

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 \pm 0.25V DC
- Current consumption: Max. 10 mA
- Response time: 10 ms
- Insulation resistance: Min. 100 M Ω
- Load resistance: Min. 10 k Ω
- 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	10185001401	Flare	0-20	52,5	2m wires +XHP	±0,8% FS	-40 / 120
YCQB02L28-1	10185005601		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



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	10185005702	-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	10185004101	0-34.5		52,5	Packard	±1% FS	-30 / 120
YCQB05L50	10185004201	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	10185015501	0-20		52,5	Molex	±2% FS	-30 / 120
YCQB05L100	10185009101	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.



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: $V_{FS}=FS$ (Full Scale) = $V_A(pr) - V_{A0}$
 - 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 $V_A = f(p)$ from the ideal straight line. It can be approximated by a polynomial of second order, with the maximum at $p_x = pr / 2$.
The equation to calculate the nonlinearity is: $L = (V_A(p_x) - V_{A0}) / (V_A(pr) - V_{A0}) - p_x / pr$
 - 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.

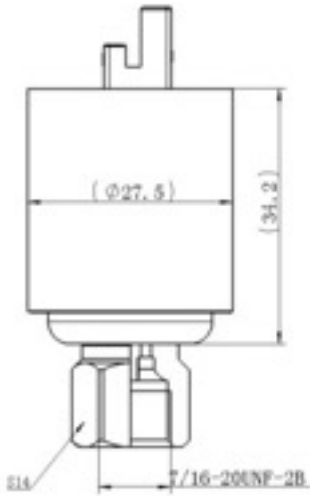
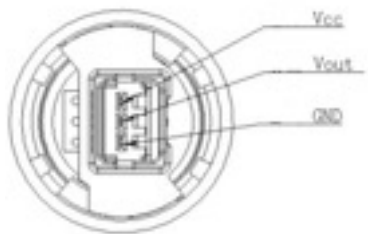


DIMENSIONS

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>



DIMENSIONS

7/16-20UNF-2B	Electrical connector
 <p>Technical drawing of the connector showing dimensions: diameter (Φ27.5), height (34.2), and thread specification (7/16-20UNF-2B). A label 'S14' points to the mounting base.</p>	<p>Molex Socket</p>  <p>Cross-sectional diagram of the Molex socket with labels for 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



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

Output signal = 4- 20mA						
Model Name	Part Number	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

Output signal = 4- 20mA						
Model Name	Part Number	Mechanical connection	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%.

Output signal = 4- 20mA						
Model Name	Part Number	Solder / Flare*	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

YCQC SERIES CO2 PRESSURE SENSOR



DIMENSIONS

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

YCQC SERIES
CO2 PRESSURE SENSOR



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>

YCQC SERIES CO2 PRESSURE SENSOR



OPERATING TEMPERATURES

**YCQB or YCQC
Flare and Braze**

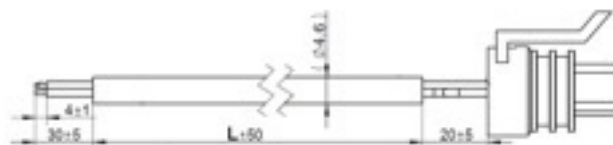
Maxi Medium Temperature	Ambient Temperature	Distance "A"	Distance "B" Flare	Distance "B" Braze
[°C]	[°C]	[mm]	[mm]	[mm]
150	60	>30	40	70

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.

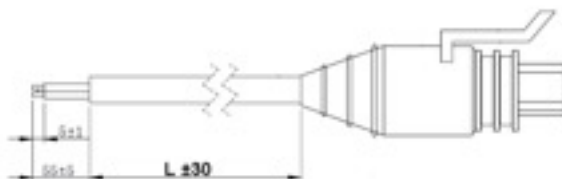


YCQC SERIES CO2 PRESSURE SENSOR



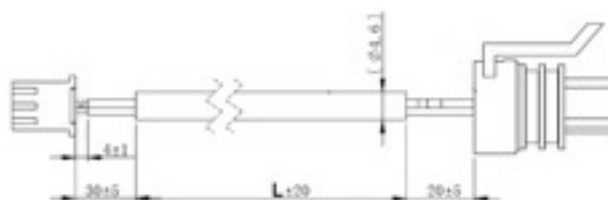
Packard Cables IP **67** with 3 wires

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
YCQC02-013022	20185038202	Packard	2000 mm	XHP-3
YCQC02-013023	20185039602	Packard	5000 mm	XHP-3
YCQC02-013024	20185039702	Packard	9000 mm	XHP-3



Packard Cables IP **55** with 2 wires

Model Name	Part Number	Connector Type	Total Cable Length	Terminal
YCQC02-013017	20185029001	Packard	4040 mm	Lead Wires
YCQC02-013019	20185031201	Packard	2000 mm	Lead Wires

