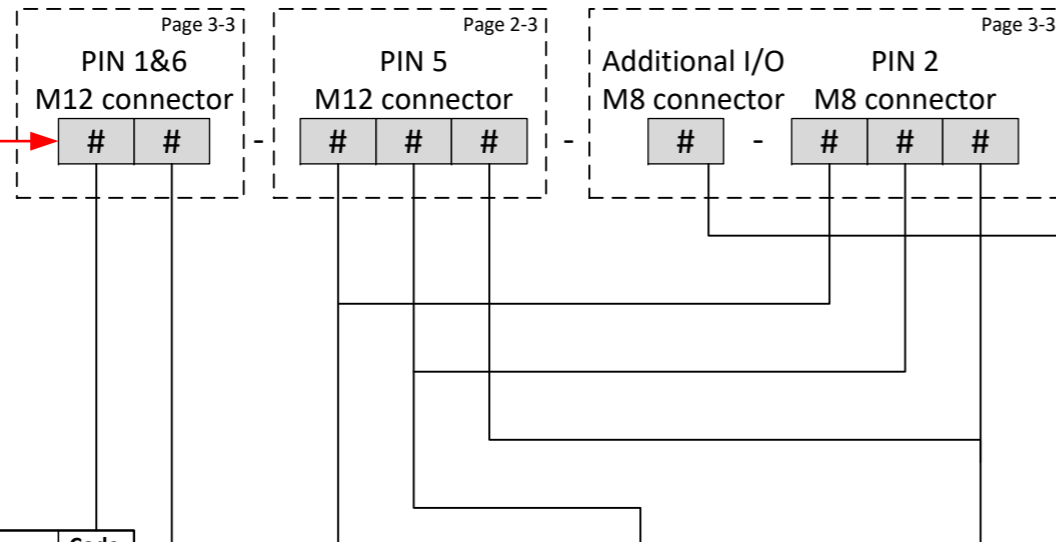


The label shown is for illustration purposes only and may vary on actual products.

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:		
		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)

Preset Table

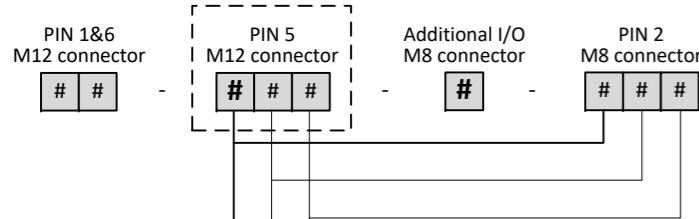
Type	Range	Par	Configurable input/output (PIN 5 M12 / PIN 2 M8)
0	0	0	Disabled, 0 Vdc (default)
A	1	V	0-10 Vdc output, controller
B	1	V	4-20 mAdc output, controller
B	2	V	3.8-20.8 mAdc output (TEIP11/Badger), controller
C	3	A	Digital output, min/max alarm
C	4	A	Digital output, counter limit reached
C	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.

Check next page for Hook-up diagrams

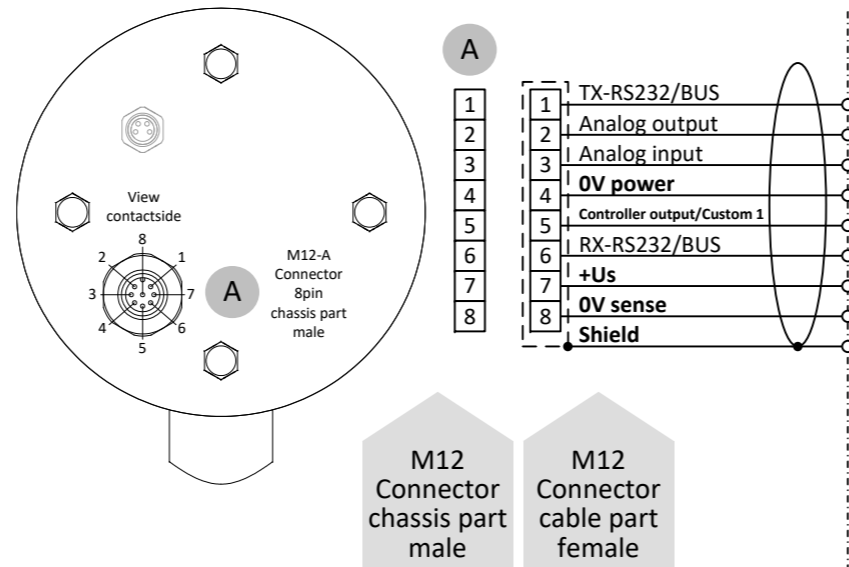
PIN 5 M12 / IO HOOK-UP DIAGRAMS

IO OPTIONS PIN 5 M12 / PIN 2 M8

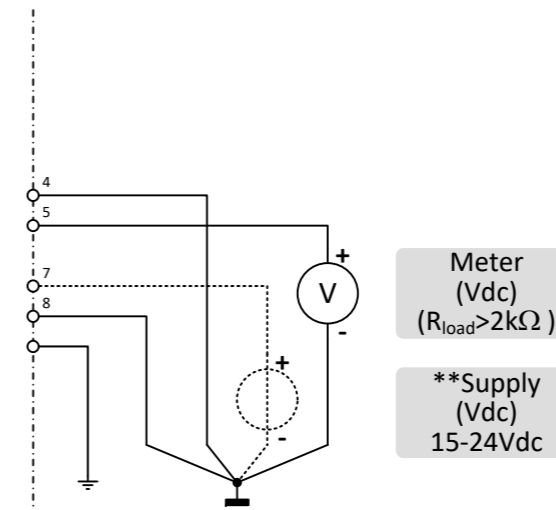


O	#	#	0	0	0	Disabled, 0 Vdc (default)
A	#	#	Vdc	analog	output	
B	#	#	mAdc	analog	output	
C	#	#	Digital	output		
D	#	#	Digital	frequency	output	
E	#	#	Digital	PWM	output	
F	#	#	Digital	pulse	output	
G	#	#	Vdc	analog	input * only on Pin 5	
H	#	#	mAdc	analog	input * only on Pin 5	
I	#	#	Digital	input		

PIN CONNECTIONS M12

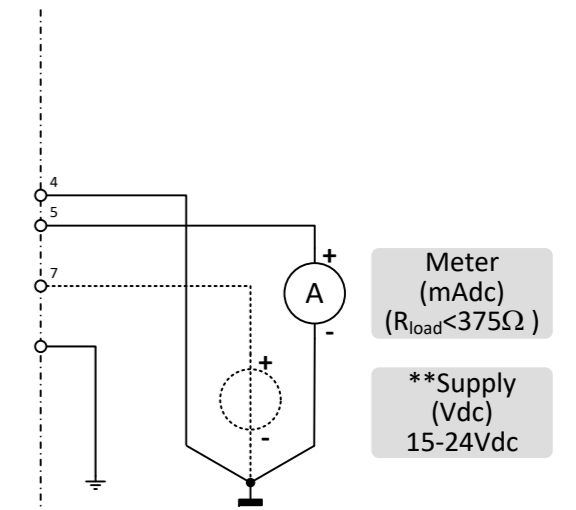


A	0	#	0-5 Vdc analog output
	1	#	0-10 Vdc analog output
	9	#	custom Vdc analog output



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



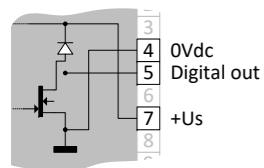
Note: In analog mode with 'mAdc' signals 0V sense (PIN 8) does not need to be connected. The instrument's operation will not be effected in case 0Vdc sense is already hooked-up

POWER SUPPLY WARNING

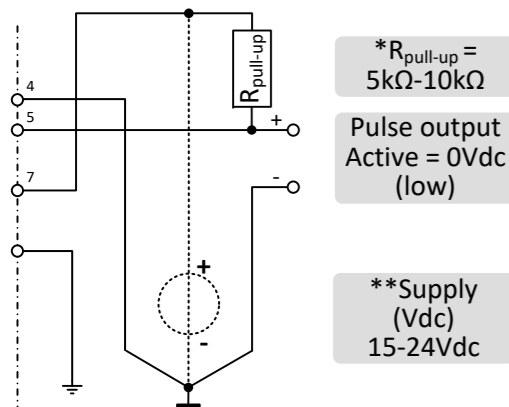
! ** Do not power the instrument simultaneously from two different power sources (e.g. bus connection and Plug-in Power Supply). Doing so will damage the printed circuit board irreparably.

! 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

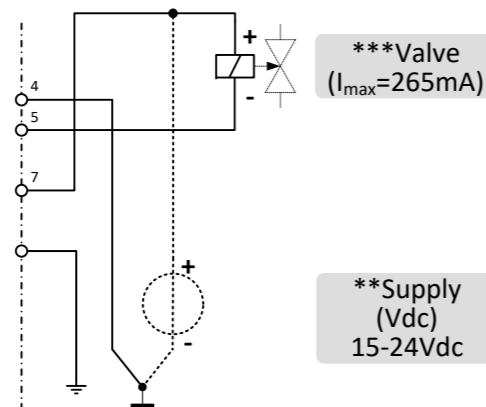


C	#	#	Digital	output	
D	#	#	Digital	frequency	output
E	#	#	Digital	PWM	output
F	#	#	Digital	pulse	output



Pulse Output

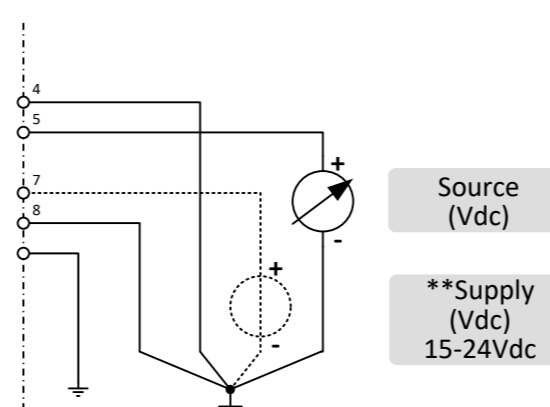
Note: * Use $R_{pull-up}$ (between 5k Ω and 10 k Ω) to create 15-24Vdc at PIN 5



Shut-off Valve

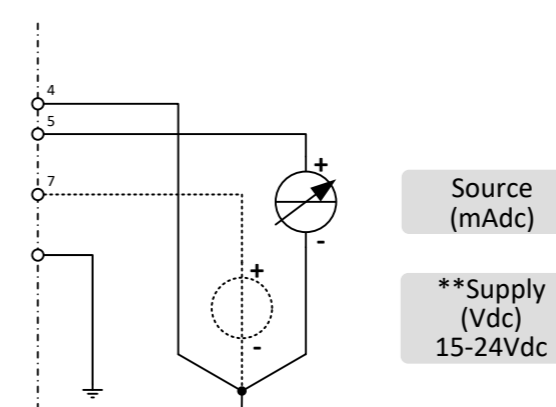
Note: *** For 15Vdc supply the minimal Load is 60 Ω , for 24Vdc supply the minimal load is 90 Ω

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



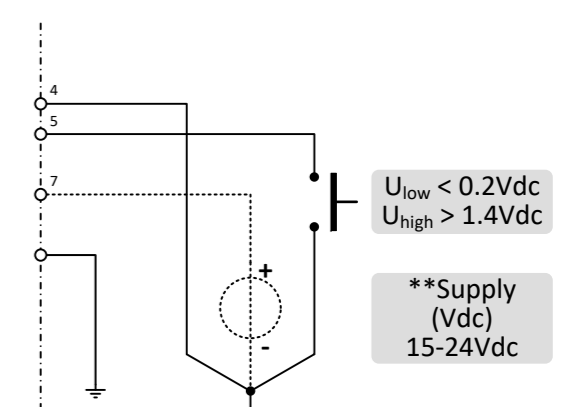
Note: 0V power (PIN 4) and 0V sense (PIN 8) should be separately connected to the 0V terminal at the power supply. (Impedance = 250k Ω)

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



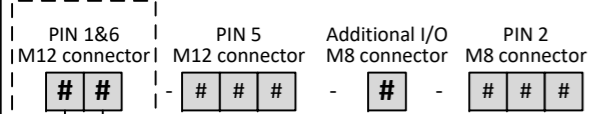
Note: In analog mode with 'mAdc' signals 0V sense (PIN 8) does not need to be connected. The instrument's operation will not be effected in case 0Vdc sense is already hooked-up. (Impedance = 250 Ω)

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

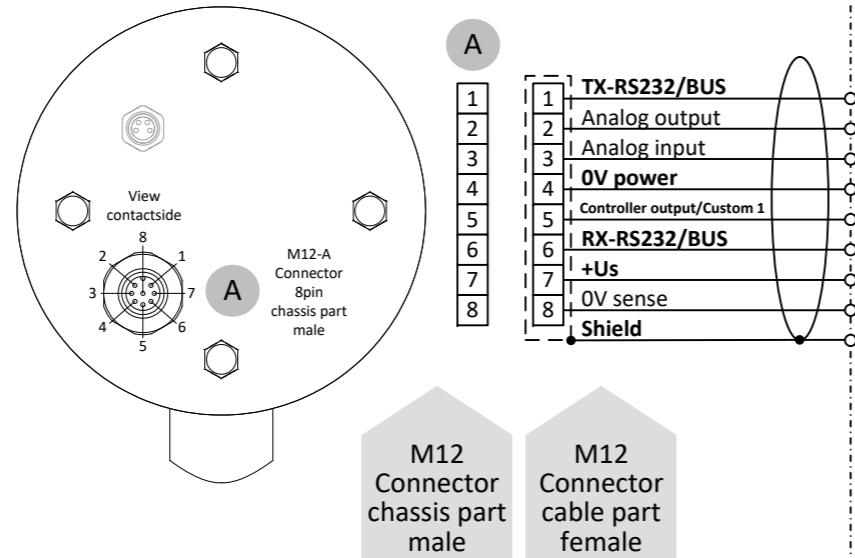
PIN 1&6 BUS OPTIONS



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

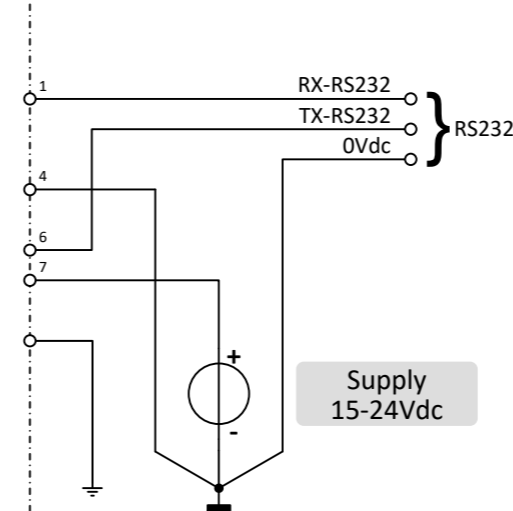
Note:
When the instrument is configured for analog setpoint mode it is not possible to give a setpoint via FLOW-BUS or Modbus input on the M12 connector.
To configure the instrument for digital operation, change parameter 'control mode'. See doc.nr. 9.17.145 for more details.

PIN CONNECTIONS M12

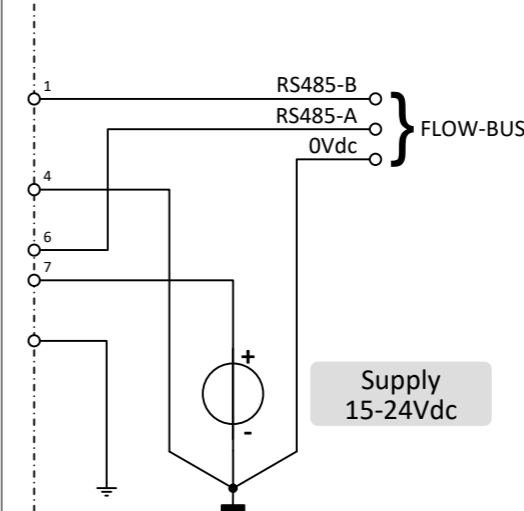


! When connecting the system to other devices, be sure that the integrity of the shielding is not affected. Do not use unshielded wire terminals.

A RS232 – ProPar (default)

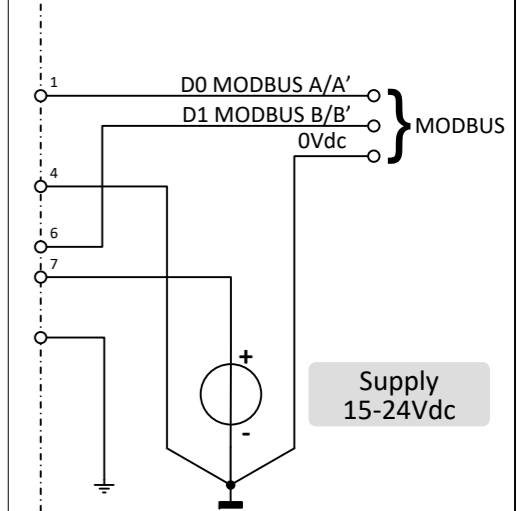


B RS485 – FLOW-BUS



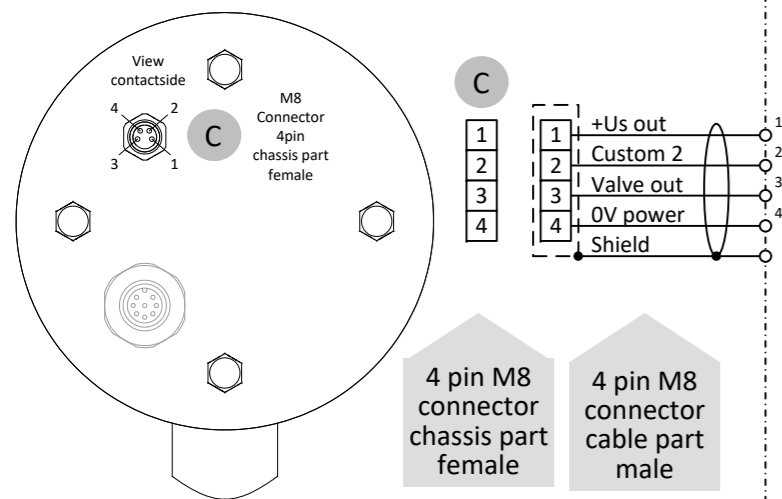
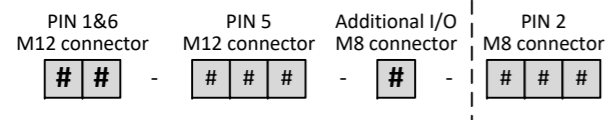
C RS485 – Modbus RTU

D RS485 – Modbus ASCII



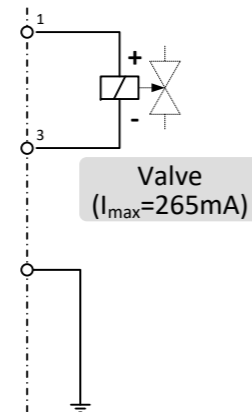
Additional actuator connector, HOOK-UP DIAGRAMS

actuator PIN CONNECTIONS M8

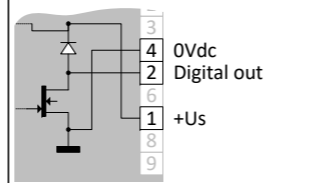


! When connecting the system to other devices, be sure that the integrity of the shielding is not affected. Do not use unshielded wire terminals.

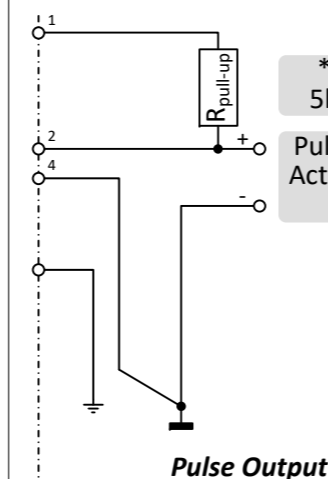
Bronkhorst (proportional) valve connection



Internal setup digital output

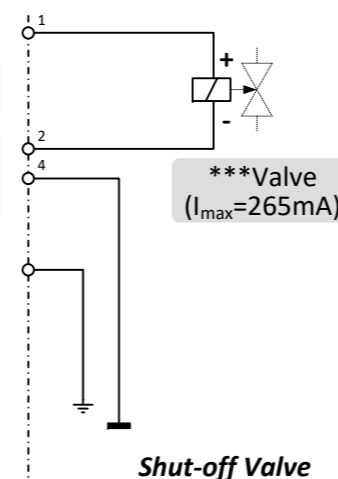


C	#	#	Digital output
D	#	#	Digital frequency output
E	#	#	Digital PWM output
F	#	#	Digital pulse output



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

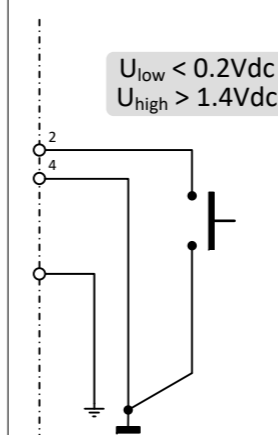
*R_{pull-up} = 5kΩ-10kΩ
Pulse output Active = 0Vdc (low)



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

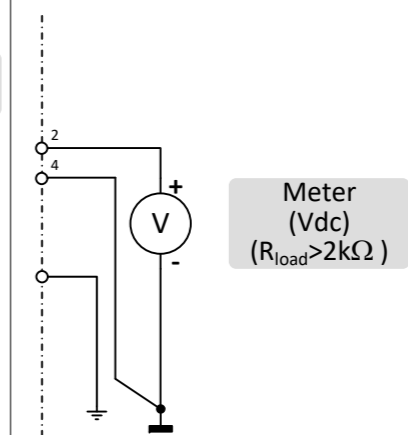
***Valve (I_{max}=265mA)

I # # Digital input



U_{low} < 0.2Vdc
U_{high} > 1.4Vdc

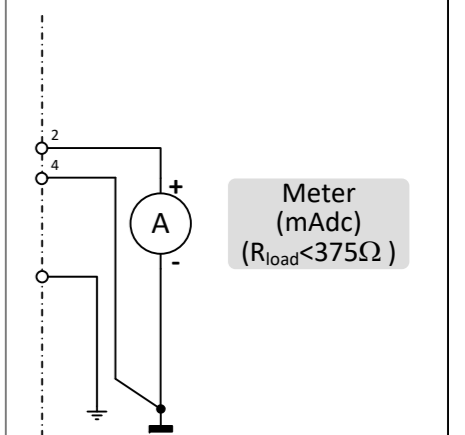
A	0	#	0-5 Vdc analog output
	1	#	0-10 Vdc analog output
	9	#	custom Vdc analog output



Note:
This output has no long cable compensation

Meter (Vdc) (R_{load}>2kΩ)

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 (mAdc) (R_{load}<375Ω)