

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 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 SPECIFICATION

- Applicable for all common HCFC, HFC, HFO refrigerants such as: R22, R134a, R404A, R407A/F, R407C, R410A, R448A, R449A, R450A, R452A, R513A, R507A¹⁾
- Installation position: preferably with vertical axis and sensor upwards
- Certifications: UL/CSA and declaration according to EMC directive

ELECTRICAL SPECIFICATION

- Supply Voltage : 5V \pm 0.25V DC
- Current Consumption : Max. 10 mA
- Response Time³⁾: 10 ms
- Insulation Resistance⁴⁾: Min. 100 M Ω
- Load Resistance : Min. 10 k Ω
- Protection Class : IP66/IP67

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



GENERAL CHARACTERISTICS

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	10185004702	-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	10185004802				± 2,0 % F.S. in the range -30°C / +120°C	7,50	
YCQB02L01	10185004902				± 2,0 % F.S. in the range -30°C / +85°C	5,25	
YCQB05L01	10185007002				± 2,0 % F.S. in the range -30°C / +120°C	7,50	
YCQB02H01-01 ⁽¹⁾	10185001502			-40°C / +120°C	± 0,8 % F.S. in the range -40°C / +40°C	5,25	
YCQB02H18-1 ⁽¹⁾	10185015402					5,25	
YCQB02L01-01	10185001402					5,25	
YCQB02L12-1 ⁽¹⁾	10185015502					5,25	
YCQB02L28-1 ⁽¹⁾	10185015602					5,25	
YCQB02H50	10185004502					± 2,0 % F.S. in the range -20°C / +120°C	5,25
YCQB04H50	10185004602					7,50	
YCQB01L50 ⁽²⁾	10185004202					± 2,0 % F.S. in the range -30°C / +120°C	5,25
YCQB02L50	10185004002					5,25	
YCQB02L51	10185004102					5,25	
YCQB04L50 ⁽²⁾	10185004202			± 1,0 % F.S. in the range -30°C / +85°C ± 2,0 % F.S. in the range -40°C / +30°C ± 2,5 % F.S. in the range +85°C / +125°C	5,25		
YCQB05L50	10185004302			7,50			
YCQB05L53 ⁽²⁾	10185013402			± 2,0 % F.S. in the range -30°C / +120°C	7,50		
YCQB02L100	10185009102			± 1,0 % F.S. in the range -30°C / +85°C	5,25		
YCQB05L100	10185009202			± 1,0 % F.S. in the range -30°C / +85°C ± 2,0 % F.S. in the range -40°C / +30°C ± 2,5 % F.S. in the range +85°C / +125°C	7,50		

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



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% pr) and the corresponding signal output change (10 to 90% FS)
 - 4) Insulation Resistance measured with rated voltage: 500 V DC



OPERATING TEMPERATURES

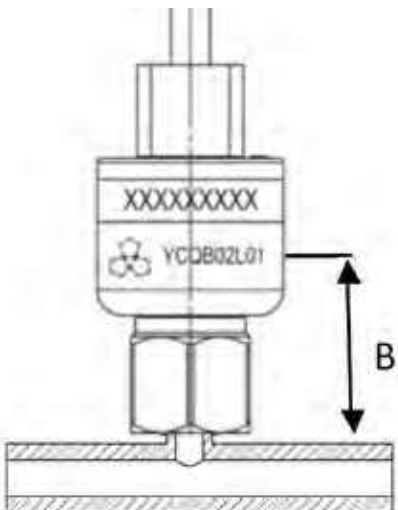


Fig. 1
YCQB – version with Flare connection
Distance B = 40mm

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

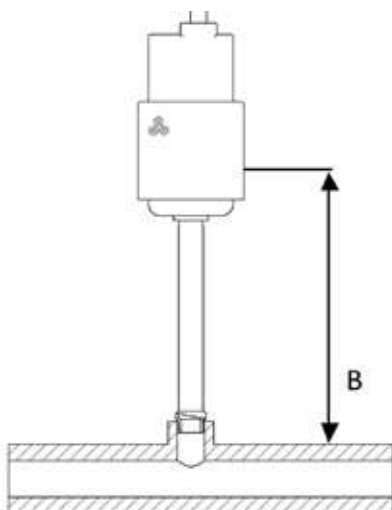


Fig. 2
YCQB – version with Solder connection
Distance B = 70mm

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

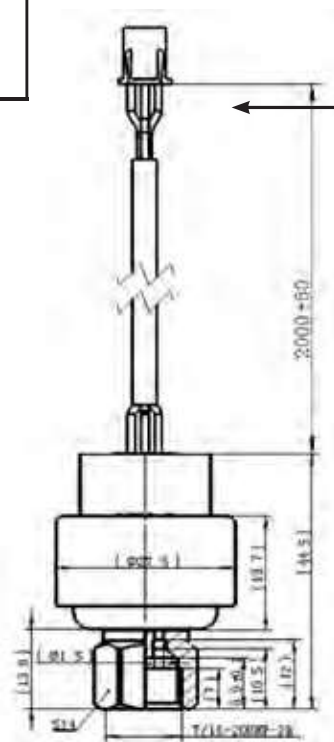
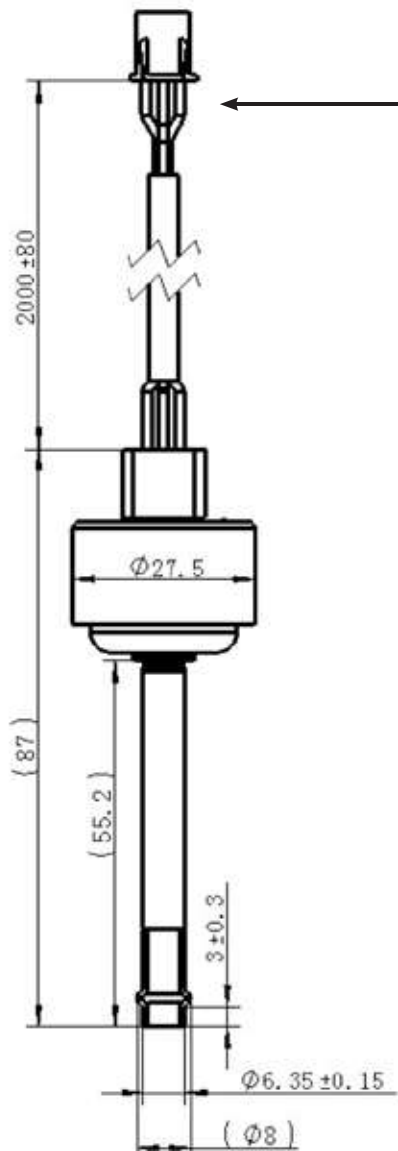
YCQB SERIES
Pressure Sensor



DIMENSIONS

a) Models with Lead wires

Cable Number 1: Vcc	- RED
Cable Number 2: VA(pr)	- WHITE
Cable Number 3: GND	- BLACK

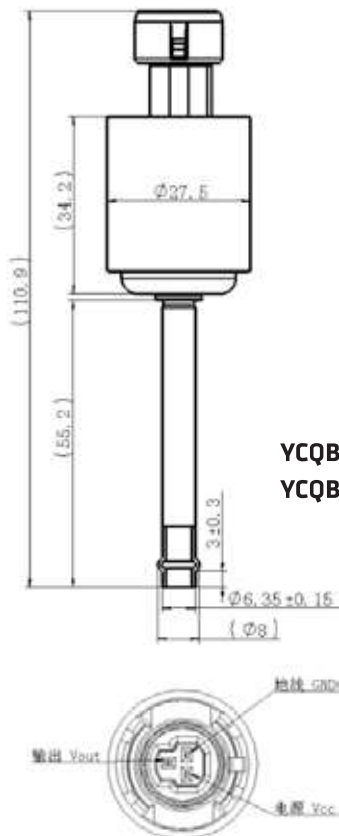


- YCQB02L01
- YCQB05L01
- YCQB02L01-1
- YCQB02L12-1
- YCQB02L28-1 (cable length = 4900mm)

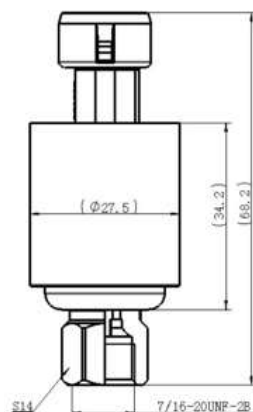
- YCQB02H01
- YCQB05H01
- YCQB02H01-1
- YCQB02H18-1 (cable length = 4900mm)



b) Models with Parkard Socket

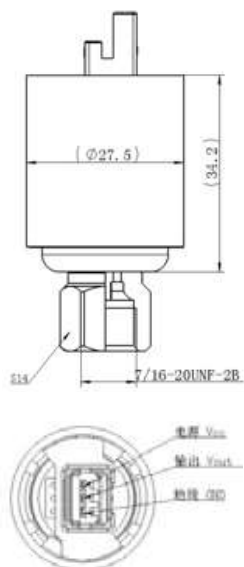


YCQB02H50
YCQB04H50



YCQB01L50
YCQB02L50
YCQB02L51
YCQB04L50
YCQB05L50
YCQB05L53

c) Models with Molex Socket



YCQB02L100
YCQB05L100

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	TBD	Packard	1500 mm	Lead Wires
YCQB 02 - 013052	TBD	Packard	5000 mm	Lead Wires

