



超高精度壓力比例閥

Ultra High Resolution Proportional Pressure Regulator

QKL-B1HF



產品特色 Features

- ◆ 微流量控制
Micro Flow Control
- ◆ 高精度
High Precision
- ◆ 高靈敏度
High Sensitivity

產業應用 Applications

- ◆ 高解析度壓力控制
High resolution pressure control
- ◆ 動態比例壓力控制
Dynamic proportional pressure control
- ◆ 高解析度流量控制
High resolution flow rate control

QKL-B1HF 為一款超高解析度壓力比例閥，是將命令訊號轉換為客戶所設定壓力的控制器。該系列為一個閉迴圈回路設計，由一個電磁閥、整合式壓力感測器以及電子回路控制所組成；控制板將命令訊號與感測器進行比較，進而驅動電磁閥，即使所需的流量有變化，也能保持所設定的壓力。

此系列有兩種版本可選擇：內建排氣的壓力控制或沒有內建排氣的壓力控制。內建排氣控制系指在應用上不會消耗任何氣體，在壓力調節上排氣量很小。沒有內建排氣指應用上會消耗氣體或適用於易燃氣體的流量控制；此版本有由紅寶石製成的多種不同排氣孔徑可供選擇，不同孔徑排氣孔徑作用為將此壓力比例閥轉換為高精度和高解析度的氣體流量控制器。若有需求請向我們諮詢合適您應用的孔徑大小。

我們的比例閥輸入信號及監控訊號皆提供了 0-10VDC(電壓) 與 4-20mA(電流) 及 RS485 ModBus 通訊可選擇。所有的產品皆有 CE、SGS、RoHS 及 ISO13485 品質認證。

The QKL-B1HF is an ultra-high resolution proportional control valve. This series is an electronically controlled closed loop pressure regulator. The device converts a command signal to customers' specified pressure range. The QKL-B1HF consists of a control circuit board, one solenoid valve, an integral electronic pressure sensor. The control board compares the command signal to the integral pressure sensor, then drives the solenoid valve so that desired pressure is maintained even if the required flow rate varies. Two types of pressure regulator can be selected: pressure controller with built-in bleed, or pressure controller without built-in bleed. With built-in bleed version, the application does not consume any gas. The valve acts as pressure regulator with small exhaust capacity. Without built-in bleed version, the application consume gas or the gas is flammable. There is also a selection of different venting orifice made from ruby, converting this pressure regulator to a high accuracy and high resolution gas flow rate controller. Please consult us for suitable orifice.

All our products have CE, SGS, RoHS certification with ISO13485 quality system.

型號選擇 Ordering Code

QKL-□-□-□-□-□-□

Type

B1HF	Internal Feedback	G1/8"
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Input Signal

*E	0 - 10 V
A	4 - 20 mA
R	RS485 Modbus

Monitor Output

C	0 - 10 V
A	4 - 20 mA
R	RS485 Modbus

Mounting Bracket

M	M Type
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Display Unit

S	psi
U	bar

Output Pressure

P2	2 bar
P5	5 bar
P10	10 bar

*若控制訊號選擇 0-10V，請留意最小的驅動電流為 3mA.

For Command Signal type 0-10V, the minimum driving current is



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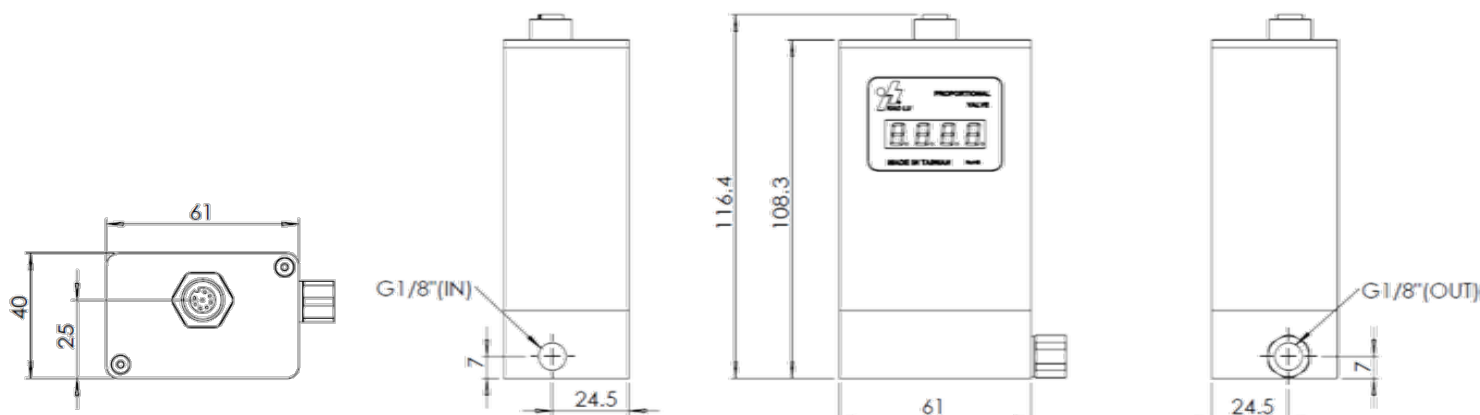
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產品規格 Specifications

Type	QKL-B1HF		
輸出壓力Output Range	2 bar(29psi)	5 bar(72psi)	10 bar(145psi)
最大入氣壓力Supply Pressure Max	3 bar(43.5psi)	10 bar(145psi)	20 bar(290psi)
輸入訊號Input Signal	0-10V / 4-20mA / RS485		
監控信號Monitor Output	0-10V / 4-20mA / RS485		
工作電源Power Supply	DC24V ($\leq 5W$)		
介質 Medium	Clean compressed air or with 5 μm filter		
重複精度Repeatability	$\pm 0.05\%$ F.S.		
解析度 Resolution(max)	$\pm 0.03\%$ F.S.		
綜合精度 Accuracy	$\pm 0.1\%$ F.S.		
遲滯Hysteresis	$\pm 0.1\%$ F.S.		
流量 Flow Rate	3L/min @ 1bar (orifice: 0.5mm) 60L/min@1bar(orifice: 3.0mm)		
使用溫度範圍Temp. Range(Operating)	0 ~ 70 $^{\circ}C$ (32 ~ 158 $^{\circ}F$)		
口徑 Port Size	G1/8"		
底座材質 Manifold Material	Aluminum		
接液材質 Wetted Materials	Aluminum, Stainless steel, Brass, FKM		
電器連接 Electrical Connection	M12 Connector(2m)		
流量孔徑 Ruby orifice selection (無內建排氣版本選擇 without built-in bleed)	0.2 / 0.3 / 0.4 / 0.5 / 0.6 mm		

外觀尺寸 Overall Dimension





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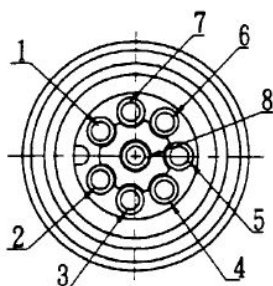
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流量特性 Flow capability with various orifice size

流通孔徑 Orifice(mm)	入氣壓 Inlet pressure(Bar)	最小流量 Min. starting flow(ml/min)	最大流量 Max. flow(ml/min)	解析度 Resolution(ml/min)
0.05	2	2.1	51	0.8
	5	3.3	103	1.3
	10	4.7	193	1.8
0.1	2	8	205	3.2
	5	13	413	5.1
	10	18.5	772	7.2
0.2	2	33.6	820	12.8
	5	53	166	21
	10	74	3,090	29
0.3	2	75.6	1,850	29
	5	118	3,710	45.6
	10	167	6,954	64.5
0.4	2	134	3,290	51.2
	5	210	6,602	81
	10	296	12,360	115
0.5	2	210	5,140	80
	5	327	10,310	127
	10	463	19,310	179
0.6	2	300	7,400	115
	5	471	14,850	183
	10	666	27,817	258
1	2	840	20,550	320
	5	1,310	41,250	507
	10	1,850	77,270	715

接線方式 Wiring Description



※此接線圖為線材公座俯視圖

The wiring diagram shows from top view.

編號 No.	顏色 Color	功能 Function
1	藍色 Blue	電源(-) 24V DC Power (-)
2	棕色 Brown	電源(+) 24V DC Power (+)
3	黑色 Black	監控輸出(+) Monitor output (+)
4	白色 White	模擬訊號(+) 0-10 V Command (+) 4-20 mA Command (+)
5	灰色 Gray	RS485(D-)
6	-	-
7	紫色 purple	模擬訊號(-) Command (-) 監控輸出(-) Monitor output (-)
8	紅色 Red	RS485(D+)



警告：當安置完成信號線後，切勿旋轉拉扯插頭，以避免內部感測器受到損害，造成產品功能異常或故障。

Warning: Do not rotate the connection socket when connected, to avoid damage to the internal sensor.