

Operation instruction

QB5100 series— Fully Enclosed Waterproof Stable Digital Panel Meter



Decimal point position can be set freely, the display of eliminating critical word skipping function is more stable, and digital filtering can be selected to suppress noise and interference.

First: Product introduction:

QB5130B、QB5135B、QB5140B\QB5145B are Stable Digital Panel Meter

It is suitable for occasions with high precision measurement and stability requirements. It is widely used for measuring and displaying parameters such as voltage and current of various instruments and meters and electromechanical equipment. It is a good replacement product instead of pointer table..¹

Second: Main Technology Data

◆ Working voltage : DC5V~15V ◆ Electric current lower: $\leq 60\text{mA}$

| Measure precision and range of display,please check form one and form 2 [Form 1] | | | | |
|--|-----------------------|-----------------------|-----------------------|------------------------|
| Part number | QB5130B | QB5135B | QB5140B | QB5145B |
| Display numbers | 3 numbers | 3 and a half | 4 numbers | 4 and a half |
| Measure precision | $\pm 0.5\% \text{FS}$ | $\pm 0.2\% \text{FS}$ | $\pm 0.1\% \text{FS}$ | $\pm 0.05\% \text{FS}$ |
| Outside size | 79×43×23mm | 79×43×23mm | 79×43×23mm | 79×43×23mm |
| opening hole size | 76×39.5mm | 76×39.5mm | 76×39.5mm | 76×39.5mm |

◆ Zero Point Display: Stable zero ◆ Sample rate : 5 times/every second ◆ Display segment: 0.56 inches

◆ Transfinite display: “EEE” :“EEEE” ◆ Relative humidity $\leq 85\% \text{RH}$ ◆ Work temperature 0~+50℃

Third: Range of measurement and Variation Parameter Table

| | range of display | | Range of Input signal | | | | Range extension method | | |
|-----------------|--------------------|--------------------|--|--|--|--|-------------------------------|--------------|---|
| | QB5135B QB5145B | QB5130B QB5140B | QB5130B | QB5135B | QB5140B | QB5145B | R1 | R2 | R3 |
| Voltage | 0~ ±200mV | — 20~ 100mV | — 19.9~ 99.9 | 0~±199.9 | — 19.9~99.9 | 0~±199.99 | 10K | | |
| | 0~±2V | — 0.2~1V | — 199~999 | 0~±1.999 | — 199.9~ 999.9 | 0~±1.9999 | 100 K | | 11K |
| | 0~±20V | — 2~10V | — 1.99~ 9.99 | 0~±19.99 | — 1.999~ 9.999 | 0~±19.999 | 1M | | 10K |
| | 0~±200V | — 20~100V | — 19.9~ 99.9 | 0~±199.9 | — 19.99~ 99.99 | 0~±199.99 | 1M | | 1K |
| Ammeter | 0~±2mA | — 0.2~1mA | — 19.9~ 999 | 0~±1.999 | — 199.9~ 999.9 | 0~±1.9999 | 10K | 100 Ω | |
| | 0~±20mA | — 2~10mA | — 1.99~ 9.99 | 0~±19.99 | — 1.999~ 9.999 | 0~±19.999 | 10K | 10Ω | |
| | 0~ ±200mA | — 2~ 100mA | — 19.9~ 99.9 | 0~±199.9 | — 19.99~ 99.99 | 0~±199.99 | 10K | 1Ω | |
| | 0~±2A | — 0.2~1A | — 199~999 | 0~±1.999 | — 199.9~ 999.9 | 0~±1.9999 | 10K | 0.1Ω (2W) | |
| | 0~±5A | — 1.99~ 5.00 | — 1.99~ 5.00 | 0~±5.0 | — 1.999~ 5.000 | 0~±5.0 | 10K | | |
| Standard signal | 0~±5V | — 1~5V | 5v full value between the range of -1999~9999 confirm | 5v full value between the range of 0~±9999 confirm | 5v full value between the range of -1999~9999 confirm | 5v full value between the range of 0~±19999 confirm | 1M | | <u>0.1V or 0.2V×R1</u> 5v-0.1v or 0.2v Kω |
| | 0~±10V | — 2~10V | 10v full value between the range of -1999~9999 confirm | 10v full value between the range of 0~±9999 confirm | 10v full value between the range of -1999~9999 confirm | 10v full value between the range of 0~±19999 confirm | 1M | | <u>0.1V or 0.2V×R1</u> 10v-0.1v or 0.2v Kω |
| | 0~±10mV | — 2~10mA | 10mA full value between the range of -1999~9999 confirm | 10mA full value between the range of 0~±9999 confirm | 10mA full value between the range of -1999~9999 confirm | 10mA full value between the range of 0~±19999 confirm | 10K | | |
| | 0~±75mV | — 15~ 75mV | — 199~ ±1999 | 0~±1999 | — 1999~ ±9999 | 0~±19999 | Book from factory directly | | |

8. Instrument wiring instructions

1) It is recommended that the user instrument be powered separately, and the negative power supply is not connected with the negative input signal (i.e. not sharing the ground)

2) If the power supply negative and signal negative of the user system cannot be separated, the resistance of each wire of the connecting wire must not be greater than $0.5\ \Omega$

Otherwise, it will cause zero point offset or word skipping. For example: use 0.5mm^2 (about 0.2×13) multi strand copper conductor, and the maximum length should not exceed 20cm

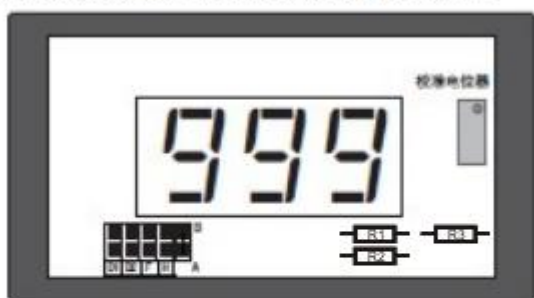
4、 Application example (take three and a half panel table qb5135b as an example)

1. Selection panel table: qb5135b- $0 \sim \pm 199.9\text{v}$ 1 Qb5135b - $0 \sim \pm 50.0/75\text{mv}$ 2 pcs

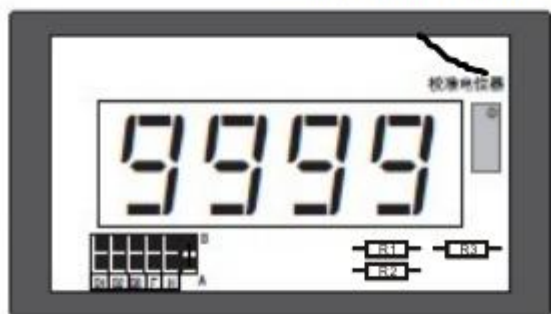
2. Selection of power supply: two 5V / 200mA DC regulated power supplies 2pcs

Usage of intruduction

1. Panel meter back viewing pictures



QB5130B back viewing picture

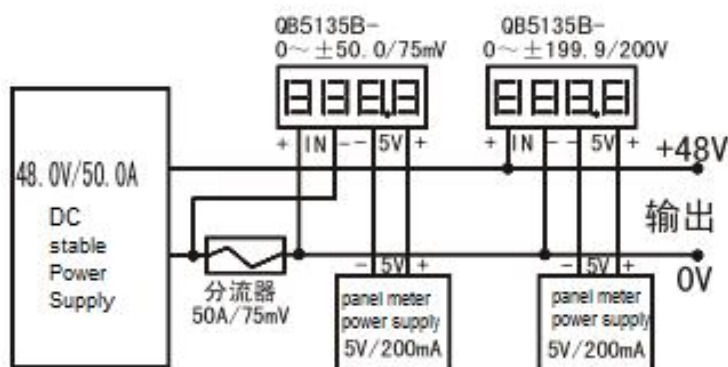


QB5135B QB5140B back view picture

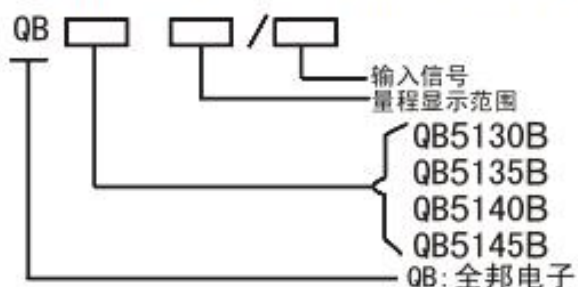


QB5145B back viewing picture

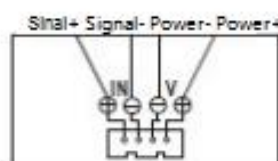
Standar connection method likes below















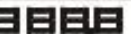











Mark : QB All series of panel meters



Panel meter back viewing picture



- 2 The measuring range is relatively accurate Calibration potentiometer (e.g. rear view) on circuit board at back of panel table for adjusting full scale
3. Range Expansion of Panel Meter The standard measuring range of the panel meter at the factory is 200mV for QB5135B and QB5145B. QB5130B and QB5140B are 100mV Users can expand the measuring range according to [Table 2] as required (they can also order from manufacturers)
- 4, display the latch hold short circuit is locked
5. Digital filtering: FILT short circuit can suppress noise or interference, but the display will lag slightly.
6. Decimal point position: according to the requirements of measuring range, short-circuit different welding points according to the following table. Decimal point position can be converted into business.

| | | | | | |
|--------------------|---|---|---|--|---|
| QB5130B | | |  D1 D2 |  D1 D2 |  D1 D2 |
| | | |  |  |  |
| QB5135B QB5140B | |  D1 D2 D3 |  D1 D2 D3 |  D1 D2 D3 |  D1 D2 D3 |
| | |  |  |  |  |
| QB5145B |  D1 D2 D3 D4 |  D1 D2 D3 D4 |  D1 D2 D3 D4 |  D1 D2 D3 D4 |  D1 D2 D3 D4 |
| |  |  |  |  |  |

Seven:standar range of input resist table

| | | | | | |
|--------------------|--------------|------|------|-----|------|
| QB5135B QB5145B | Input signal | 0.2V | 2V | 20V | 200V |
| | Input resist | 100K | 100K | 1M | 1M |
| QB5130B QB5140B | Input signal | 0.1V | 1V | 10V | 100V |
| | Input resist | 100K | 100K | 1M | 1M |