# 【Intelligent heat-energy integrated controller】

**> Product outline**

Intelligent heat energy integrated controller that adopt advanced microprocessor for smart control, it mainly apply to heat supply, heating, refrigeration and so on heat energy system, for heat energy in the hot water, superheat steam, saturated steam, calcium chloride water or other heating / refrigeration medium carry out high-accurate integration and control. “Heat energy” meanings of the meter includ quantity of heat/cold.

Heat energy enthalpy value table interior contained large capacity, can automatically carry out check table quickly, and calculate corresponding heat energy value (quantity of heat/cold) with real-time flow, and automatically accumulate calculation.

Can inspect energy produced by heat energy system, also can inspect both end temperature in input / output of heat energy system. Through difference value comparison, automatically calculate actual consumption quantity of heat energy by user. Output loop all adopt photoelectric isolation, and have good anti-interference performance. It can carry serial communication interface.

Adopt full Chinese big screen (with backlight) LCD liquid crystal paginally display, it can display whole 6- digits instantaneous flow value, instantaneous heat energy value, temperature compensational value, pressure compensational value, flow (differential pressure, frequency) value and so on, and whole 11- digits accumulating flow value and heat energy value (0～99999999.999 word). Accumulating value can precise to three digits behind the decimal point (0.001).

**> Characteristic**

| | |
|---|---|
| Accuracy | measurement display accuracy: 0.5%FS±1 character (analog quantity) |
| | Frequency conversion accuracy: ±1 pulse (LMS),general ＜ 0.2% |
| Display mode | Display instantaneous flow measured value 0～999999 |
| | Display flow accumulating value 0～99999999.999 |
| | Display heat energy value 0～999999 |
| | Display heat-energy accumulating value 0～99999999.999 |
| | Display temperature compensation measuring value –199999～999999 |
| | Display pressure compensation measuring value –199999～999999 |
| | Display flow (differential pressure, frequency) measuring value –199999～999999 |
| | Current time display |
| | Luminotron work state display |
| Control mode | ON/OFF with return difference |
| Print control | direct match connect various type serial micro-printer, communication mode is RS-232C |
| Alarm mode | may select relay high/lower limit alarm output, LED alarm indicating |
| Fix-quantity control | may select relay heat-energy fix-quantity to control, LED alarm indicating |
| | May select relay heat-energy quantitative process control, LED output indicating |
| Communication mode | RS-232C, RS-485, baud rate (300～9600) bps ,may set |

➢ **Outline and open dimension**

Outline dimension：160×80×115mm

Open hole dimension：$152^{+0.7}_{-0}$ ×$76^{+0.7}_{-0}$ mm

Outline dimension：80×160×115mm

Open hole dimension：$76^{+0.7}_{-0}$ ×$152^{+0.7}_{-0}$ mm

**> Type spectrum table for intelligent heat-energy integrating controller**

| Model | | | | | | | | | | | | | Explanation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WP-L** | □ | □ | □ | □ | □ | -□ | □ | □ | -□ | □ | -□ | □ | | |
| **Integrating mode** | Q | | | | | | | | | | | | Heat-quantity integration | |
| | L | | | | | | | | | | | | Cold-quantity integration | |
| **Outline feature** | | | | | | | | | | | | | Big screen LCD liquid crystal horizontal display (can be omitted) | |
| | | S | | | | | | | | | | | Big screen LCD liquid crystal vertical display | |
| **Outline dimension** | | | 8 | | | | | | | | | | 160×80 mm, 80×160 mm | |
| **Calculation mode** | | | | 0 | | | | | | | | | Single-loop energy calculation | |
| | | | | 1 | | | | | | | | | Temperature difference energy calculation | |
| **Measurement medium** | | | | | 1 | | | | | | | | $CaCl_2$ water | |
| | | | | | 2 | | | | | | | | Hot water | |
| | | | | | 3 | | | | | | | | Superheat steam | |
| | | | | | 4 | | | | | | | | Saturated steam | |
| | | | | | 5 | | | | | | | | given curve by user ----check table method | |
| **Communication mode** | | | | | | 0 | | | | | | | Without communication interface | |
| | | | | | | 2 | | | | | | | RS-232C communication interface | |
| | | | | | | 8 | | | | | | | RS-485 communication interface | |
| **Type of heat-energy transmit output** | | | | | | | 2 | | | | | | Current (4～20) mA | |
| | | | | | | | 3 | | | | | | Current (0～10) mA | |
| | | | | | | | 4 | | | | | | Voltage (1～5) V | |
| | | | | | | | 5 | | | | | | Voltage (0～5) V | |
| **Type of measuring signal input** | | | | | | | | □ | | | | | Flow, differential pressure or frequency (see input type) | |
| | | | | | | | | □ | | | | | Pressure compensation input (see input type) | |
| | | | | | | | | □ | | | | | Temperature 1 compensation input (see input type) | |
| | | | | | | | | □ | | | | | Temperature 2 compensation input (see input type) | |
| **First alarm** | | | | | | | | | N | | | | Without alarm (can be omitted) | |
| | | | | | | | | | H | | | | First alarm is high limit alarm | |
| | | | | | | | | | L | | | | First alarm is lower limit alarm | |
| | | | | | | | | | B | | | | Heat energy fixed quantity to control --- automatic start | |
| | | | | | | | | | C | | | | heat energy Quantitative process control --- automatic start | |
| | | | | | | | | | D | | | | Heat energy fixed quantity to control --- automatic clean | |
| **Second alarm** | | | | | | | | | | N | | | Without alarm (can be omitted) | |
| | | | | | | | | | | H | | | Second alarm is high alarm | |
| | | | | | | | | | | L | | | Second alarm is lower alarm | |
| | | | | | | | | | | B | | | Heat energy fixed quantity to control --- automatic start | |
| | | | | | | | | | | C | | | Heat energy quantitative process control --- automatic start | |
| | | | | | | | | | | D | | | Heat energy fixed quantity to control --- automatic null | |
| **Feed output** | | | | | | | | | | | P | | One-way DC 24V feed output | No-feed output can be omitted |
| | | | | | | | | | | | 2P | | Double-way DC 24 V feed output | |
| **supply mode** | | | | | | | | | | | | | AC 220 V linear power (can be omitted) | |
| | | | | | | | | | | | | T | AC (90～265) V switch power supply | |
| | | | | | | | | | | | | W | DC 24 V (switch power) supply | |

★ Note: When user chooses specific curve compensation input (check table method), please provide correlative technical parameter or density form when ordering.

★ Note: When users choose out connection (start, stop, null) switch quantity, please explain while ordering, wiring diagram the random wiring diagram shall take precedence.

Option as an example: WP-LQ803-02-AAGN-HL; WP-LQ812-82-ANGG-HL-P

WP-LL811-04-ANAA-HL-2P; WP-LQ813-02-AAGG-HL-2P

**> Input type**

| Code | Input type | Measuring scope | Code | Input type | Measuring scope | Remarks |
|---|---|---|---|---|---|---|
| A | (4～20) mA | -199999～999999d | O | Pulse – collector open circuit | (0～7) KHz | The table listed data is the maximum range; user can determine range in the measurement scope through modify secondary parameter of the instrument TL, PL, PH, CAL, CAH. |
| B | (0～10) mA | -199999～999999d | W | Passive contact signal | (0～7) KHz | |
| C | (1～5)V | -199999～999999d | G | Pt 100 | -200～650℃ | |
| D | (0～5) V | -199999～999999d | R | User specify | -199999～999999d | |
| F | Pulse | (0～7) KHz | N | Without compensation input | | |

★ Note: Compensation temperature 1 or temperature 2 signal type shall be seleted.

**>> Wiring diagram of 160×80, 80×160**