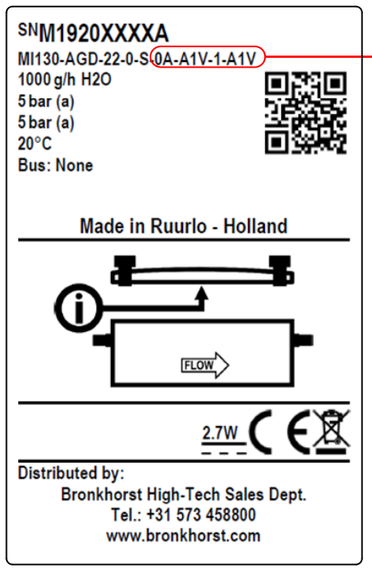
Hook-up diagram MI1x0, Optional bus and IO configurations



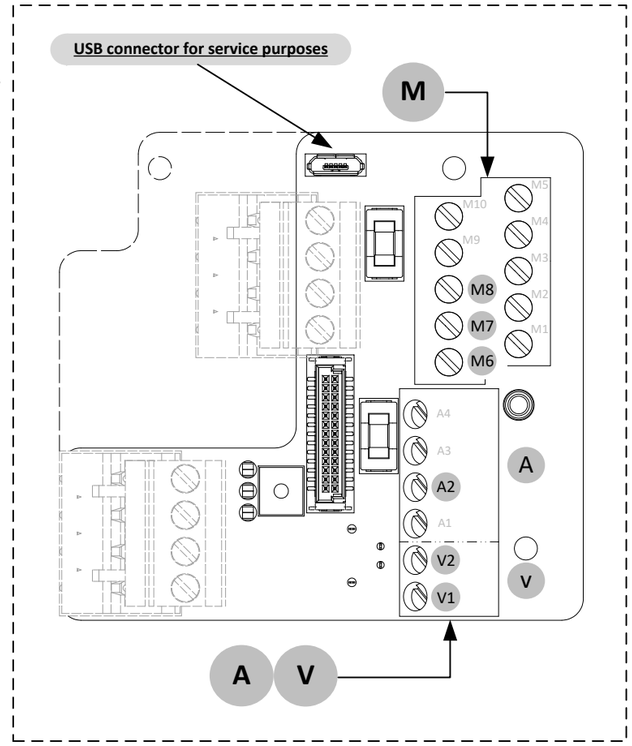
The label shown is for illustration purposes only and may vary on actual products.

Page 3-3
V1 & V2 BHT valve terminal — M6 & M7 Main terminal

Page 2-3
M8 Main terminal

Page 3-3
A2 Actuator terminal

Terminal Connections



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		
F	Pulse output	9	Custom		
G	Voltage input * only on Main terminal M8	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 Main terminal M8	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	Actuator terminal (A2)
0	Disabled, Bronkhorst actuator output
1	Enabled, Bronkhorst actuator output

Preset Table

Type	Range	Par	Configurable input/output (M8 Main terminal & A2 Actuator terminal)
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

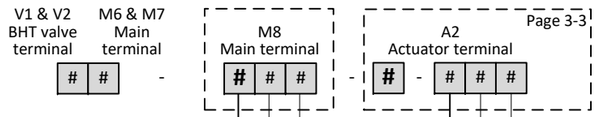
Other settings on request.

Check next page for Hook-up diagrams

Hook-up diagram MI1x0, Optional bus and IO configurations

Main terminal M8 / IO HOOK-UP DIAGRAMS

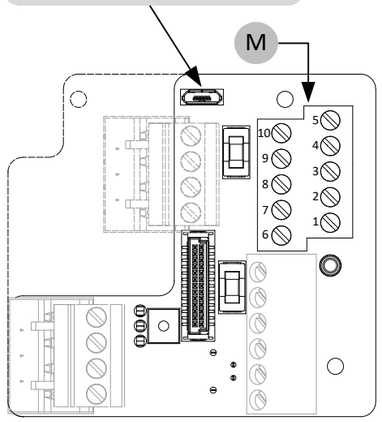
M8 MAIN TERMINAL & A2 ACTUATOR TERMINAL

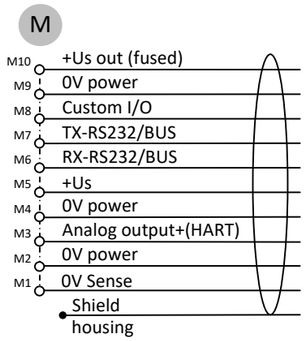


0	0	0	Disabled, 0 Vdc (default)
A	#	#	Vdc analog output
B	#	#	mAdc analog output
C	#	#	Digital output
D	#	#	Digital frequency output
F	#	#	Digital pulse output
G	#	#	Vdc analog input * only on Main terminal M8
H	#	#	mAdc analog input * only on Main terminal M8
I	#	#	Digital input

MAIN TERMINAL

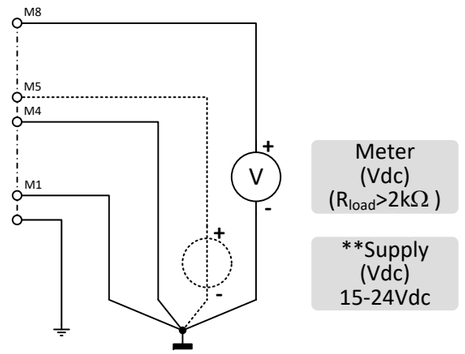
USB connector for service purposes





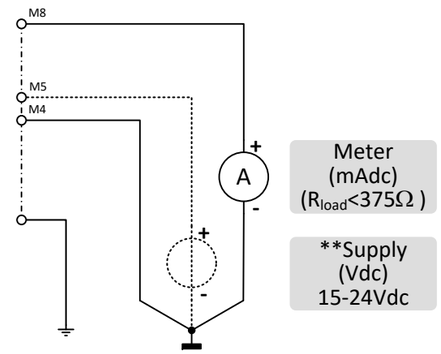
10 pole
screw terminal

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



Note:
0V power (M4) and 0V sense (M1) should be seperately 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



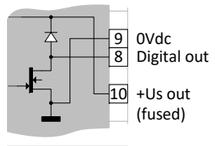
Note:
In analog mode with 'mAdc' signals 0V sense (M1) does not need to be connected. The instrument's operation will not be effected in case 0Vdc sense is already hooked-up.

POWER SUPPLY WARNING

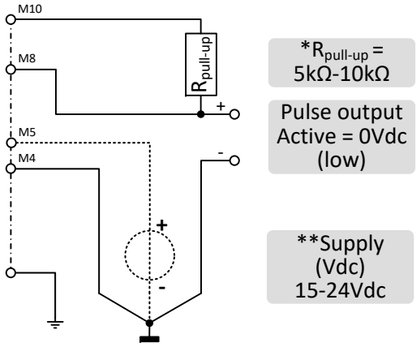
** Do not power the instrument simultaneously from two different power sources (e.g. bus connection and Main terminal connection). Doing so will damage the printed circuit board irreparably.

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

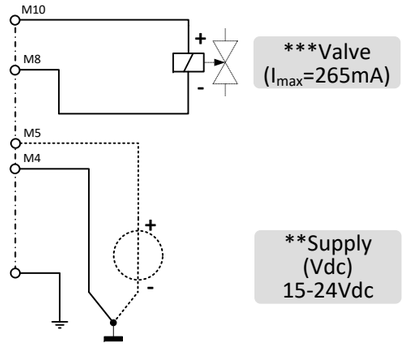


C	#	#	Digital output
D	#	#	Digital frequency output
F	#	#	Digital pulse output



Pulse Output

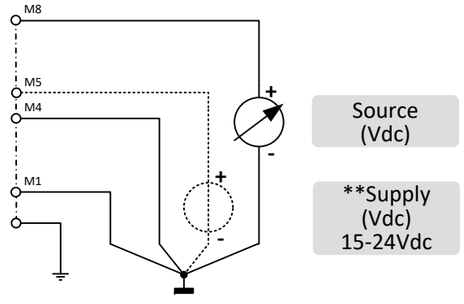
Note: *
Use Rpull-up (between 5kΩ and 10 kΩ) to create 15-24Vdc at Main terminal M8.



Shut-off Valve

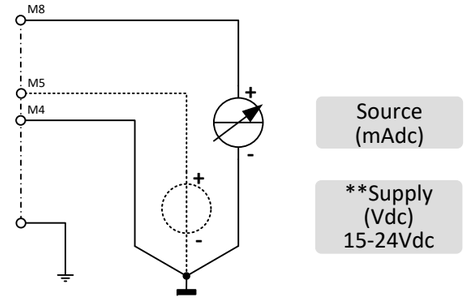
Note: ***
For 15Vdc supply the minimal Load is 60 Ω, for 24Vdc supply the minimal load is 90 Ω.

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



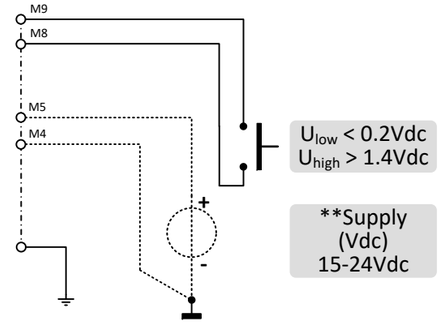
Note:
0V power (M4) and 0V sense (M1) should be seperatly connected to the 0V terminal at the power supply. (Impedance = 250kΩ)

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 (M1) does not need to be connected. The instrument's operation will not be effected in case 0Vdc sense is already hooked-up. (Impedance = 250Ω)

I	#	#	Digital input



Hook-up diagram MI1x0, Optional bus and IO configurations

Main terminal M6 & M7 RS232/RS485 HOOK-UP DIAGRAMS

M6 & M7 MAIN TERMINAL BUS OPTIONS

V1 & V2 BHT valve terminal	M6 & M7 Main terminal	M8 Main terminal	A2 Actuator terminal enable/disable
# #	- # # #	- #	- # # #

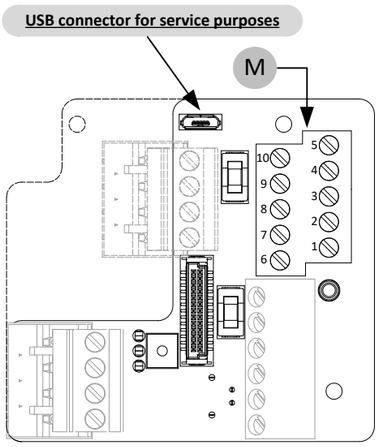
A	RS232 – ProPar (default)
B	RS485 – FLOW-BUS
C	RS485 – Modbus RTU
D	RS485 – Modbus ASCII

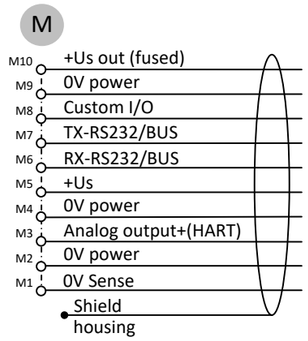
0	Controller disabled (meter only)
A	Analog setpoint mode
D	Digital setpoint mode

Note:
When the instrument is configured for analog sepoint mode it is not possible to give a setpoint via FLOW-BUS or Modbus input on the main terminal.
To configure the instrument for digital operation, change parameter 'control mode'. See doc.nr. 9.17.120 for more details.

MAIN TERMINAL

USB connector for service purposes

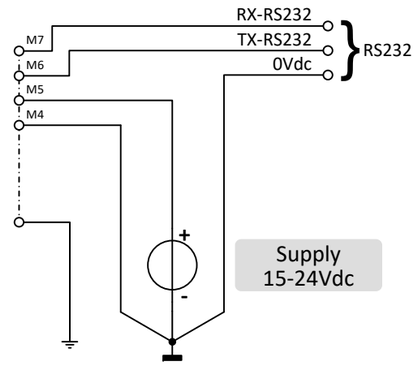




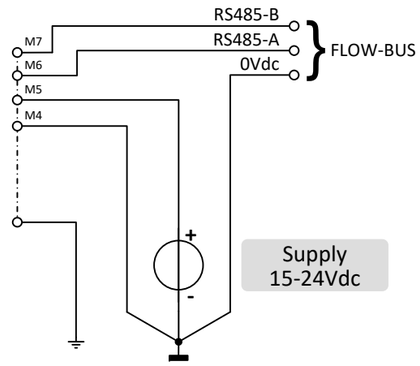
10 pole screw terminal

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

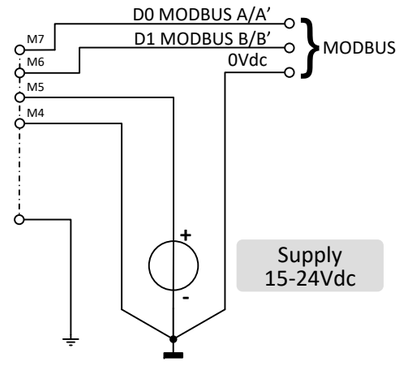
#	A	RS232 – ProPar (default)



#	B	RS485 – FLOW-BUS



#	C	RS485 – Modbus RTU
#	D	RS485 – Modbus ASCII

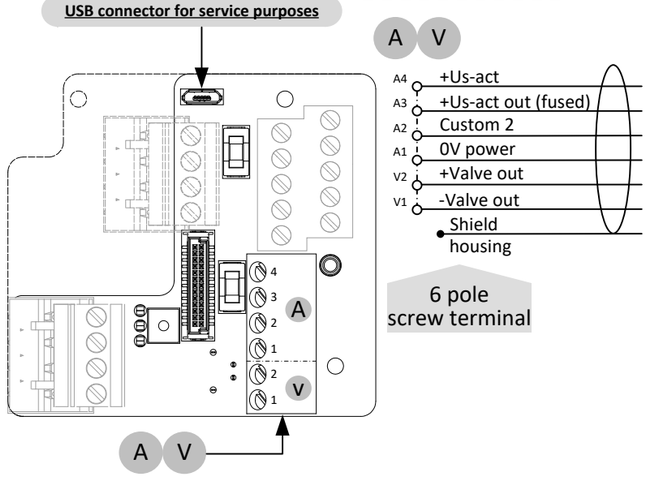


Actuator A2 HOOK-UP DIAGRAM

A2 ACTUATOR / V1 & V2 BHT VALVE TERMINAL

V1 & V2 BHT valve terminal	M6 & M7 Main terminal	M8 Main terminal	A2 Actuator terminal enable/disable
# #	-	# # #	- # - # # #

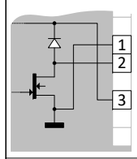
USB connector for service purposes



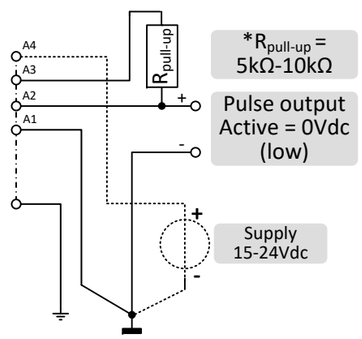
6 pole screw terminal

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

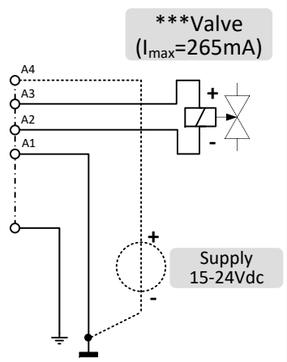


C	#	#	Digital output
D	#	#	Digital frequency output
F	#	#	Digital pulse output



Pulse Output

Note: *
Use Rpull-up (between 5kΩ and 10 kΩ) to create 15-24Vdc at Main terminal M8.

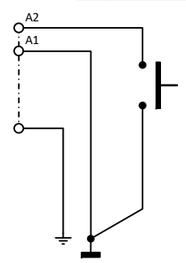


Shut-off Valve

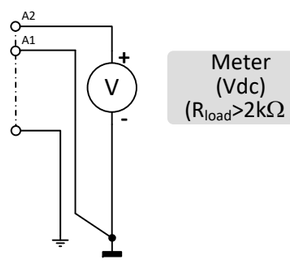
Note: ***
For 15Vdc supply the minimal Load is 60 Ω, for 24Vdc supply the minimal load is 90 Ω

Note:
When using terminal A2 as digital output, an additional power supply must be connected to terminal A4.
It is also possible to use connection **M10** +Us out (fused) from the main terminal.

I	#	#	Digital input

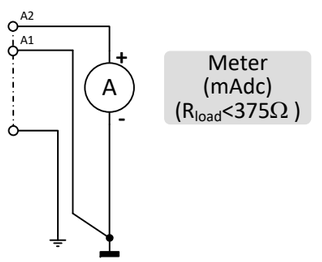


A	0	#	0-5 Vdc analog output
	1	#	0-10 Vdc analog output
	9	#	custom Vdc analog output



Note:
This output has no long cable compensation.

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



BHT valve terminal V1 & V2 HOOK-UP DIAGRAM

Bronkhorst (proportional) valve connection V1 & V2

Valve (I_{max}=265mA)