnt" (print) alternatively. In this condition prints can be repeated through the PRINT button, in case the previously printed report was not readable;
   - press key CLEAR to clear memories related to the last report;
   - at the end of the report the message "RECORDING STOP BY OPERATOR" is printed;

e) print example:
   at the beginning of every print the following data will appear: reference code of the temperature recorder (EWCode N:), code number assigned to the instrument, set values, recording interval, date of recording start and date of print request;
   - in case of power failure during recording the message "RECORDING STOP DUE TO POWER OFF" is printed so that the power failure time can be calculated by comparing the time of the last recording before power failure and the time of the first recording after power restore;
   - in case of no alarm the message "RECORDING STOP BY OPERATOR" is printed at the end of the report, in

case of alarms the alarm cause is printed and the “BY OPERATOR” message is not reported.

2) The recorded cover shall be open during print. Check the paper does not touch the floor during print, as wet can damage the paper.
3) In case the alarm output is not connected it is advisable to daily check the device operation to ensure no alarm codes are present.
4) The time interval between two print requests is determined by the set reading interval (parameter Po8). The instrument memory can store about 1600 temperature recordings; by multiplying this figure by the set time the time within which the next print shall be performed can be calculated.
   Example of calculation with a recording interval set to 30 minutes: in 24 hours with 30 minutes reading, 48 recordings are performed, 1600: 48 = 33,3 recording days. To prevent the FULL condition (almost full memory) the print interval shall be lower than 10% the memory capacity.
5) The printed reports shall be stored far from heat sources, no plastic folders and with no copying paper.
6) For good print use non photo sensitive thermal paper supplied by ELIWELL or one of the following paper types (width 57 mm):
   - Jojo paper “TP50KS-A” or “TF50KS-E2”;
   - Honshu paper “FH65BX-14N” or “FH65BU-2”;
   - Mitsubishi paper “F-200 U7N5” or “F 200 U9W3”;
   - Hokuetsu paper “MFHB-31”.

TECHNICAL DATA

Housing: ABS plastic.
Size: 161x192 mm, depth 94 mm.
Mount: wall mount through special fixing holes.
Protection: IP40 protection grade when the cover is open, IP65 with closed cover.
Insulation class: II.
Connections: screw terminal block.
Operating temperature: 0…50 °C.
Storage temperature: –10…70 °C.
Display: data and parameters through 4 7-segment red displays and 2 leds.
Parameters setting: through buttons on front panel.
Storage: on non-volatile memory - capacity 1.600 readings.
Number of channels: 2 channels.
Inputs: two inputs available for PTC, Pt100 or current (for humidity or pressure), user selectable through Dip Switch.
Reading range: IP55 temperature probes with sensor:
- PTC: –40…70 °C resolution 0.5 °C and accuracy ±0,5 °C;
- Pt100: –80…350 °C resolution 0.5 °C and accuracy ±0.5 °C;
- pressure transducer: 0…30 Bar resolution 0.5 Bar and accuracy ±0.5 Bar;
- humidity transducer: 0…99 %RH resolution 0.5 %RH and accuracy ±0.5 %RH.

Digital input: input to detect open door.
Input for battery kit: n. 1 backup to ensure 6-hour continuos recording without power, for connection of temperature probes only.
Clock module: accuracy 0.1% and not-rechargeable backup battery with electric life longer than 10 years.
Alarm output: on relay (in exchange) 8(2)A 250V AC for external alarm repetition.
Programmable parameters:
- year - month - day - hour - minutes;
- instrument code number (4 digits maximum);
- temperature reading interval from 1 to 240 minutes;
- positive and negative alarm set for each analogue channel;
- delay for alarm acquisition of positive, negative and open door sets from 1 to 60 minutes;
- language selection for printed messages (I-GB-FR-D-S).

Button on front panel: for manual print command.
Printer type: 24 columns with 7x5 matrix on thermal non-photo sensitive paper, paper width 57 mm.
Resolution: 0.5 °C, 0.5 Bar and 0.5 %RH.
Accuracy: 0.5 °C, 0.5 Bar and 0.5 %RH.
Consumption: 25 mA (50 mA while printing).
Power supply: 230 Vac ±10%, 50/60 Hz.
Fuse: PTC self-resetting by disconnecting the current plug and leaving the deivce disconnected for about 5 minutes.

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