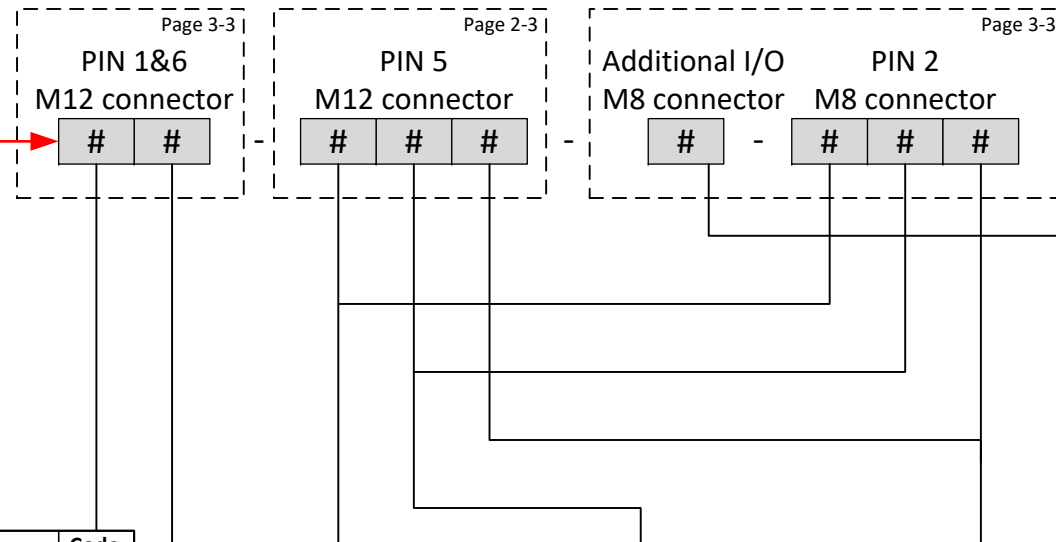


The label shown is for illustration purposes only and may vary on actual products.

Controller mode	Code
Controller disabled (meter only)	0
Controller enabled, analog setpoint	A
Controller enabled, digital setpoint	D

Integrated Comm. Mode	Code
RS232 – ProPar (default)	A
RS485 – FLOW-BUS	B
RS485 – Modbus RTU	C
RS485 – Modbus ASCII	D



Code	Type	Code	Range	Code	Linked parameter
0	Disabled	0	0 Vdc	0	-
A	Voltage output	0	0-5 Vdc	A	Alarm
		1	0-10 Vdc	B	Batch counter
		9	Custom	C	Control mode
B	Current output	0	0-20 mAdc	D	Density
		1	4-20 mAdc	E	Measure
		2	3.8-20.8 mAdc	F	Frequency
		9	Custom	I	IO switch status
C	Digital output	0	Remote parameter	P	Pressure
		1	Min alarm	S	Setpoint
		2	Max alarm	T	Temperature
		3	Min/max alarm	V	Controller output
		4	Counter limit reached	Z	Custom
		5	Enabled by setpoint		
		9	Custom		
D	Frequency output	9	Custom		
E	PWM output	9	Custom		
F	Pulse output	9	Custom		
G	Voltage input * only on Pin 5	0	0-5 Vdc	C	Control mode
		1	0-10 Vdc	E	Measure (external sensor)
		9	Custom	I	IO switch status
H	Current input * only on Pin 5	0	0-20 mAdc	N	Calibration mode
		1	4-20 mAdc	R	Reset
		9	Custom	S	Setpoint
I	Digital input	1	Counter reset	V	Actuator (Valve)
		2	Alarm reset	Z	Custom
		3	Close Valve		
		4	Counter reset/disable		
		5	Auto Zero		
		8	Purge Valve		
		9	Custom		

Code	Additional I/O connector (M8)
1	Enabled, Bronkhorst valve output (default)

Type	Range	Par	Configurable input/output (PIN 5 M12 / PIN 2 M8)
0	0	0	Disabled, 0 Vdc (default)
A	1	V	0-10 Vdc output, controller
B	1	V	4-20 mAdc output, controller
B	2	V	3.8-20.8 mAdc output (TEIP11/Badger), controller
C	3	A	Digital output, min/max alarm
C	4	A	Digital output, counter limit reached
C	5	S	Digital output, enabled by setpoint (for shut-off)
C	0	I	Digital output, high/low switch via remote parameter
D	9	E	Digital frequency output, measure
F	9	B	Digital pulse output, batch counter
I	3	C	Digital input, controller mode valve close
I	8	C	Digital input, controller mode valve purge
I	1	R	Digital input, reset counter
I	2	R	Digital input, reset alarm

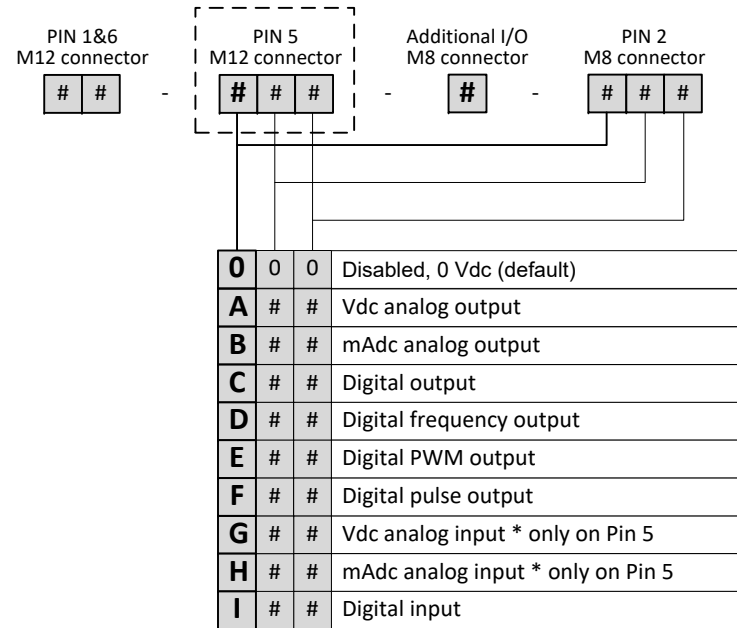
Other settings on request.

Preset Table

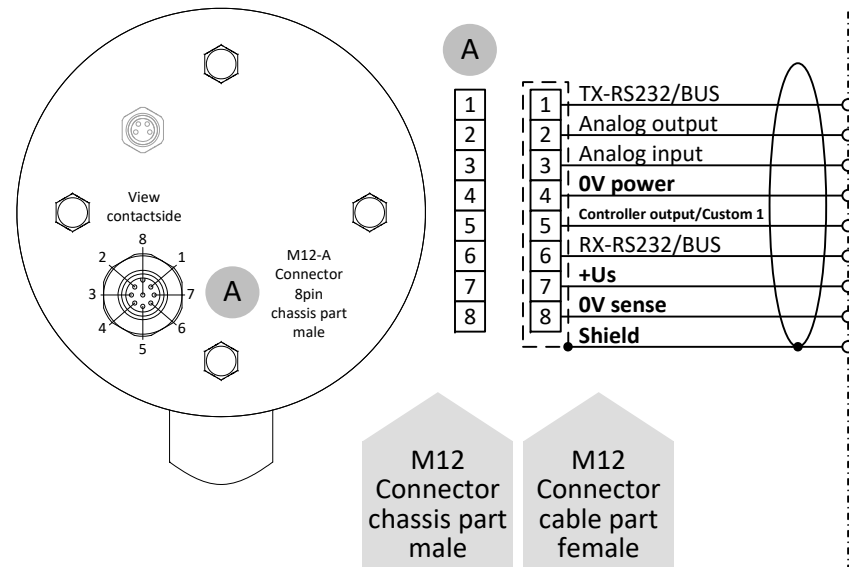
Check next page for Hook-up diagrams

## PIN 5 M12 / IO HOOK-UP DIAGRAMS

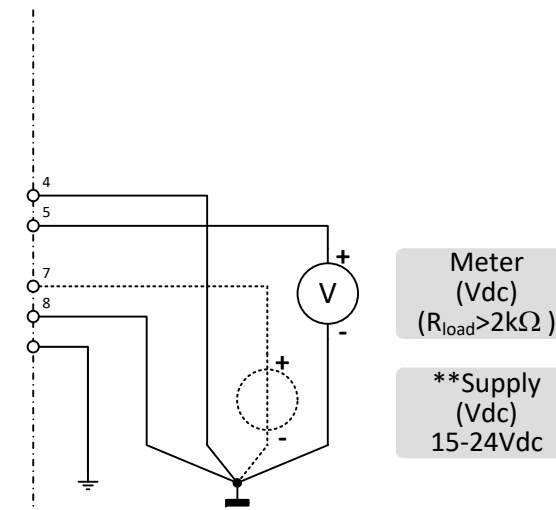
### IO OPTIONS PIN 5 M12 / PIN 2 M8



### PIN CONNECTIONS M12

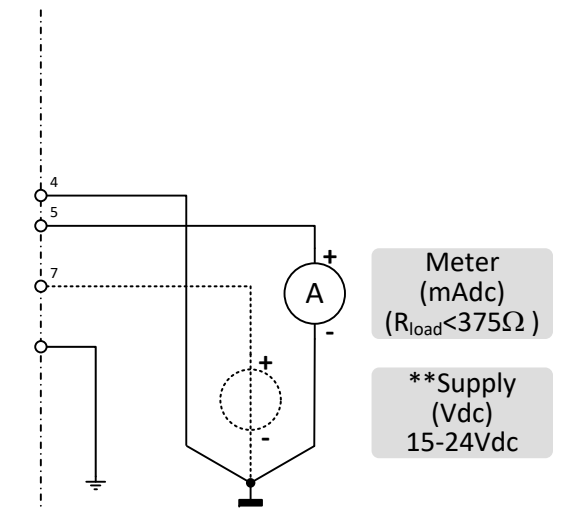


A	0	#	0-5 Vdc analog output
	1	#	0-10 Vdc analog output
	9	#	custom Vdc analog output



Note: 0V power (PIN 4) and 0V sense (PIN 8) should be separately connected to the 0Vdc terminal at the power supply for long cable compensation

B	0	#	0-20 mAdc analog output
	1	#	4-20 mAdc analog output
	2	#	3.8-20.8 mAdc output
	9	#	Custom mAdc analog output



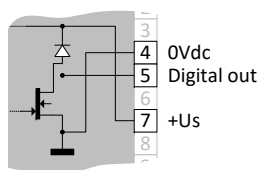
Note: In analog mode with 'mAdc' signals 0V sense (PIN 8) does not need to be connected. The instrument's operation will not be effected in case 0Vdc sense is already hooked-up

### POWER SUPPLY WARNING

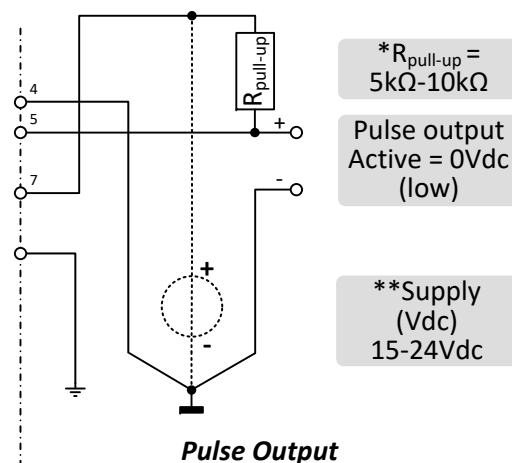
**!** \*\* Do not power the instrument simultaneously from two different power sources (e.g. bus connection and Plug-in Power Supply). Doing so will damage the printed circuit board irreparably.

**!** When connecting the system to other devices, be sure that the integrity of the shielding is not affected. Do not use unshielded wire terminals.

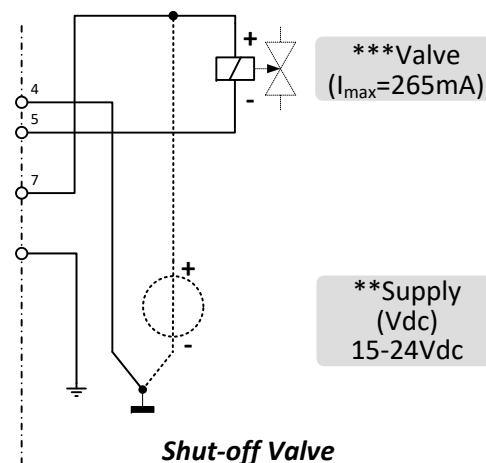
### Internal setup digital output



C	#	#	Digital output
D	#	#	Digital frequency output
E	#	#	Digital PWM output
F	#	#	Digital pulse output

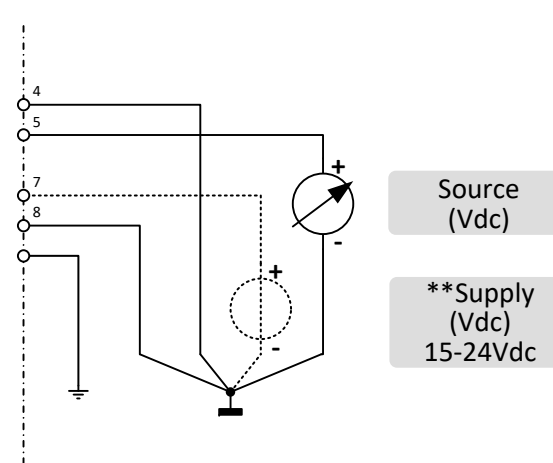


Note: \* Use  $R_{pull-up}$  (between 5k $\Omega$  and 10 k $\Omega$ ) to create 15-24Vdc at PIN 5



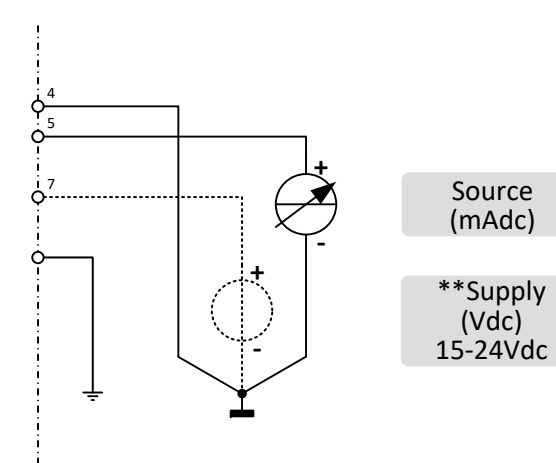
Note: \*\*\* For 15Vdc supply the minimal load is 60  $\Omega$ , for 24Vdc supply the minimal load is 90  $\Omega$

G	0	#	0-5 Vdc analog input
	1	#	0-10 Vdc analog input
	9	#	custom Vdc analog input



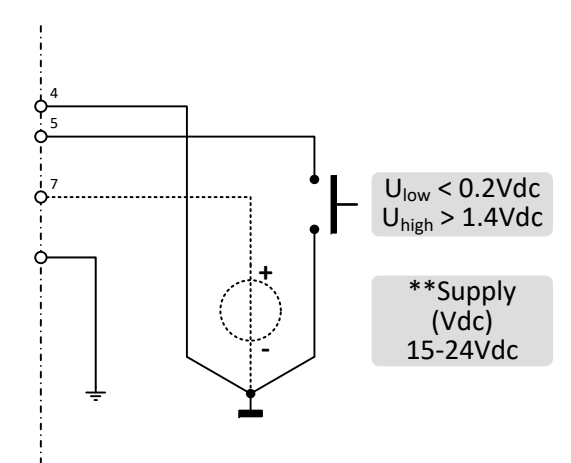
Note: 0V power (PIN 4) and 0V sense (PIN 8) should be separately connected to the 0V terminal at the power supply. (Impedance = 250k $\Omega$ )

H	0	#	0-20 mAdc analog input
	1	#	4-20 mAdc analog input
	9	#	Custom mAdc analog input



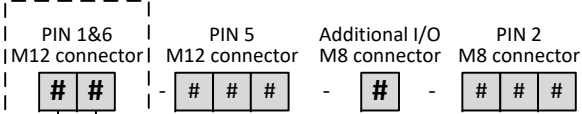
Note: In analog mode with 'mAdc' signals 0V sense (PIN 8) does not need to be connected. The instrument's operation will not be effected in case 0Vdc sense is already hooked-up. (Impedance = 250 $\Omega$ )

I	#	#	Digital input
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## PIN 1&6, RS232/RS485 HOOK-UP DIAGRAMS

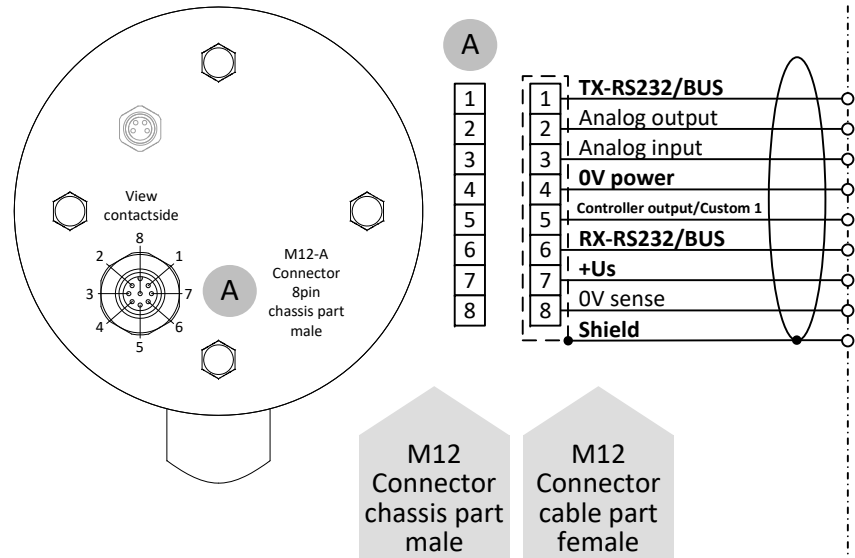
### PIN 1&6 BUS OPTIONS



<b>A</b>	RS232 – ProPar (default)
<b>B</b>	RS485 – FLOW-BUS
<b>C</b>	RS485 – Modbus RTU
<b>D</b>	RS485 – Modbus ASCII
<b>0</b>	Controller disabled (meter only)
<b>A</b>	Analog setpoint mode
<b>D</b>	Digital setpoint mode

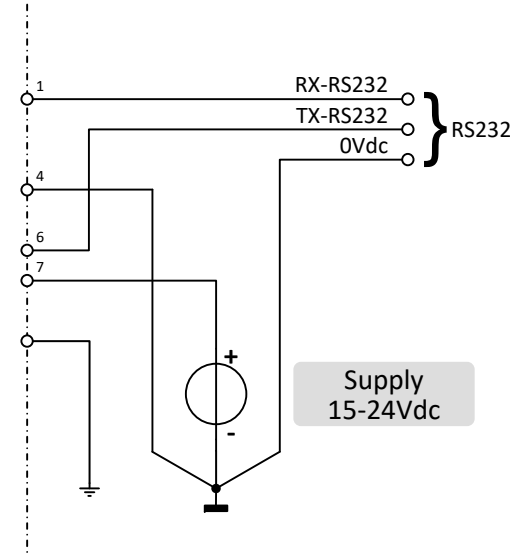
Note:  
When the instrument is configured for analog setpoint mode it is not possible to give a setpoint via FLOW-BUS or Modbus input on the M12 connector.  
To configure the instrument for digital operation, change parameter 'control mode'. See doc.nr. 9.17.145 for more details.

### PIN CONNECTIONS M12

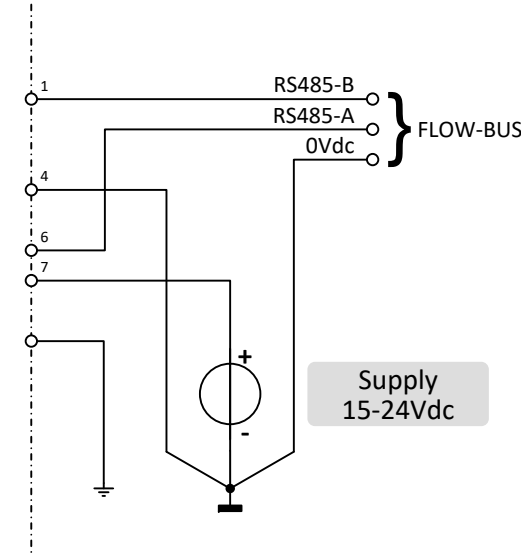


⚠ When connecting the system to other devices, be sure that the integrity of the shielding is not affected. Do not use unshielded wire terminals.

### # A RS232 – ProPar (default)

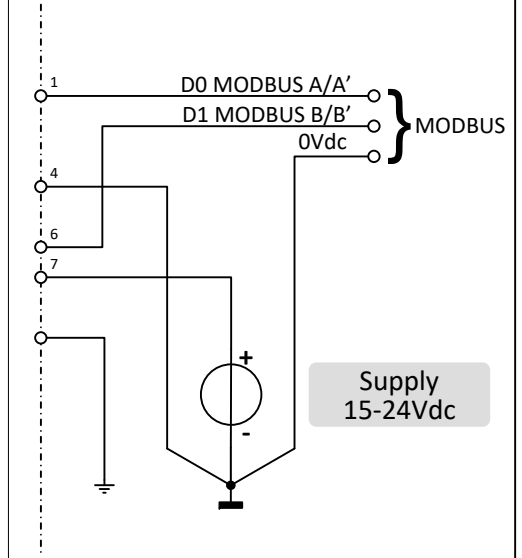


### # B RS485 – FLOW-BUS



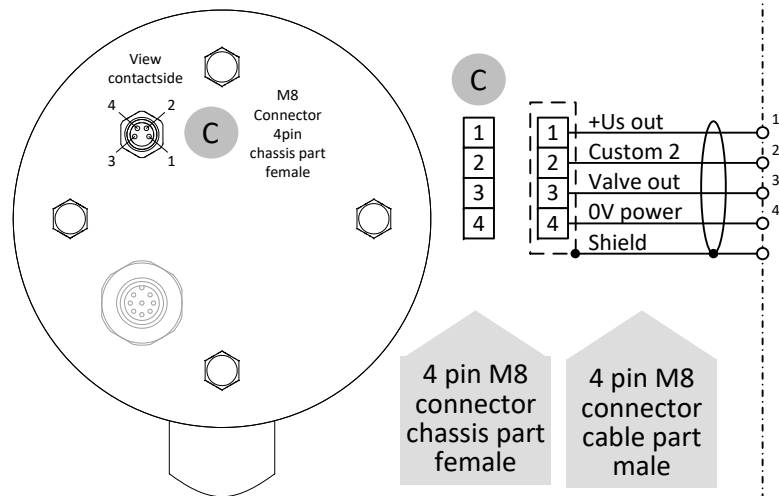
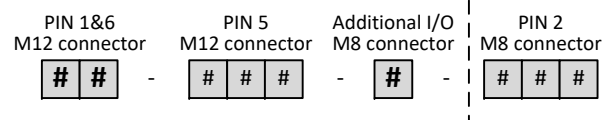
### # C RS485 – Modbus RTU

### # D RS485 – Modbus ASCII



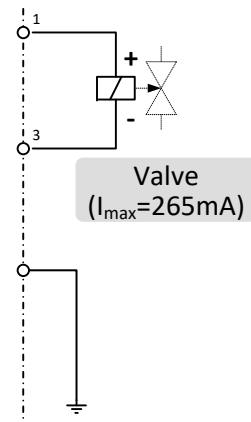
## Additional actuator connector, HOOK-UP DIAGRAMS

### actuator PIN CONNECTIONS M8

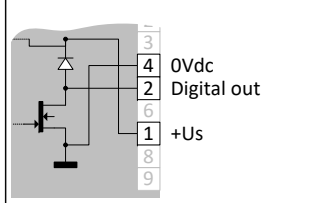


⚠ When connecting the system to other devices, be sure that the integrity of the shielding is not affected. Do not use unshielded wire terminals.

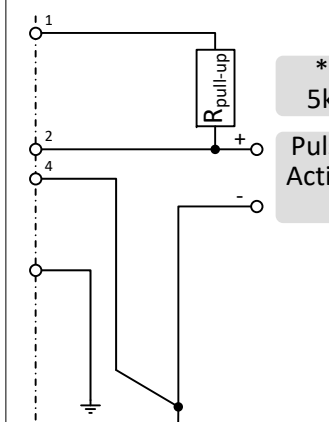
### Bronkhorst (proportional) valve connection



### Internal setup digital output

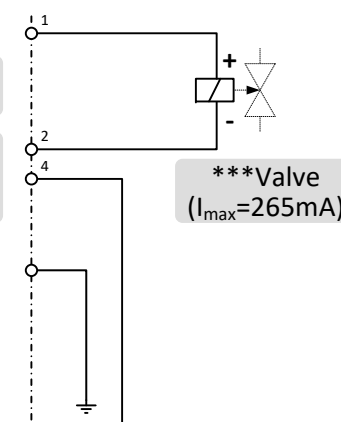


<b>C</b>	#	#	Digital output
<b>D</b>	#	#	Digital frequency output
<b>E</b>	#	#	Digital PWM output
<b>F</b>	#	#	Digital pulse output



Note: \*  
Use Rpull-up (between 5kΩ and 10 kΩ) to create 15-24Vdc at PIN 5

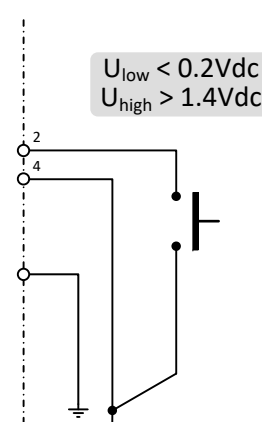
\*R<sub>pull-up</sub> = 5kΩ-10kΩ  
Pulse output  
Active = 0Vdc (low)



Note: \*\*\*  
For 15Vdc supply the minimal Load is 60 Ω, for 24Vdc supply the minimal load is 90 Ω

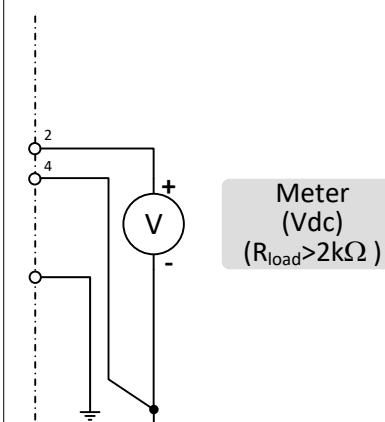
\*\*\*Valve  
(I<sub>max</sub>=265mA)

### I # # Digital input



U<sub>low</sub> < 0.2Vdc  
U<sub>high</sub> > 1.4Vdc

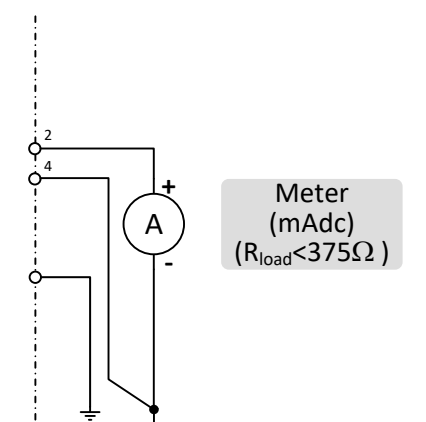
<b>A</b>	0	#	0-5 Vdc analog output
	1	#	0-10 Vdc analog output
	9	#	custom Vdc analog output



Note:  
This output has no long cable compensation

Meter (Vdc)  
(R<sub>load</sub>>2kΩ)

<b>B</b>	0	#	0-20 mAdc analog output
	1	#	4-20 mAdc analog output
	2	#	3.8-20.8 mAdc output
	9	#	Custom mAdc analog output



Meter (mA)  
(R<sub>load</sub><375Ω)