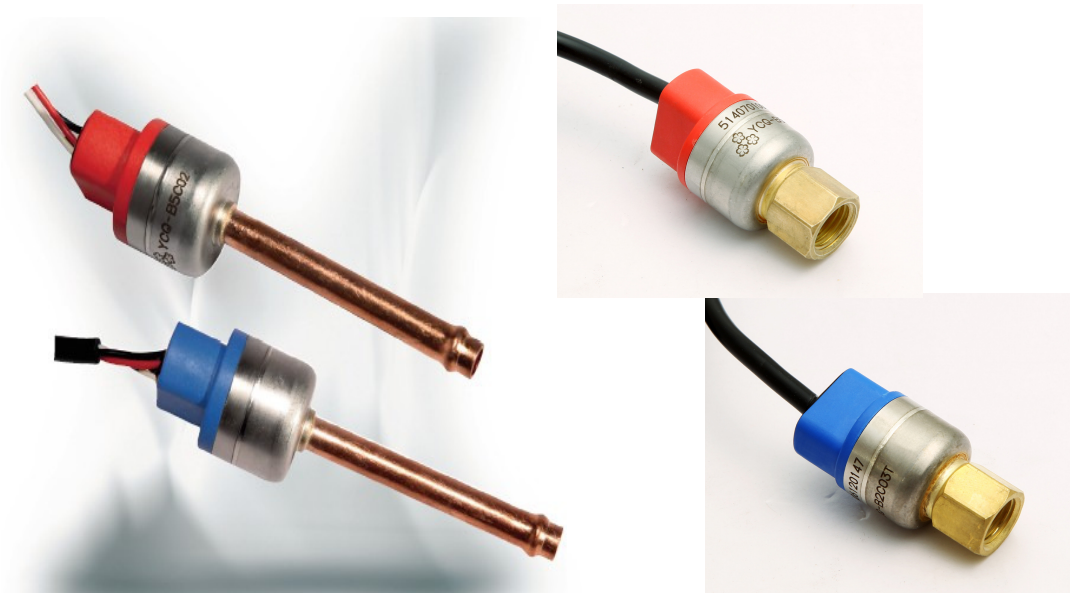


## Pressure Sensor Series YCQ



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 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 with lead wire direct connector;
- Stability: Applied superior pressure core, good stability under strict process control;
- Diversification: 2 different pressure range; 2 different level of accuracy.

### General Specification

- Applicable for all common HCFC and HFC refrigerants such as:  
R22, R134a, R404A, R407C, R410A, R507A ...
- Medium temperature TS min./max.: -30°C / +120°C
- Ambient temperature min./max.: -30°C / +80°C
- Relative humidity: 0 to 95% RH
- Installation position: preferably with vertical axis and sensor upwards
- Certifications: UL/CSA and declaration according to LVD or PED

## General Characteristics

Models with 2% Accuracy					
Model		YCQB02H01	YCQB05H01	YCQB02L01	YCQB05L01
Part Number		YCQ-21001	YCQ-21002	YCQ-21003	YCQ-21004
Connection Type		Solder	Solder	Thread	Thread
Connection Pipe Size	[ inch ]	1/4"	1/4"	SAE - 1/4"	SAE - 1/4"
Thread Size	[ inch ]	-	-	7/16-20 UNF	7/16-20 UNF
Supply Voltage	[ V ]	5 ± 0,25 DC	5 ± 0,25 DC	5 ± 0,25 DC	5 ± 0,25 DC
Pressure Range (0 to pr)	[ MPa ]	0 to 2	0 to 5	0 to 2	0 to 4,6
Output (VA0 to VApr)	[ V ]	0,5 to 3,5 DC	0,5 to 3,5 DC	0,5 to 4,5 DC	0,5 to 4,5 DC
Signal Span (VFS) <sup>1</sup>	[ V ]	3,0	3,0	3,0	3,0
Accuracy <sup>2</sup>	[ % ]	± 2,0 % F.S.	± 2,0 % F.S.	± 2,0 % F.S.	± 2,0 % F.S.
Response Time <sup>3</sup>	[ ms ]	10	10	10	10
Current Consumption	[ mA ]	Max. 10	Max. 10	Max. 10	Max. 10
Load Resistance	[ kΩ ]	Min. 10	Min. 10	Min. 10	Min. 10
Insulation Resistance <sup>4</sup>	[ MΩ ]	Max. 100	Max. 100	Max. 100	Max. 100
Maximum Operating Pressure (MOP)	[ MPa ]	3,50	5,00	3,50	4,60
Test Pressure	[ MPa ]	5,25	7,50	5,25	7,50
Burst Pressure	[ MPa ]	17,50	25,00	17,50	25,00
Protection Class	[ - ]	IP 66	IP 66	IP 66	IP 66

Models with 1% Accuracy					
Model		YCQB02H01-01	YCQB05H01-01	YCQB02L01-01	YCQB05L01-01
Part Number		YCQ-21005	YCQ-21006	YCQ-21007	YCQ-21008
Connection Type		Solder	Solder	Thread	Thread
Connection Pipe Size	[ inch ]	1/4"	1/4"	SAE - 1/4"	SAE - 1/4"
Thread Size	[ inch ]	-	-	7/16-20 UNF	7/16-20 UNF
Supply Voltage	[ V ]	5 ± 0,25 DC	5 ± 0,25 DC	5 ± 0,25 DC	5 ± 0,25 DC
Pressure Range (0 to pr)	[ MPa ]	0 to 2	0 to 5	0 to 2	0 to 4,6
Output (VA0 to VApr)	[ V ]	0,5 to 3,5 DC	0,5 to 3,5 DC	0,5 to 4,5 DC	0,5 to 4,5 DC
Signal Span (VFS) <sup>1</sup>	[ V ]	3,0	3,0	3,0	3,0
Accuracy <sup>2</sup>	[ % ]	± 1,0 % F.S.	± 1,0 % F.S.	± 1,0 % F.S.	± 1,0 % F.S.
Response Time <sup>3</sup>	[ ms ]	10	10	10	10
Current Consumption	[ mA ]	Max. 10	Max. 10	Max. 10	Max. 10
Load Resistance	[ kΩ ]	Min. 10	Min. 10	Min. 10	Min. 10
Insulation Resistance <sup>4</sup>	[ MΩ ]	Max. 100	Max. 100	Max. 100	Max. 100
Maximum Operating Pressure (MOP)	[ MPa ]	3,50	5,00	3,50	4,60
Test Pressure	[ MPa ]	5,25	7,50	5,25	7,50
Burst Pressure	[ MPa ]	17,50	25,00	17,50	25,00
Protection Class	[ - ]	IP 66	IP 66	IP 66	IP 66

**Note:**

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

2) Accuracy measured within the temperature ranges:

- YCQB02xxx: from -30°C to +85°C

- YCQB05xxx: from -30°C to +120°C

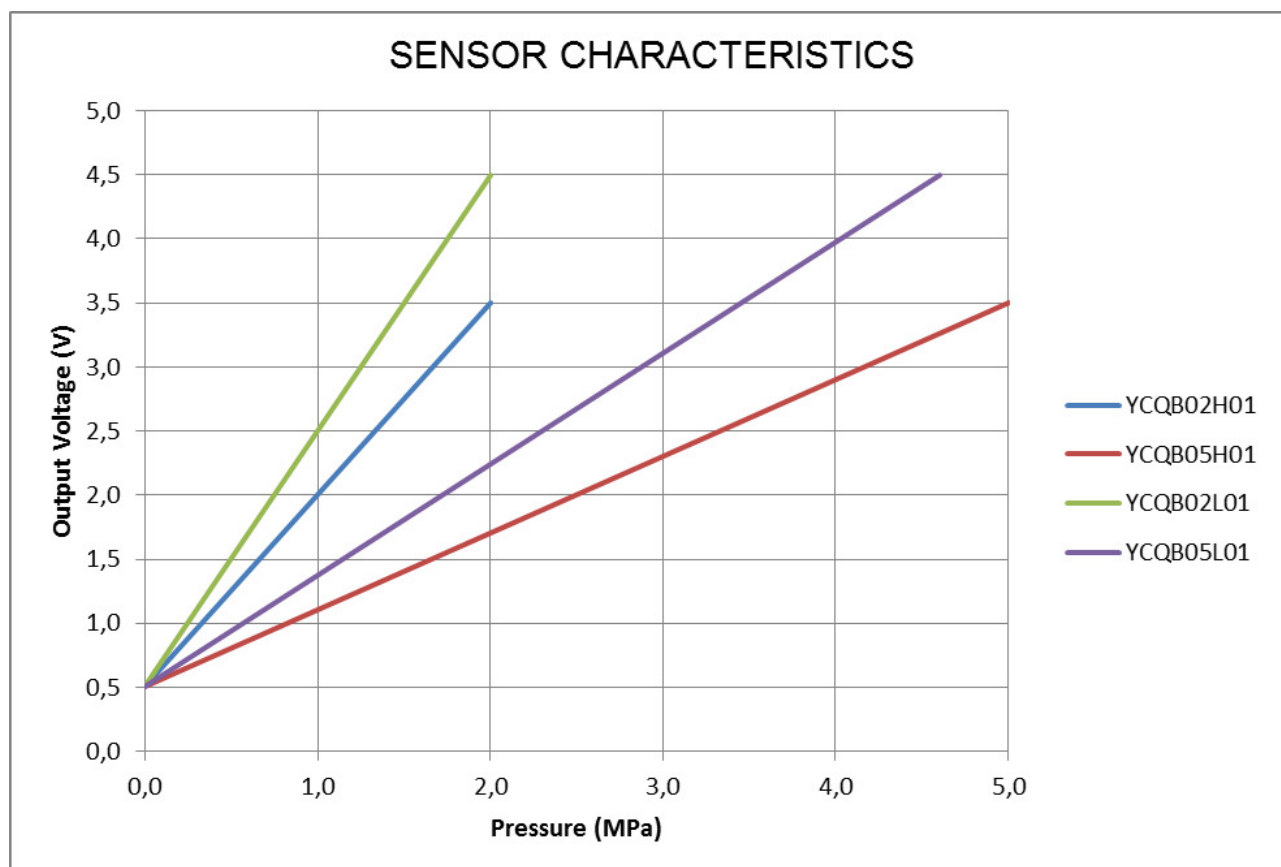
Included Nonlinearity (L) and pressure hysteresis. The Nonlinearity is the deviation of the real sensor characteristic  $V_A = f(p)$  from the ideal straight line. It can be approximated by a polynomial of second order, with the maximum at  $p_x = p_r / 2$ .

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

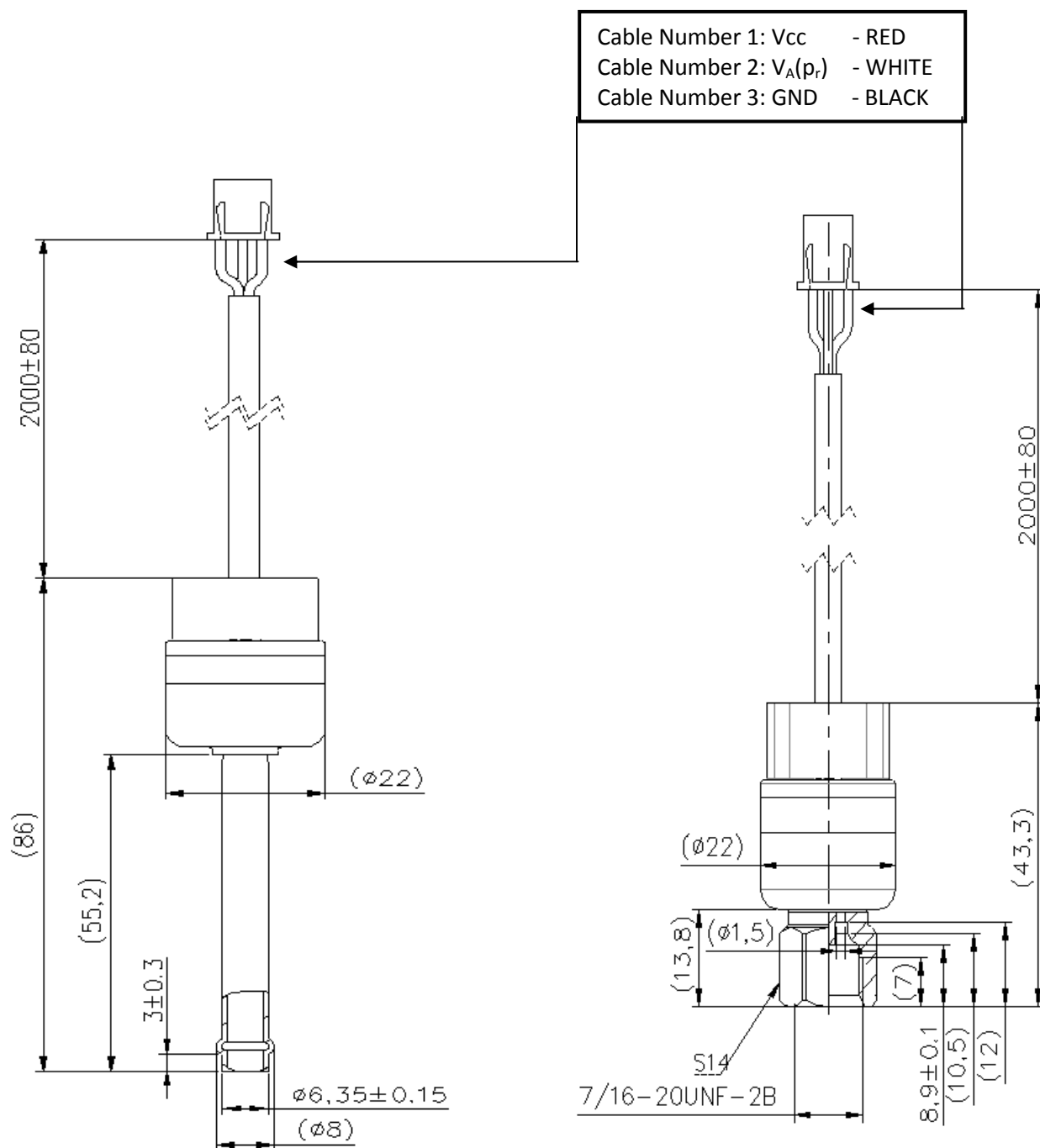
## Pressure / Output Voltage Characteristics<sup>1)</sup>



Note:

- 1) The present graph is also valid for models with 1% of accuracy: YCQB0xx01-01

## Dimensions



**YCQB02H01**  
**YCQB05H01**  
**YCQB02H01-01**  
**YCQB05H01-01**

**YCQB02L01**  
**YCQB05L01**  
**YCQB02L01-01**  
**YCQB05L01-01**