

YCQB SERIES**PRESSURE SENSORS
YCQB**

Pressure sensors are widely used in Air Conditioning, Refrigeration and Heat Pump system. Using a 5V excitation input these sensors provide a 0.5-3.5 V or 0.5-4.5 V ratiometric signal output proportional to the pressure of the medium. This device requires no end user amplification. Pressure sensors permit to control and guarantee the system working under safe and stability condition.

**FEATURES**

- OVERALL FEATURES: APPLIED HIGH PERFORMANCE DIGITAL CIRCUIT WHICH HAS GOOD LINEAR, SMALL TEMPERATURE EXCURSION AND HIGH LEVEL OF ACCURACY OVER WIDE OPERATING RANGE;
- SMALL SIZE AND SIMPLE INSTALLATION;
- MODELS AVAILABLE WITH LEAD WIRE DIRECT CONNECTOR OR WITH PACKARD AND MOLEX SOCKET CONNECTIONS
- STABILITY: APPLIED SUPERIOR PRESSURE CORE, GOOD STABILITY UNDER STRICT PROCESS CONTROL;
- DIVERSIFICATION: DIFFERENT PRESSURE RANGES AND DIFFERENT LEVEL OF ACCURACY

GENERAL SPECIFICATIONS

- Applicable for HFC / HFO / flammables refrigerants and CO₂
- Relative humidity: 0 to 95% RH
- Installation position: preferably with vertical axis and sensor upwards
- Certifications: UL/CSA and declaration according to EMC directive

ELECTRICAL SPECIFICATIONS

- Supply voltage: 5V ± 0.25V DC
- Current consumption: Max. 10 mA
- Response time: 10 ms
- Insulation resistance: Min. 100 MΩ
- Load resistance: Min. 10 kΩ
- Protection class: IP66/IP67



MODEL DESIGNATION

| | | | | | |
|------------|----------|-----------|----------|-------------|---|
| YCQ | B | 02 | L | xxxx | YCQ = Pressure Transmitter |
| YCQ | B | 02 | L | xxxx | B = Voltage output / C = Current Output |
| YCQ | B | 02 | L | xxxx | Pressure range 01 : between 0 and 10 bar 02 : between 0 and 20 bar 03 : between 0 and 30 bar 04 : between 0 and 40 bar 05 : between 0 and 50 bar |
| YCQ | B | 02 | L | xxxx | L = Thread / H= Solder |
| YCQ | B | 02 | L | xxxx | Digits for additional information |

GENERAL CHARACTERISTICS

YCQB with 0.5 to 3.5V output signal

| Model Name | Output signal = 0.5 to 3.5V (compatible with Sanhua controller = SEC) | | | | | | |
|--------------|--|---------------|----------------|----------------------|-----------------------|----------|--------------|
| | Part Number | Solder/Flare* | Pressure range | Max Working pressure | Electrical connection | Accuracy | Medium Temp. |
| | | | [bar] | [bar] | Type | % | °C |
| YCQB02H01 | 10185004701 | Solder | 0-20 | 52,5 | 2m wires +XHP | ±2% FS | -30 / 120 |
| YCQB02H01-01 | 10185001501 | | 0-20 | 52,5 | 2m wires +XHP | ±0,8% FS | -40 / 120 |
| YCQB02H18-1 | 10185015401 | | 0-20 | 52,5 | 4.9m wires +XHP | ±0,8% FS | -40 / 120 |
| YCQB03H05 | 10185046601 | | 0-30 | 75 | 2m wires +XHP | ±0,8% FS | -40 / 120 |
| YCQB05H01 | 10185004801 | | 0-50 | 75 | 2m wires +XHP | ±2% FS | -30 / 120 |
| YCQB02L12-1 | 10185015501 | Flare | 0-20 | 52,5 | 2m wires +XHP | ±0,8% FS | -40 / 120 |
| YCQB02L28-1 | 10185015601 | | 0-20 | 52,5 | 4.9m wires +XHP | ±0,8% FS | -40 / 120 |
| YCQB03L156 | 10185046301 | | 0-30 | 75 | 2m wires +XHP | ±0,8% FS | -40 / 120 |

* **Flare** = 7/16-20UNF-2B connector / **Solder** = 1/4" connector

PRESSURE SENSOR



YCQB with 0.5 to 4.5V output signal

Output signal = 0.5 to 3.5V (compatible with Sanhua controller = SEC)

| Model Name | Part Number | Solder/Flare* | Pressure range | Max Working pressure | Electrical connection | Accuracy | Medium Temp. |
|--------------|-------------|---------------|----------------|----------------------|-----------------------|---------------|--------------|
| | | | [bar] | [bar] | Type | % | °C |
| YCQB02H50 | 10185004501 | Solder | 0-13.8 | 52,5 | Packard | ±2% FS | -30 / 120 |
| YCQB04H50 | 10185004601 | | 0-34.5 | 75 | Packard | ±2% FS | -30 / 120 |
| YCQB03H06 | 10185046501 | | 0-30 | 75 | 2m wires +XHP | ±0,8% FS | -40 / 120 |
| YCQB05H11 | 10185046101 | | 0-50 | 75 | 2m wires +XHP | ±2% FS | -40 / 150 |
| YCQB02L01 | 10185004901 | | Flare | 0-20 | 52,5 | 2m wires +XHP | ±2% FS |
| YCQB02L01-01 | 10185001401 | 0-20 | | 52,5 | 2m wires +XHP | ±0,8% FS | -40 / 120 |
| YCQB03L18 | 10185046401 | 0-30 | | 75 | 2m wires +XHP | ±0,8% FS | -40 / 120 |
| YCQB05L01 | 10185007001 | 0-46 | | 75 | 2m wires +XHP | ±2% FS | -30 / 120 |
| YCQB05L63 | 10185046001 | 0-50 | | 75 | 2m wires +XHP | ±2% FS | -40 / 150 |
| YCQB01L50 | 10185015702 | -1 -9.3 | | 52,5 | Packard | ±2% FS | -30 / 130 |
| YCQB02L50 | 10185004001 | 0-13.8 | | 52,5 | Packard | ±1% FS | -30 / 120 |
| YCQB02L51 | 10185014101 | 0-17.2 | | 52,5 | Packard | ±1% FS | -30 / 120 |
| YCQB03L157 | 10185046201 | 0-30 | | 75 | Packard | ±0,8% FS | -40 / 120 |
| YCQB04L50 | 10185004201 | 0-34.5 | | 52,5 | Packard | ±1% FS | -30 / 120 |
| YCQB05L50 | 10185004301 | 0-46 | | 75 | Packard | ±1% FS | -30 / 120 |
| YCQB05L53 | 10185013401 | 0-45 | | 75 | Packard | ±2% FS | -30 / 130 |
| YCQB03L161 | 10185045901 | 0-50 | | 75 | Packard | ±2% FS | -40 / 150 |
| YCQB02L100 | 10185009101 | 0-20 | | 52,5 | Molex | ±2% FS | -30 / 120 |
| YCQB05L100 | 10185009201 | 0-46 | | 75 | Molex | ±1% FS | -30 / 120 |

Note: * Flare = 7/16-20UNF-2B connector / Solder = 1/4" connector



YCQB for High pressure use - G 1/4

| Model Name | U11 | Pressure range | Max Working pressure | Electrical connection | Cable length | Output signal | Medium Temp. |
|------------|-------------|----------------|----------------------|-----------------------|--------------|---------------|--------------|
| | | [bar] | [bar] | Type | [m] | [VDC] | °C |
| YCQB15L01 | 10185030302 | 0-150 | 225 | XHP | 2 | 0.5 to 4.5 | -30/+85 |
| YCQB09L02* | 10185044102 | 0-90 | 225 | XHP | 2 | 0.5 to 3.5 | -40/+40 |

Note: * suitable with Sanhua superheat controller SEC61.

PRESSURE SENSOR



YCQB for water use

Suitable with pure water and water + glycol till 50%.

| Output signal = 0.5 to 4.5V | | | | | | | |
|-----------------------------|-------------|---------------|----------------|----------------------|-----------------------|--------------|--------------|
| Model Name | Part Number | Solder/Flare* | Pressure range | Max Working pressure | Electrical connection | Cable length | Medium Temp. |
| | | | [bar] | [bar] | Type | [m] | °C |
| YCQB01L503 | 10185042701 | Flare | 0-10 | 52.5 | XHP | 2 | -30/+100 |

*Flare = 7/16-20UNF-2B connector

- Note:**
- 1) Signal span: $VFS=FS$ (Full Scale) = $VA(pr) - VA0$
 - 2) Accuracy measured within the temperature ranges shown in Table 1:
 Included Nonlinearity (L) and pressure hysteresis. The Nonlinearity is the deviation of the real sensor characteristic $VA = f(p)$ from the ideal straight line. It can be approximated by a polynomial of second order, with the maximum at $px = pr / 2$.
 The equation to calculate the nonlinearity is: $L = (VA(px) - VA0) / (VA(pr) - VA0) - px / pr$
 - 3) Response Time: delay between a pressure change (10 to 90% pr) and the corresponding signal output change (10 to 90% FS)
 - 4) Insulation Resistance measured with rated voltage: 500 VDC

For other connection types (M12, M16...) please contact your Sanhua local representative.



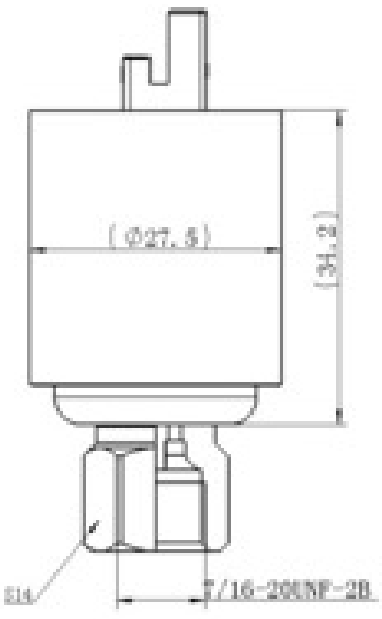
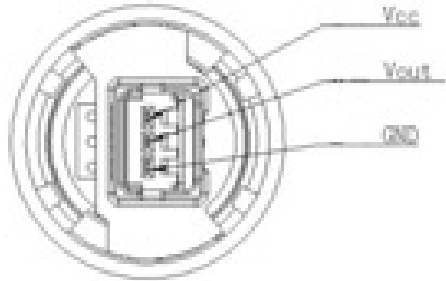
DIMENSIONS

| Solder connector 1/4" | 7/16-20UNF-2B | G 1/4 | Electrical connector |
|-----------------------|---------------|-------|--|
| | | | <p>XHP Connector</p> <p>1: Vcc - RED 2: VA(pr) - WHITE 3: GND - BLACK</p> |
| | | | <p>Packard connector</p> |

PRESSURE SENSOR



DIMENSIONS

| 7/16-20UNF-2B | Electrical connector |
|--|--|
|  <p>Technical drawing of the pressure sensor showing dimensions: diameter (Ø27.8), height (34.2), and thread (7/16-20UNF-2B). A label 'E14' points to the mounting base.</p> | <p>Molex Socket</p>  <p>Technical drawing of the Molex socket showing electrical connections: Vcc, Vout, and GND.</p> |

YCQC SERIES**PRESSURE SENSOR
YCQC**

Pressure sensors are widely used in Air Conditioning, Refrigeration and Heat Pump system. YCQC pressure sensor uses a DC 10-30V excitation input to provide a 4-20 mA signal output proportional to the pressure of the medium. This device requires no end user amplification. Pressure sensors permit to control and guarantee the system working under safe and stability condition.

**FEATURES**

- OVERALL FEATURES: APPLIED HIGH PERFORMANCE DIGITAL CIRCUIT WHICH HAS GOOD LINEAR, SMALL TEMPERATURE EXCURSION AND HIGH LEVEL OF ACCURACY OVER WIDE OPERATING RANGE
- SMALL SIZE AND SIMPLE INSTALLATION; MODELS AVAILABLE WITH PACKARD CONNECTOR OR WIRES
- STABILITY: APPLIED SUPERIOR PRESSURE CORE, GOOD STABILITY UNDER STRICT PROCESS CONTROL

GENERAL SPECIFICATIONS

- Applicable for R32 and others HFC/HFO refrigerants
- Relative humidity: 0 to 95% RH
- Installation position: preferably with vertical axis and sensor upwards
- Certifications: declarations according to EMC & PED directives

ELECTRICAL SPECIFICATIONS

- Supply voltage: from 10V to 30V DC
- Rated output signal: from 4 to 20 mA
- Voltage dependency : < 0,05% FS/10 V
- Current Limitation (linear output signal up to 1.5 x rated range) : 28 mA
- Signal Span (V_{FS}) : 16 V
- Insulation resistance: Min. 100 M Ω
- Protection class: IP65/IP66

PRESSURE SENSOR



GENERAL CHARACTERISTICS

YCQC with 4-20mA signal output

| Model Name | Part Number | Solder/Flare* | Output signal = 4- 20mA | | | | |
|-------------|-------------|---------------|-------------------------|----------------------|-----------------------|----------|--------------|
| | | | Pressure range | Max Working pressure | Electrical connection | Accuracy | Medium Temp. |
| | | | [bar] | [bar] | Type | % | °C |
| YCQC03L04 | 10185011001 | Solder | 0-30 | 75 | Hirschmann | ±0,8% FS | 40 / 80 |
| YCQC01L13 | 10185015201 | Flare | -0.5-7 | 52.5 | Packard | ±0,8% FS | -40 / 80 |
| YCQC02L18 | 10185017102 | | -1-12 | 52.5 | Packard | ±0,8% FS | -40 / 80 |
| YCQC03L05 | 10185009301 | | 0-30 | 75 | Packard | ±0,5% FS | -40 / 80 |
| YCQC03L06 1 | 10185009401 | | 0-30 | 75 | Packard | ±0,5% FS | -40 / 80 |
| YCQC03L11 | 10185014401 | | 0-30 | 75 | Packard | ±0,8% FS | -40 / 80 |
| YCQC05L09 | 10185015301 | | 0-44.8 | 75 | Packard | ±0,8% FS | -40 / 80 |
| YCQC05L25 | 10185047001 | | 0-50 | 75 | Packard | ±0,8% FS | -40/150 |

* **Flare** = 7/16-20UNF-2B connector / **Solder** = 1/4" connector
 1 Model with 7/16-20 UNF-A (Male), others are 7/16UNF-B (Female)

YCQC with G 3/8A connector

| Model Name | Part Number | Output signal = 4- 20mA | | | | |
|------------|-------------|-------------------------|----------------------|-----------------------|----------|--------------|
| | | Pressure range | Max Working pressure | Electrical connection | Accuracy | Medium Temp. |
| | | [bar] | [bar] | Type | % | °C |
| YCQC02L04 | 10185009901 | -1 - 12 | 52.5 | Hirschmann | ±0,8% FS | -40 / 80 |
| YCQC02L05 | 10185009801 | -1 - 20 | 52.5 | Hirschmann | ±0,8% FS | -40/80 |



YCQC for High pressure use

| Model Name | Part Number | Mechanical connection | Output signal = 4- 20mA | | | |
|------------|-------------|-----------------------|-------------------------|----------------------|-----------------------|--------------|
| | | | Pressure range | Max Working pressure | Electrical connection | Medium Temp. |
| | | | [bar] | [bar] | Type | °C |
| YCQC15L02 | 10185042302 | G 1/4 | 0-150 | 225 | Packard +10cm | -20/100 |
| YCQC09L02* | 10185042402 | Flare | 0-90 | 135 | Packard +10cm | -20/100 |

*: suitable with Sanhua superheat controller SEC61.

YCQC for water use

Suitable with pure water and water + glycol till 50%.

| Model Name | Part Number | Solder / Flare* | Output signal = 4- 20mA | | | |
|------------|-------------|-----------------|-------------------------|----------------------|-----------------------|--------------|
| | | | Pressure range | Max Working pressure | Electrical connection | Medium Temp. |
| | | | [bar] | [bar] | Type | °C |
| YCQC01L501 | 10185036001 | Flare | -0.8 -7 | 52.5 | Packard | -40/80 |

***Flare** = 7/16-20UNF-2B connector

Note: 1) Signal span: $V_{FS}=FS$ (Full Scale) = $V_A(p_r) - V_{A0}$
 2) Insulation Resistance measured with rated voltage: 500 VDC



DIMENSIONS

| Brazen copper tube | 7/16-20UNF-2B | | Electrical connector |
|--------------------|---------------|--|---------------------------------|
| | | | <p>XHP Connector</p> |
| | | | <p>Packard connector</p> |



| G 1/4 | 7/16-20UNF-2A (Male) | Electrical connector |
|--------|------------------------|--------------------------|
| | | <p>Packard Connector</p> |
| G 3/8A | 7/16-20UNF-2B (Female) | Electrical connector |
| | | <p>Hirschmann</p> |

PRESSURE SENSOR



OPERATING TEMPERATURES

**YCQB or YCQC
Flare and Brazed**

| Maxi Medium Temperature | Ambient Temperature | Distance "A" | Distance "B" Flare | Distance "B" Brazed |
|-------------------------|---------------------|--------------|--------------------|---------------------|
| [°C] | [°C] | [mm] | [mm] | [mm] |
| 150 | 60 | >30 | 40 | 70 |

ACCESSORIES

Packard Cables IP **55** with 3 wires

| Model Name | Part Number | Connector Type | Total Cable Length | Terminal |
|---------------|-------------|----------------|--------------------|------------|
| YCQB02-013051 | 20185014302 | Packard | 1500 mm | Lead Wires |
| YCQB02-013052 | 20185013102 | Packard | 5000 mm | Lead Wires |

Note: For usage with YCQC models, don't connect the white wire.

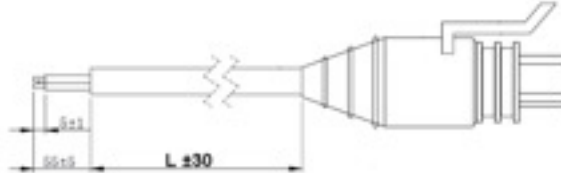


PRESSURE SENSOR



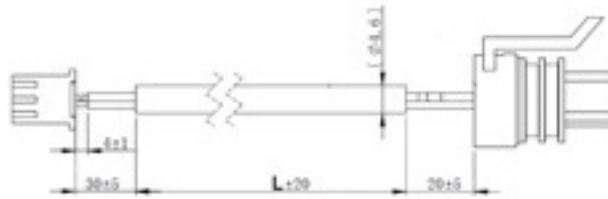
Packard Cables IP 67 with 3 wires

| Model Name | Part Number | Connector Type | Total Cable Length | Terminal |
|---------------|-------------|----------------|--------------------|------------|
| YCQB02-013050 | 20185034002 | Packard | 1500 mm | Lead Wires |
| YCQB02-013056 | 20185034102 | Packard | 5000 mm | Lead Wires |



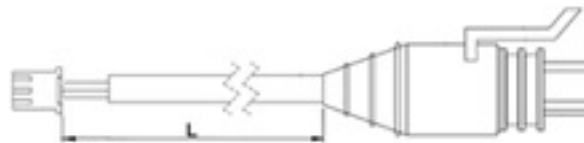
Packard Cables IP 55 + XHP connector with 3 wires

| Model Name | Part Number | Connector Type | Total Cable Length | Terminal |
|---------------|-------------|----------------|--------------------|----------|
| YCQB02-013054 | 20185016702 | Packard | 6000 mm | XHP-3 |
| YCQB02-013055 | 20185016802 | Packard | 9000 mm | XHP-3 |



Packard Cables IP 67 + XHP connector with 3 wires

| Model Name | Part Number | Connector Type | Total Cable Length | Terminal |
|---------------|-------------|----------------|--------------------|----------|
| YCQC02-013037 | 20185051102 | Packard | 2000 mm | XHP-3 |
| YCQC02-013038 | 20185051202 | Packard | 5000 mm | XHP-3 |
| YCQC02-013039 | 20185051202 | Packard | 9000 mm | XHP-3 |



Packard Cables IP 67 with 2 wires

| Model Name | Part Number | Connector Type | Total Cable Length | Terminal |
|---------------|-------------|----------------|--------------------|------------|
| YCQC02-013034 | 20185046602 | Packard | 2000 mm | Lead Wires |
| YCQC02-013036 | 20185051002 | Packard | 4000 mm | Lead Wires |

