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 CO_2
- 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

PRESSURE SENSOR



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	Connection type	Pressure range	Max Working pressure	Electrical connection	Accuracy	Medium Temp.
			[bar]	[bar]	Type	%	°C
YCQB02H01	10185004702	Solder ¼"	0-20	52,5	2m wires +XHP	±2% FS	-30 / 120
YCQB02H01-01	10185001502		0-20	52,5	2m wires +XHP	±0,8% FS	-40 / 120
YCQB02H18-1	10185015402		0-20	52,5	4.9m wires +XHP	±0,8% FS	-40 / 120
YCQB02H165	10185087602		-1-20	52.5	Packard	±0,8% FS	-40 / 120
YCQB02H166	10185087002	Solder 6mm	-1-20	52.5	Packard	±0,8% FS	-40 / 120
YCQB03H05	10185046602	Solder ¼"	0-30	75	2m wires +XHP	±0,8% FS	-40 / 120
YCQB05H01	10185004802		0-50	75	2m wires +XHP	±2% FS	-30 / 120
YCQB02L12-1	10185015502	Flare 7/16-20UNF-2B	0-20	52,5	2m wires +XHP	±0,8% FS	-40 / 120
YCQB02L28-1	10185015602		0-20	52,5	4.9m wires +XHP	±0,8% FS	-40 / 120
YCQB02L171	10185060402		-1-20	52,5	Packard	±0,8% FS	-40 / 120
YCQB03L156	10185046302		0-30	75	Packard	±0,8% FS	-40 / 120
YCQB06L01	10185067202		0-60	90	Packard	±1.5% FS	-40 / 120
YCQB09L02	10185044102	G1/4	0-90	225	2m wires +XHP	±2% FS	-30/+85

PRESSURE SENSOR



YCQB with 0.5 to 4.5V output signal

Output signal = 0.5 to 4.5V							
Model Name	Part Number	Connection type	Pressure range	Max Working pressure	Electrical connection	Accuracy	Medium Temp.
			[bar]	[bar]	Type	%	°C
YCQB02H50	10185004502	Solder ¼"	0-13.8	52,5	Packard	±2% FS	-30 / 120
YCQB04H50	10185004602		0-34.5	75	Packard	±2% FS	-30 / 120
YCQB03H06	10185046502		0-30	75	2m wires +XHP	±0,8% FS	-40 / 120
YCQB05H11	10185046102		0-50	75	2m wires +XHP	±2% FS	-40 / 150
YCQB02L01	10185004902	Flare 7/16-20UNF-2B	0-20	52,5	2m wires +XHP	±2% FS	-30 / 120
YCQB02L01-01	10185001402		0-20	52,5	2m wires +XHP	±0,8% FS	-40 / 120
YCQB03L18	10185046402		0-30	75	2m wires +XHP	±0,8% FS	-40 / 120
YCQB05L01	10185007002		0-46	75	2m wires +XHP	±2% FS	-30 / 120
YCQB05L63	10185046002		0-50	75	2m wires +XHP	±2% FS	-40 / 150
YCQB01L50	10185015702		-1 -9.3	52,5	Packard	±2% FS	-30 / 130
YCQB02L50	10185004002		0-13.8	52,5	Packard	±1% FS	-30 / 120
YCQB02L51	10185014102		0-17.2	52,5	Packard	±1% FS	-30 / 120
YCQB03L157	10185046202		0-30	75	Packard	±0,8% FS	-40 / 120
YCQB04L50	10185004202		0-34.5	52,5	Packard	±1% FS	-30 / 120
YCQB05L50	10185004302		0-46	75	Packard	±1% FS	-30 / 120
YCQB05L53	10185013402		0-45	75	Packard	±2% FS	-30 / 130
YCQB05L161	10185045902		0-50	75	Packard	±2% FS	-40 / 150
YCQB02L100	10185009102		0-20	52,5	Molex	±2% FS	-30 / 120
YCQB05L100	10185009202		0-46	75	Molex	±1% FS	-30 / 120



YCQB for High pressure use - G ¼

Model Name	U11	Connection type	Pressure range	Max Working pressure	Electrical connection	Cable length	Output signal	Medium Temp.
			[bar]	[bar]	Type	[m]	[VDC]	°C
YCQB06L01*	10185067202	Flare 7/16-20UNF-2B	0-60	180	Packard	0	0.5 to 3.5	-40/+80
YCQB09L02*	10185044102	G 1/4	0-90	180	XHP	2	0.5 to 3.5	-30/+85
YCQB15L01	10185030302	G 1/4	0-150	225	XHP	2	0.5 to 4.5	-30/+85

* 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	Connection type	Pressure range	Max Working pressure	Electrical connection	Cable length	Medium Temp.
			[bar]	[bar]	Type	[m]	°C
YCQB01L503	10185042702	Flare 7/16-20UNF-2B	0-10	52.5	XHP	2	-30/+100

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)

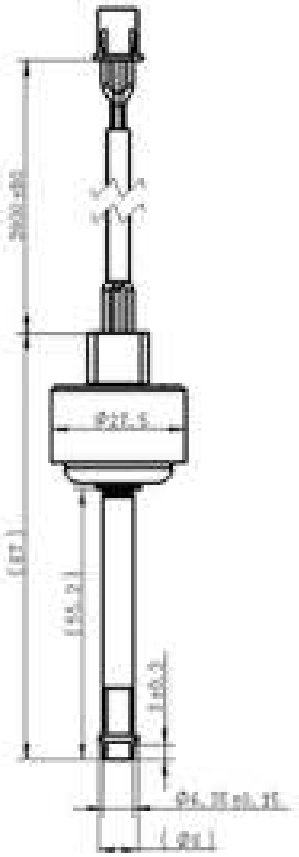
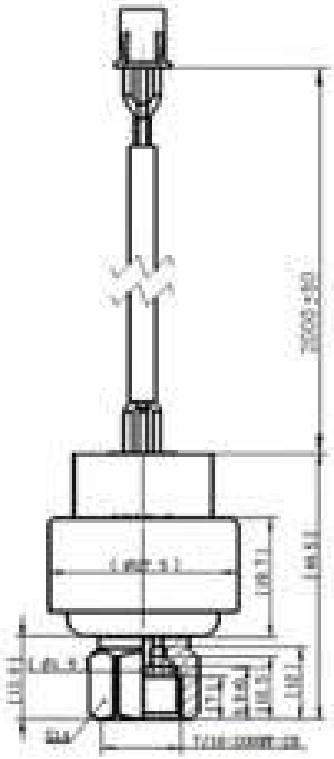
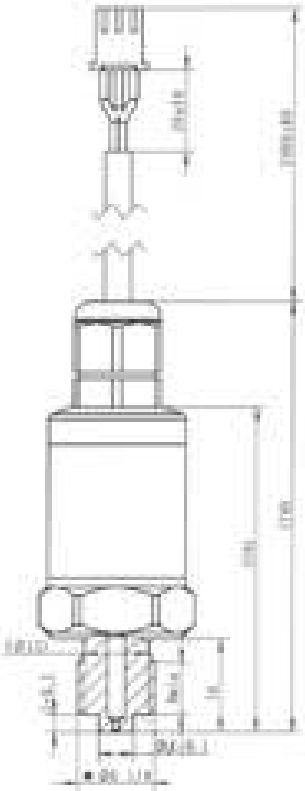
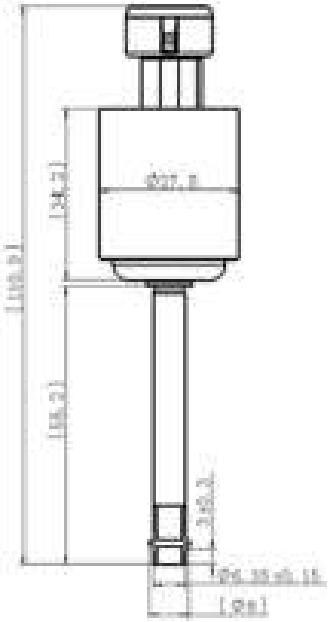
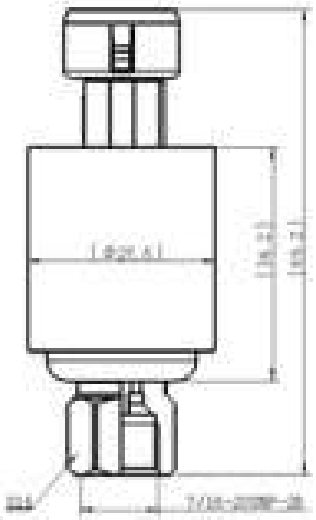
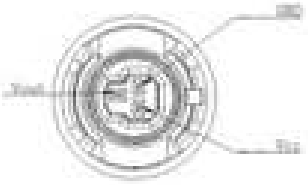
4) Insulation Resistance measured with rated voltage: 500 VDC

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

PRESSURE SENSOR



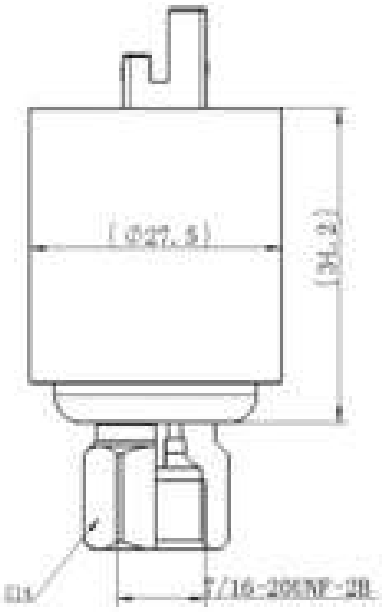
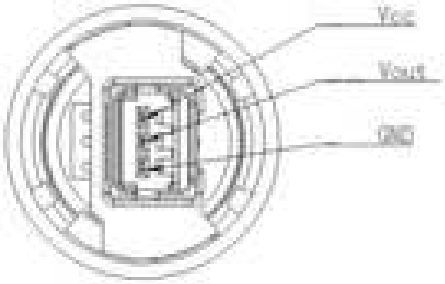
DIMENSIONS

Solder connector ¼”	7/16-20UNF-2B	G 1/4	Electrical connector
			**XHP Connector**  1: Vcc – RED 2: VA(pr) - WHITE 3: GND - BLACK
			**Packard connector** 

PRESSURE SENSOR



DIMENSIONS

7/16-20UNF-2B	Electrical connector
	**Molex Socket** 

***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 MΩ
- Protection class: IP65/IP66

PRESSURE SENSOR



GENERAL CHARACTERISTICS

YCQC with 4-20mA signal output

Model Name	Output signal = 4- 20mA						
	Part Number	Connection type	Pressure range	Max Working pressure	Electrical connection	Accuracy	Medium Temp.
			[bar]	[bar]	Type	%	°C
YCQC03L04	10185011002	Flare 7/16-20UNF-2B	0-30	75	Hirschmann	±0,8% FS	40 / 80
YCQC01L13	10185015202		-0.5-7	52.5	Packard	±0,8% FS	-40 / 80
YCQC02L18	10185017102		-1-12	52.5	Packard	±0,8% FS	-40 / 80
YCQC03L05	10185009302		0-30	75	Packard	±0,5% FS	-40 / 80
YCQC03L06 1	10185009402	Flare 7/16-20UNF-2A	0-30	75	Packard	±0,5% FS	-40 / 80
YCQC03L11	10185014402	Flare 7/16-20UNF-2B	0-30	75	Packard	±0,8% FS	-40 / 80
YCQC05L09	10185015302		0-44.8	75	Packard	±0,8% FS	-40 / 80
YCQC05L25	10185047002		0-50	75	Packard	±0,8% FS	-40 / 150

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	10185009902	-1 - 12	52.5	Hirschmann	±0,8% FS	-40 / 80
YCQC02L05	10185009802	-1 - 20	52.5	Hirschmann	±0,8% FS	-40 / 80



YCQC for High pressure use

Output signal = 4- 20mA						
Model Name	Part Number	Connection type	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
YCQC06L101	10185088202	Flare-Female	0-60	90	Packard	-40 / 80
YCQC06L102	10185088302	Flare-Male	0-60	90	Packard	-40 / 80
YCQC06L103	10185088402	Flare-Female	0-60	90	M12	-40 / 80
YCQC06L104	10185088502	Flare-Male	0-60	90	M12	-40 / 80
YCQC06H101	10185087702	Solder ¼"	0-60	90	Packard	-40 / 80
YCQC06H102	10185087902	Solder 6mm	0-60	90	Packard	-40 / 80
YCQC06H103	10185088002	Solder ¼"	0-60	90	M12	-40 / 80
YCQC06H104	10185088102	Solder 6mm	0-60	90	M12	-40 / 80

YCQC for water use

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

Output signal = 4- 20mA						
Model Name	Part Number	Connection type	Pressure range	Max Working pressure	Electrical connection	Medium Temp.
			[bar]	[bar]	Type	°C
YCQC01L501	10185036002	Flare 7/16-20UNF-2B	-0.8 -7	52.5	Packard	-40/80

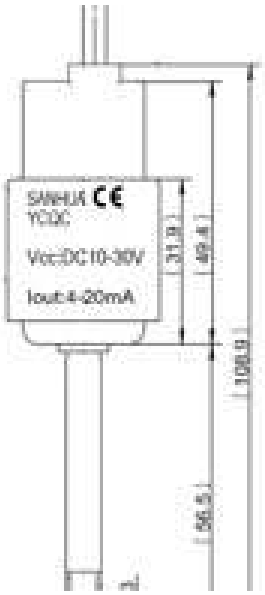
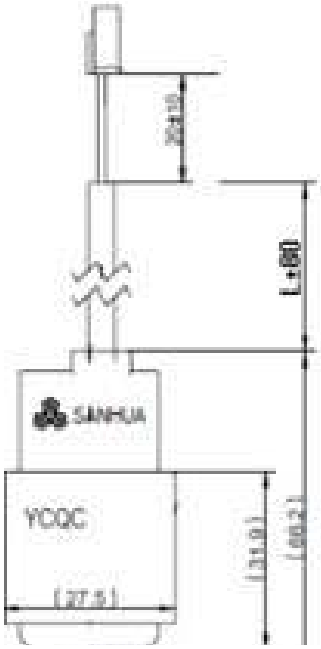
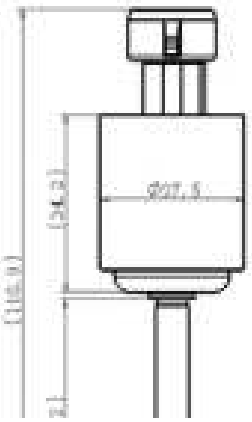
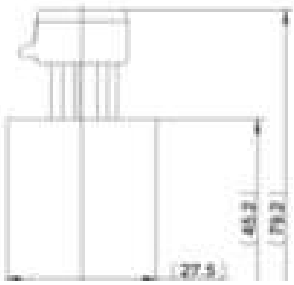
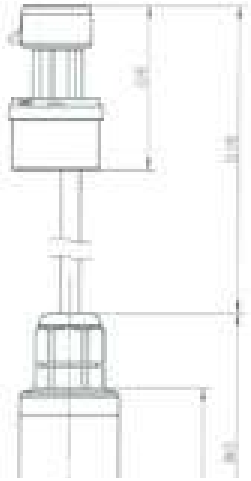
Note: 1) Signal span: V_{FS}=FS (Full Scale) = $V_A(p_r)$ - V_{A0}

2) Insulation Resistance measured with rated voltage: 500 VDC

PRESSURE SENSOR

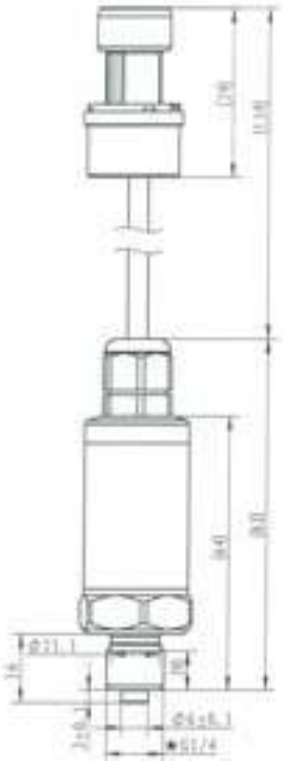
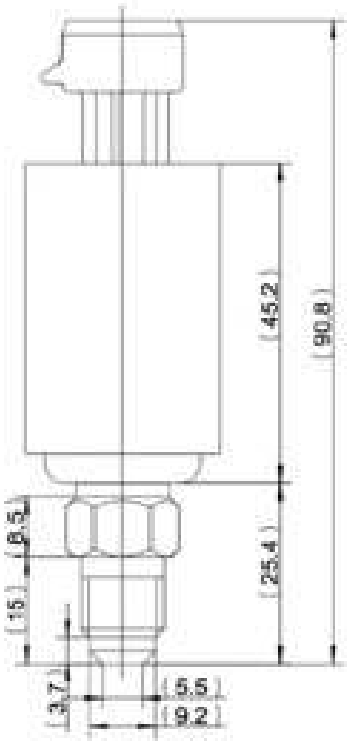
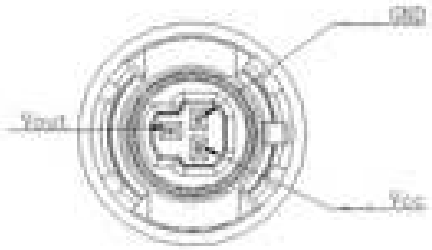
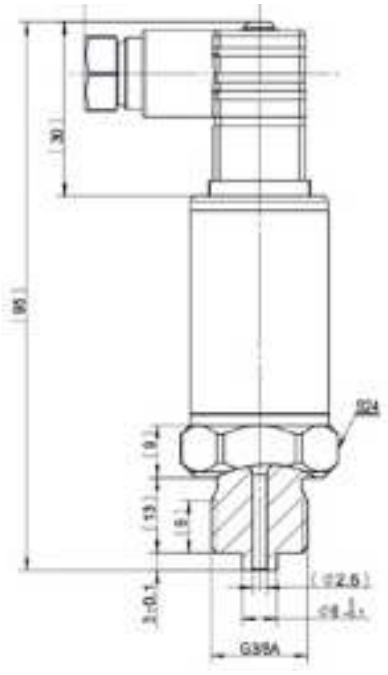
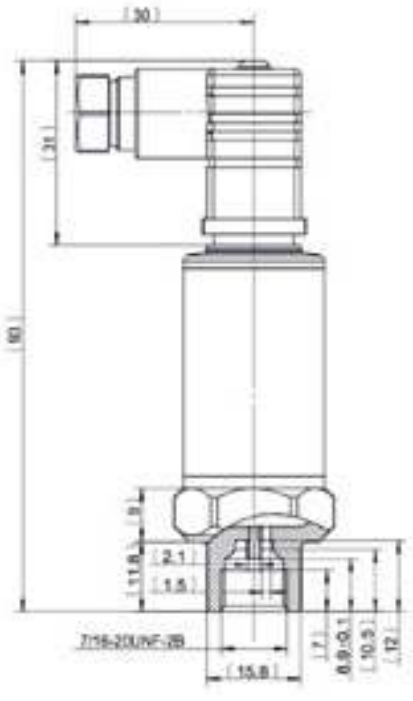


DIMENSIONS

Brazed copper tube	7/16-20UNF-2B		Electrical connector
			**XHP Connector**
			**Packard connector**

PRESSURE SENSOR



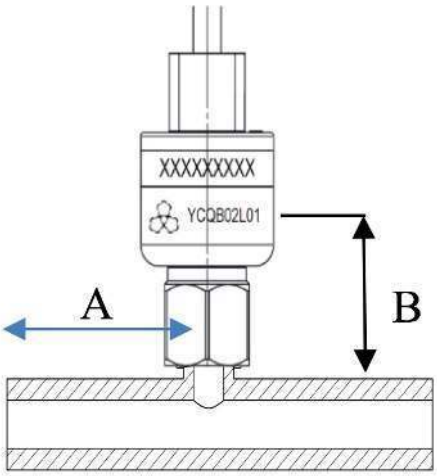
G 1/4	7/16-20UNF-2A (Male)	Electrical connector
		**Packard Connector** 
G 3/8A	**7/16-20UNF-2B (Female)**	**Electrical connector**
		**Hirschmann**

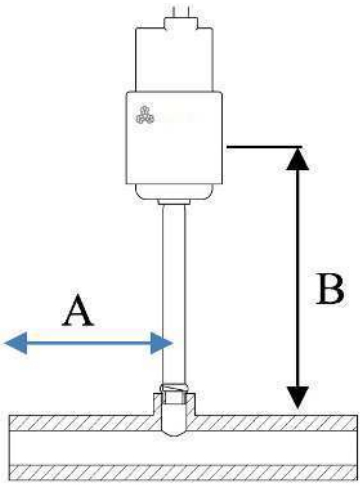
PRESSURE SENSOR



OPERATING TEMPERATURES

YCQB or YCQC
Flare and Brazed





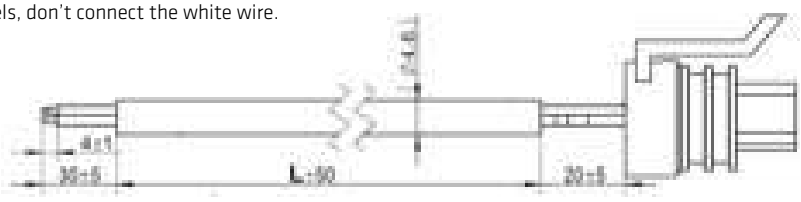
Maxi Medium Temperature	Ambient Temperature	Distance "A"	Distance "B" Flare	Distance "B" Brazed
[°C]	[°C]	[mm]	[mm]	[mm]
150	60	>30	40	70

ACCESSORIES

Packard Cables IP **55** with 3 wires

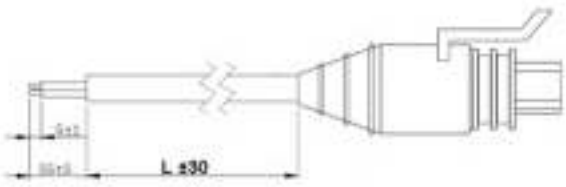
Model Name	Part Number	Connector Type	Total Cable Length	Terminal
YCQB02-013051	20185014302	Packard	1500 mm	Lead Wires
YCQB02-013052	20185013102	Packard	5000 mm	Lead Wires

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



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
YCQB02-013084	20185044902	Packard	8000 mm	Lead Wires

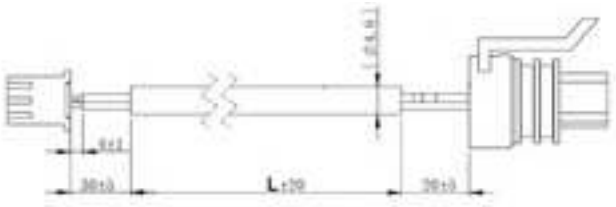


PRESSURE SENSOR



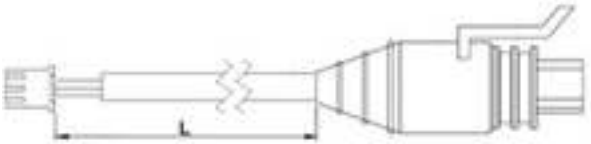
Packard Cables IP **55** + XHP connector with 3 wires

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



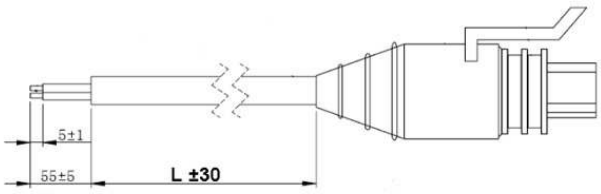
Packard Cables IP **67** + XHP connector with 3 wires

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	20185051302	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



M12 cable with 2 wires

Model Name	Part Number	Connector Type	Total Cable Length	Terminal
YCQC02-013080	20185040302	M12	7000 mm	Wires with end cap

