



Pressure Sensor

Pressure sensors are widely used in Air Conditioning, Refrigeration and Heat Pump system. Using a 5 V 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 PARKARD 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 SPECIFICATION

- Applicable for all common HCFC, HFC, HFO refrigerants such as: R22, R134a, R404A, R407A/F, R407C, R410A, R448A, R449A, R450A, R452A, R513A, R507A ¹⁾
- Installation position: preferably with vertical axis and sensor upwards
- Certifications: UL/CSA and declaration according to EMC directive

Note:

1) Flammable refrigerants like R32, R290, R1234ze(E), R1234yf on request

ELECTRICAL SPECIFICATION

- Supply Voltage : 5V \pm 0.25V DC
- Current Consumption : Max. 10 mA
- Response Time τ : 10 ms
- Insulation Resistance R_i : Min. 100 M Ω
- Load Resistance : Min. 10 k Ω
- Protection Class : IP66/IP67





SANHUA YCQB SERIES Pressure Sensor

ELECTRICAL SPECIFICATION

Table 1: Operative Limits								
Model Name	Part Number	Ambient Temperature	Relative Humidity	Medium Temperature TS min / max	Temperature Range for maximum accuracy	Maximum Operating Pressure (MOP) [Mpa]		
YCQB02H01	10185004701	-30°C / +80°C	from 0 to 95%	-30°C / +120°C	± 2,0 % F.S. in the range -30°C / +85°C	5,25		
YCQB05H01	10185004801				± 2,0 % F.S. in the range -30°C / +120°C	7,50		
YCQB02L01	10185004901				± 2,0 % F.S. in the range -30°C / +85°C	5,25		
YCQB05L01	10185007001				± 2,0 % F.S. in the range -30°C / +120°C	7,50		
YCQB02H01-01 (1)	10185001501			-40°C / +120°C	± 0,8 % F.S. in the range -40°C / +40°C 5,25			
YCQB02H18-1 (1)	10185015401							
YCQB02L01-01	10185001401							
YCQB02L12-1 (1)	10185015501							
YCQB02L28-1 (1)	10185015601							
YCQB02H50	10185004501					-30°C / +120°C	± 2,0 % F.S. in the range -20°C / +120°C	5,25
YCQB04H50	10185004601					± 2,0 % F.S. in the range -30°C / +120°C	7,50	
YCQB01L50 (2)	10185015702					-30°C / +130°C	± 2,0 % F.S. in the range -30°C / +120°C	5,25
YCQB02L50	10185004001			-30°C / +120°C	± 1,0 % F.S. in the range -30°C / +85°C	5,25		
YCQB02L51	10185004101				± 2,0 % F.S. in the range -40°C / +30°C	5,25		
YCQB04L50 (2)	10185004201				± 2,5 % F.S. in the range +85°C / +125°C	5,25		
YCQB05L50	10185004301				± 1,0 % F.S. in the range -30°C / +85°C	7,50		
YCQB05L53 (2)	10185013401			-30°C / +130°C	± 1,0 % F.S. in the range -30°C / +85°C	5,25		
YCQB02L100	10185009101			-30°C / +120°C	± 1,0 % F.S. in the range -30°C / +85°C			
YCQB05L100	10185009201				± 2,0 % F.S. in the range -40°C / +30°C	7,50		
							± 2,5 % F.S. in the range +85°C / +125°C	

Note: 1) Models suitable for usage with Sanhua EEV driver
2) Models especially designed for distribution market





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GENERAL CHARACTERISTICS

Model Name	Mechanical connection			Electrical connection	Cable Length [mm]	Pressure Range (0 to pr) [Mpa]	Output (VA0 to VApr) [V]	Maximum Accuracy
	Type	Pipe Size [inch]	Thread size					
YCQB02H01	Solder	1/4"	-	Lead Wires	2000	0 to 2	0,5 to 3,5 DC	± 2,0 % F.S.
YCQB05H01	Solder	1/4"	-	Lead Wires	2000	0 to 5	0,5 to 3,5 DC	± 2,0 % F.S.
YCQB02L01	Thread	SAE - 1/4"	7/16-20UNF	Lead Wires	2000	0 to 2	0,5 to 4,5 DC	± 2,0 % F.S.
YCQB05L01	Thread	SAE - 1/4"	7/16-20UNF	Lead Wires	2000	0 to 4,6	0,5 to 4,5 DC	± 2,0 % F.S.
YCQB02H01-01	Solder	1/4"	-	Lead Wires	2000	0 to 2	0,5 to 3,5 DC	± 0,8 % F.S.
YCQB02H18-1	Solder	1/4"	-	Lead Wires	4900	0 to 2	0,5 to 3,5 DC	± 0,8 % F.S.
YCQB02L01-01	Thread	SAE - 1/4"	7/16-20UNF	Lead Wires	2000	0 to 2	0,5 to 4,5 DC	± 0,8 % F.S.
YCQB02L12-1	Thread	SAE - 1/4"	7/16-20UNF	Lead Wires	2000	0 to 2	0,5 to 3,5 DC	± 0,8 % F.S.
YCQB02L28-1	Thread	SAE - 1/4"	7/16-20UNF	Lead Wires	4900	0 to 2	0,5 to 3,5 DC	± 0,8 % F.S.
YCQB02H50	Solder	1/4"	-	Packard	-	0 to 1,38	0,5 to 4,5 DC	± 2,0 % F.S.
YCQB04H50	Solder	1/4"	-	Packard	-	0 to 3,45	0,5 to 4,5 DC	± 2,0 % F.S.
YCQB01L50	Thread	SAE - 1/4"	7/16-20UNF	Packard	-	0 to 0,93	0,5 to 4,5 DC	± 2,0 % F.S.
YCQB02L50	Thread	SAE - 1/4"	7/16-20UNF	Packard	-	0 to 1,38	0,5 to 4,5 DC	± 1,0 % F.S.
YCQB02L51	Thread	SAE - 1/4"	7/16-20UNF	Packard	-	0 to 1,72	0,5 to 4,5 DC	± 1,0 % F.S.
YCQB04L50	Thread	SAE - 1/4"	7/16-20UNF	Packard	-	0 to 3,45	0,5 to 4,5 DC	± 1,0 % F.S.
YCQB05L50	Thread	SAE - 1/4"	7/16-20UNF	Packard	-	0 to 4,6	0,5 to 4,5 DC	± 1,0 % F.S.
YCQB05L53	Thread	SAE - 1/4"	7/16-20UNF	Packard	-	0 to 4,5	0,5 to 4,5 DC	± 2,0 % F.S.
YCQB02L100	Thread	SAE - 1/4"	7/16-20UNF	Molex	-	0 to 2	0,5 to 4,5 DC	± 2,0 % F.S.
YCQB05L100	Thread	SAE - 1/4"	7/16-20UNF	Molex	-	0 to 4,6	0,5 to 4,5 DC	± 1,0 % F.S.

Note: 1) Signal span: $V_{FS}=FS$ (Full Scale) = $V_A(p_r) - V_{A0}$

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 $p_x = p_r / 2$.

The equation to calculate the nonlinearity is:

$$L = (V_A(p_x) - V_{A0}) / (V_A(p_r) - V_{A0}) - p_x / p_r$$

3) Response Time: delay between a pressure change (10 to 90% p_r) and the corresponding signal output change (10 to 90% FS)

4) Insulation Resistance measured with rated voltage: 500 V DC





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OPERATING TEMPERATURES

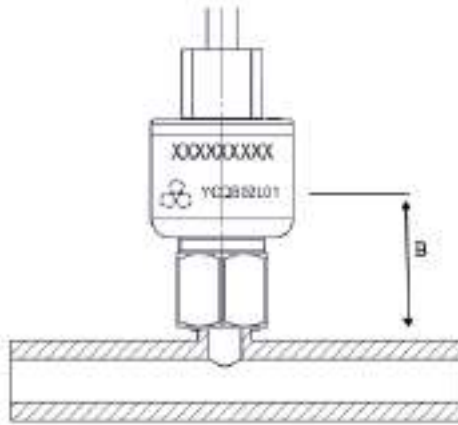


Fig. 1
YCQB – version with Flare connection
Distance B = 40mm

Medium Temperature [°C]	Ambient Temperature [°C]	Distance "B" [mm]	Max. Operational Temperature [°C]*
120	79.4	40	90
130	59.9	40	90
140	37.2	40	90

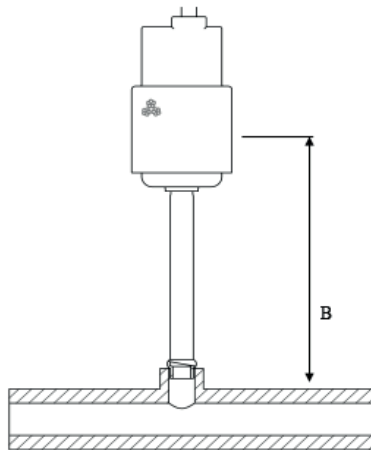


Fig. 2
YCQB – version with Solder connection
Distance B = 70mm

Medium Temperature [°C]	Ambient Temperature [°C]	Distance "B" [mm]	Max. Operational Temperature [°C]*
120	96.2	70	90
130	80.2	70	90
140	60.0	70	90

Note: Operational Temperature can exceed 90°C for a limited period. In this condition, the indicated accuracy is not more guaranteed.

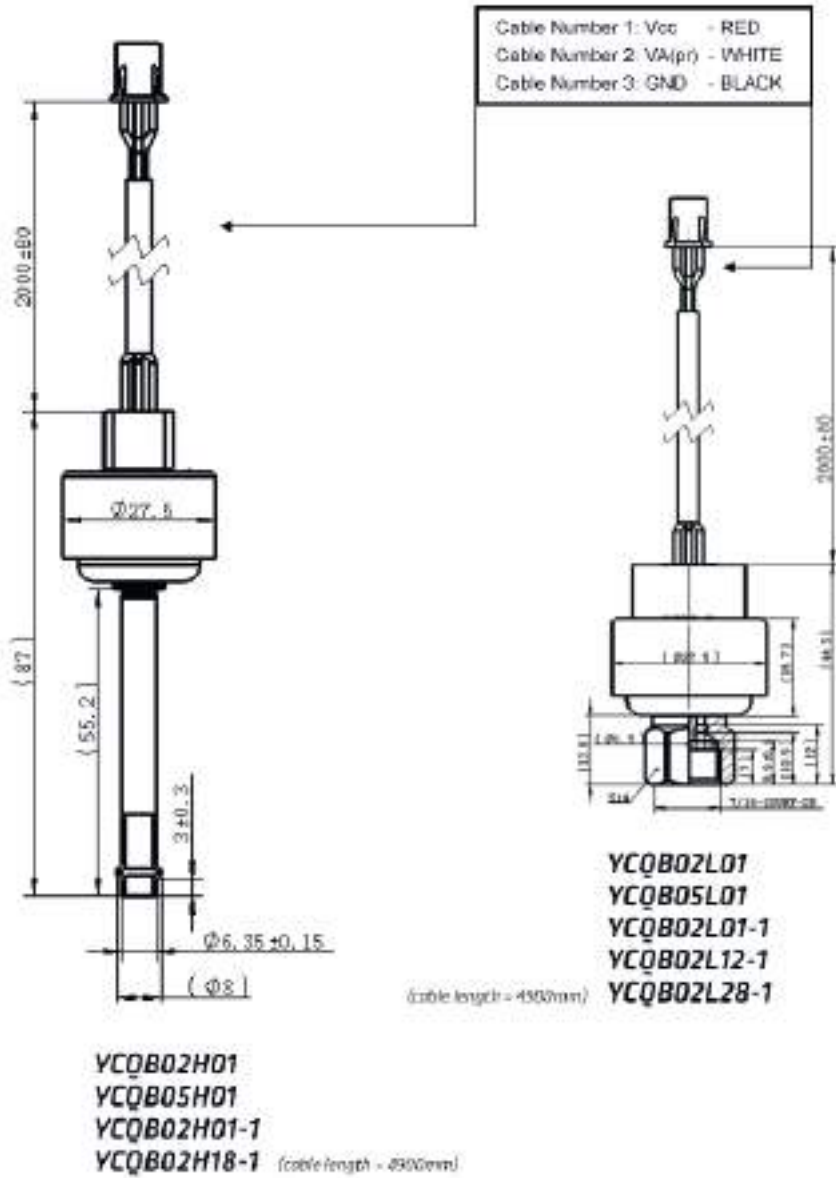




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DIMENSIONS

a) *Models with Lead wires*

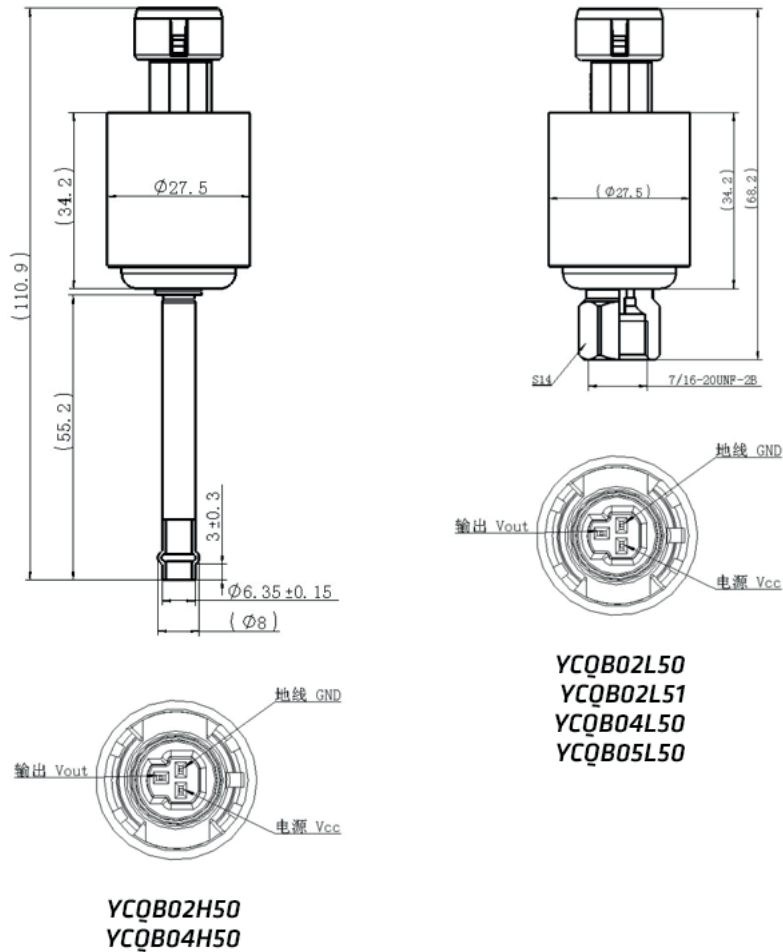




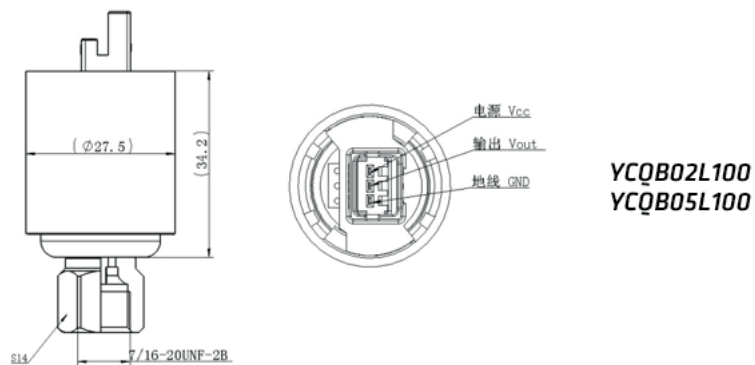
SANHUA YCQB SERIES Pressure Sensor

DIMENSIONS

b) Models with Packard Socket



c) Models with Molex Socket

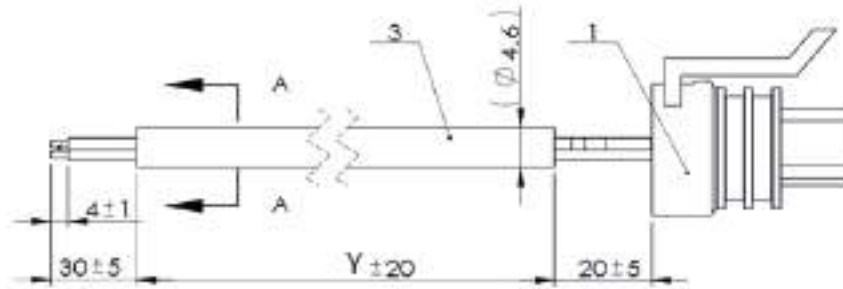




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ACCESSORIES

1) Lead wires cable suitable for connection with YCQB equipped with Packard connector.



Model Name	Part Number	Connector Type	Cable Length (Y)	Terminal
YCQB 02 - 013051	20185014302	Packard	1500 mm	Lead Wires
YCQB 02 - 013052	20185013102	Packard	5000 mm	Lead Wires

