Bronkhorst®

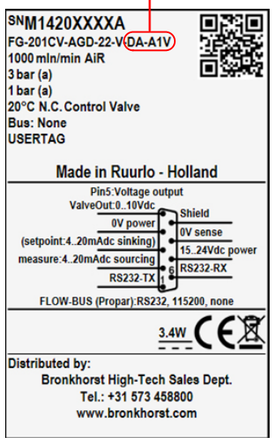
doc.no.: 9.16.118 B

date: 14-2-2017

Hook-up diagram laboratory-style Optional bus and IO configurations

MBC3 Hook-up diagram
MULTI-BUS instruments

MBC3



The labels shown are for illustration purposes only and may vary on actual products.

Pin 1&6 — Pin 5

#	#	-	#	#	#

Controller mode	Code
Analog setpoint	A
Digital setpoint	D

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

Check table below for Hook-up diagrams

Code	Type	Code	Range	Code	Linked parameter
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 mA	D	Density
		1	4...20 mA	E	Measure
		9	Custom	F	Frequency
C	Digital output	0	Remote parameter	I	IO switch status
		1	Min alarm	P	Pressure
		2	Max alarm	S	Setpoint
		3	Min/max alarm	T	Temperature
		4	Counter limit reached	V	Controller output
		5	Enabled by setpoint	Z	Custom
		9	Custom		
D	Frequency output	9	Custom		
E	PWM output	9	Custom		
F	Pulse output	9	Custom		
G	Voltage input	0	0...5 Vdc	C	Control mode
		1	0...10 Vdc	E	Measure (external sensor)
		9	Custom	I	IO switch status
H	Current input	0	0...20 mA	N	Calibration mode
		1	4...20 mA	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		

Preset Table

Type	Range	Par	Configurable input/output (pin 5)
A	1	V	0...10 Vdc output, controller (default)
B	1	V	4...20 mA output, 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
H	1	E	4...20 mA input, external sensor
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 1&6, RS232/RS485 HOOK-UP DIAGRAMS

PIN 1&6 BUS OPTIONS

Pin 1&6 — Pin 5

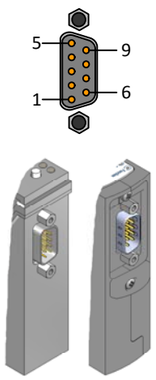
#	#	-	#	#	#

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

A	Analog setpoint mode
D	Digital setpoint mode

Note:
When the instrument is configurated for analog sepoint mode it is not possible to give a setpoint via FLOW-BUS or Modbus input on the D-sub connector.
To configure the instrument for digital operation, change parameter 'control mode'. See doc.nr. 9.17.023 for more details.

PIN CONNECTIONS



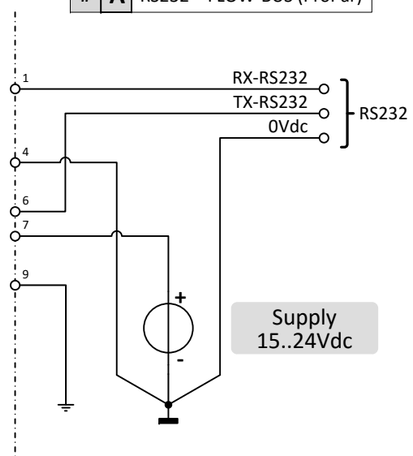
1	1	TX-RS232/BUS
2	2	Analog output
3	3	Analog input
4	4	0V power
5	5	Special
6	6	RX-RS232/BUS
7	7	+Us
8	8	0V sense
9	9	Shield

9 pin D-Sub Connector chassis part male

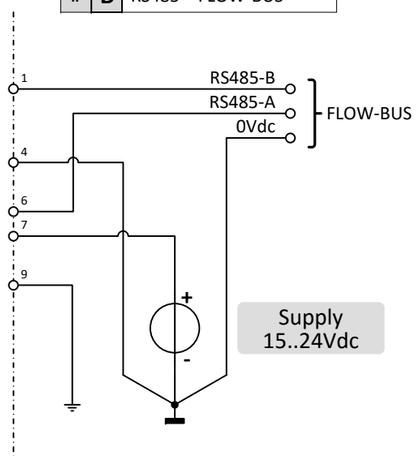
9 pin D-Sub Connector cable part female

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

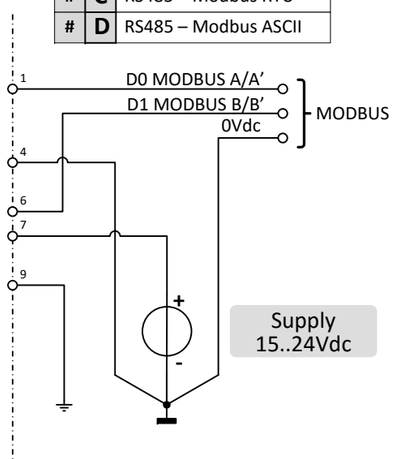
A RS232 – FLOW-BUS (ProPar)



B RS485 – FLOW-BUS



C RS485 – Modbus RTU
D RS485 – Modbus ASCII



Bronkhorst®

doc.no.: 9.16.118 B

date: 14-2-2017

Hook-up diagram laboratory-style Optional bus and IO configurations

MBC3 Hook-up diagram
MULTI-BUS instruments

PIN 5, IO HOOK-UP DIAGRAMS

PIN 5 IO OPTIONS

Pin 1&6 | Pin 5

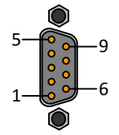
Pin 1&6			Pin 5		
#	#	-	**#**	#	#

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
H	#	#	mAdc analog input
I	#	#	Digital input

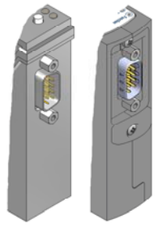
POWER SUPPLY WARNING

** Use only SUB-D 9 or FLOWBUS/MODBUS/DeviceNet connector to power the device. Wrong powering could damage the device. Please refer the corresponding manual for the right power connection!

PIN CONNECTIONS



1	1	TX-RS232/BUS
2	2	Analog output
3	3	Analog input
4	4	**0Vdc power**
5	5	**Special**
6	6	RX-RS232/BUS
7	7	**+Us**
8	8	**0Vdc sense**
9	9	**Shield**

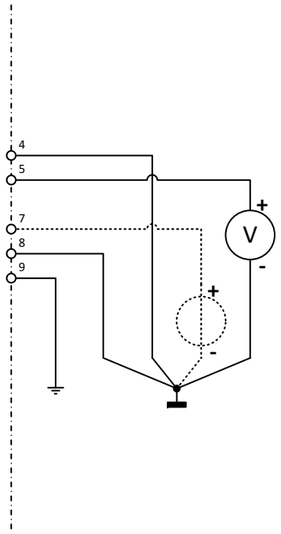


9 pin D-Sub Connector chassis part male

9 pin D-Sub Connector cable part female

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	0	#	0..5 Vdc analog output
	1	#	0..10 Vdc analog output
	9	#	custom Vdc analog output

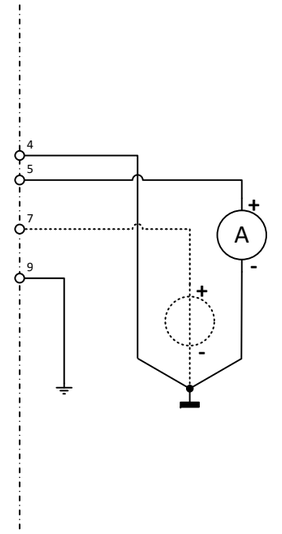


Meter (Vdc) (R_{load}>2kΩ)

**Supply (Vdc) 15..24Vdc

Note:
0Vdc power (pin 4) and 0Vdc sense (pin 8) should be separately connected to the 0Vdc terminal at the power supply

B	0	#	0..20 mAdc analog output
	1	#	4..20 mAdc analog output
	9	#	custom mAdc analog output

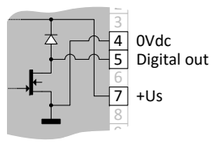


Meter (mAdc) (R_{load}<375Ω)

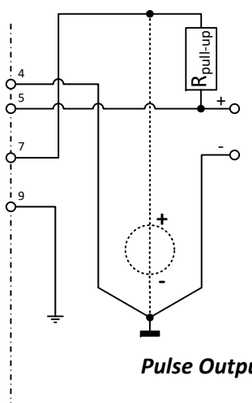
**Supply (Vdc) 15..24Vdc

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

Internal setup digital output



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

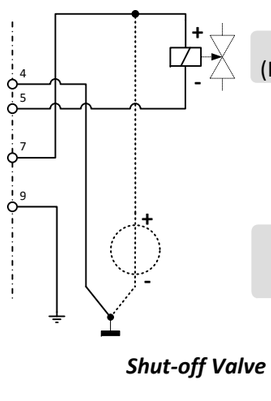


*$R_{pull-up}$ = 5kΩ..10kΩ

Pulse output Active = 0Vdc (low)

**Supply (Vdc) 15..24Vdc

Pulse Output



Valve (I_{max}=265mA)

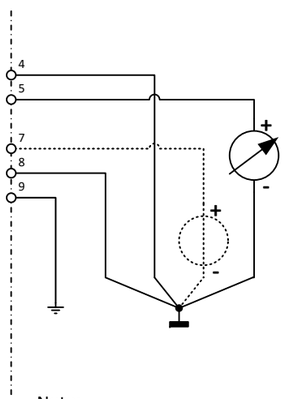
**Supply (Vdc) 15..24Vdc

Shut-off Valve

* Use Rpull-up (between 5kΩ and 10 kΩ) to create 15..24Vdc at pin 5

Note:
For 15Vdc supply the minimal load is 60 Ohm, for 24Vdc supply the minimal load is 90 Ohm

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

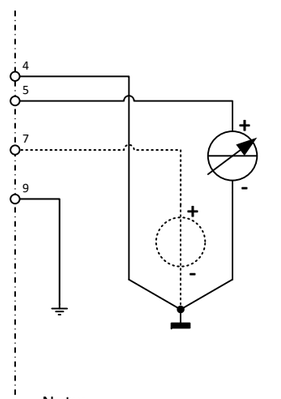


Source (Vdc)

**Supply (Vdc) 15..24Vdc

Note:
0Vdc power (pin 4) and 0Vdc sense (pin 8) should be separately connected to the 0V terminal at the power supply.

H	0	#	0..20 mAdc analog input
	1	#	4..20 mAdc analog input
	9	#	custom mAdc analog input

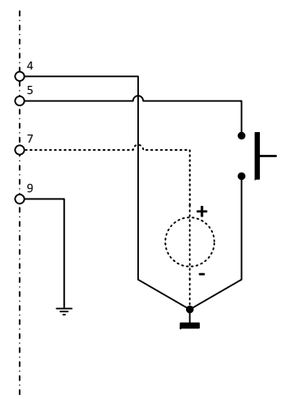


Source (mAdc)

**Supply (Vdc) 15..24Vdc

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

I	#	#	Digital input



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

**Supply (Vdc) 15..24Vdc