

Summary Information:



Figure 1: IO-Overview

IO option	Analog outputs	Analog inputs	Digital outputs	Digital inputs
Number	8	8	10	5
Specification	0–10 V	–10 – +10 V	$V_{out} = 24\text{ V}$	$V_{in} = 24\text{ V}$
Resolution	16 bit	16 bit	–	–
Application examples	<ul style="list-style-type: none"> Measured values, e.g. ion currents Ratios (concentrations) Data transfer to higher-level systems 	Reading in external values, e.g. pressure, temperature, gas flow	<ul style="list-style-type: none"> Free assignment of switchpoints Valve actuation 	Starting or stopping measurement tasks by means of external signal

Standard

Standard I/O connection (D-Sub 15-pin connector):
1 Analog input
2 Digital inputs
1 Relay

Ethernet

Power supply:
External power supply SP 250
90–260 V AC; 50/60 Hz

Extended

Extended I/O connection (D-Sub 62-pin connector):
8 Analog outputs
8 Analog inputs
10 Digital outputs
5 Digital inputs

Connections total pressure transmitter
ActiveLine or DigiLine with Analog Relay option (AR) f.e. to protect the mass spectrometer against an accidental increase of pressure

Standard-IO (AUX I/O)

Standard control connection (AUX I/O)

Plug-in connector	D-Sub, 15-pin, female
Relay output	1x, two-way contact, max. 200 mA
Analog inputs	1x 0–+10 V, output resistance 1 MΩ, resolution 12 bit
Digital inputs	2x ; low < +2 V; high > +3 V, nominal +24 V
Output voltage	+24 V, max. 1 A

The <AUX I/O> connection is comprised of a 15-pin D-Sub socket.

The PrismaPro electronic unit QME supports I/O functions via the <AUX I/O> connection on the front panel.

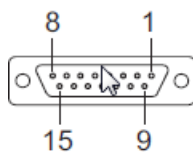


Fig. 10: AUX I/O (15-pin D-Sub socket)

1 Relay (COMMON)	10 Analog output 1 (-)
2 Relay (NO, normally opened)	13 Digital input 1 (pre-setting: Emission OFF)
3 Relay (NC, normally closed)	14 Digital input 0 (pre-setting: Emission ON)
7 0 V (GND for 24 V output)	15 GND
8 + 24 V (output, max. 1 A)	4, 5, 6, 11, 12 unassigned
9 Analog output 1 (+)	

Relay

The status relay output is active (closed) when the emission is switched on.

- Emission ON: Pin 1 + Pin 2 connected = Relay closed.
- Emission OFF: Pin 1 + Pin 2 not connected = Relay open.
- Contact load: 24 V (DC) at 0.5 A

Analog input

The analog input (Pins 9 and 10) are different and process inputs between 0 and +10 V.

The analog input is supported by PV MassSpec.

Digital inputs

The inputs DI 0 and DI 1 (Pins 13 and 14) are set per default that the emission status is remote controlled. However, the digital inputs for other functions may be used via the PV MassSpec software.

- Emission ON: Pin 14 + Pin 15 connected.
- Emission OFF: Pin 13 + Pin 15 connected.

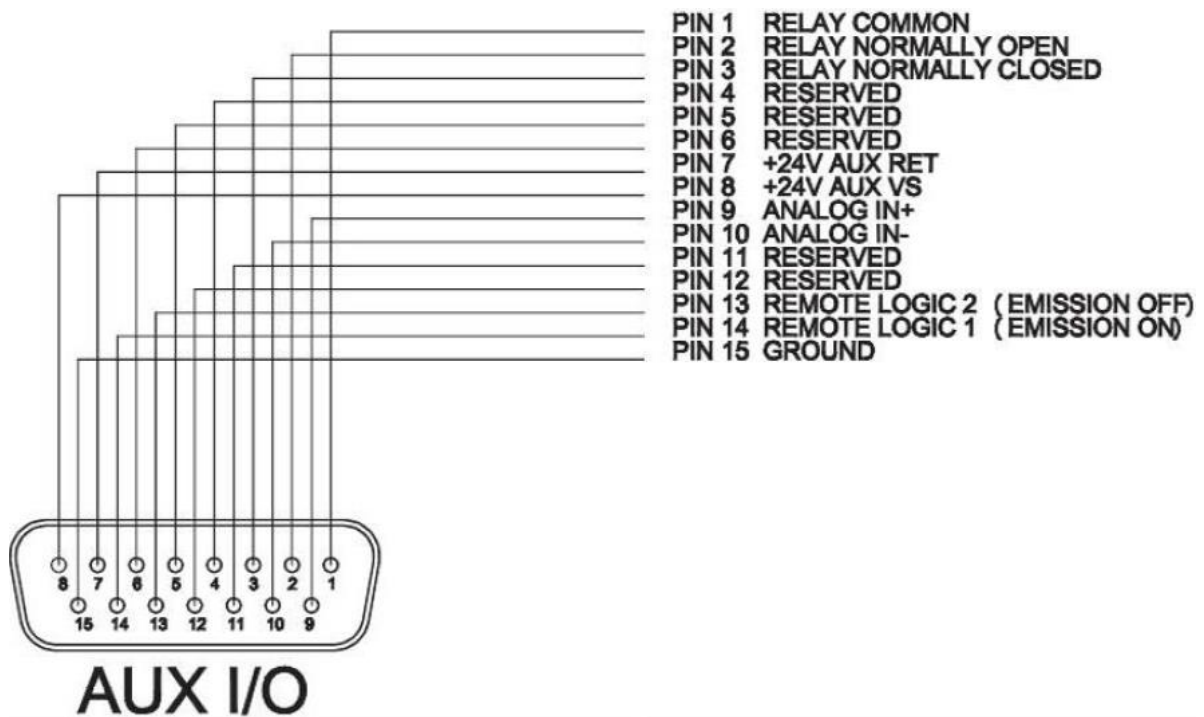


Use of digital inputs for controlling the emission

The control of the emission through the digital inputs bypasses all software and hardware locks.

In this case, you must develop a locking mechanism that does not allow the emissions to be switched on when the pressure for operation of the PrismaPro is too high.

Figure 10b: Aux I/O 15pin D-Sub female



Extended-IO (EXT I/O):

Extended control connection EXT I/O (optional)

Plug-in connector	HD D-Sub, 62-pin, female	
Analog outputs	8x	0 V - +10 V, output resistance 100 Ω , $I_{\max} = 10$ mA, resolution 16 bit
Analog inputs	8x	-10 V - +10 V, input resistance 50 M Ω , resolution 16 bit
Digital outputs	10x	Nominal +24 V, max. 28 V, 200 mA
Digital inputs	5x	Low < +2 V; High > +3 V, nominal 24 V
Output voltage	+24 V, max. 1 A (including current to +24 V output at standard control connection)	

The Extended-IO connection is comprised of a 62-pin HD D-Sub socket.

The PrismaPro electronic unit QME supports extended I/O functions via the Standard-IO connection on the front panel if the optional IO250 is installed



Fig. 11: EXT I/O (62-pin HD D-Sub socket)

Pin			Pin	
1	Digital Input 13		32	Digital Output 9
2	Digital Input 14		33	Digital Output 10
3	Digital Input 15		34	Digital Output 11
4	Digital Input 16		35	Analog Output 4
5	Digital Input 17		36	Analog Output 5
7	Digital Output 2		37	Analog Output 6
8	Digital Output 3		38	Analog Output 7
9	Digital Output 4		21,39,40,60	+24 V ²⁾
10	Digital Output 5		20,41,42,62	0 V ³⁾
12	Analog Output 3		43	Analog Input 6 (+)
14	Analog Output 2		44	Analog Input 6 (-)
16	Analog Output 1		45	Analog Input 7 (+)
18	Analog Output 0		46	Analog Input 7 (-)
22	Analog Input 2 (+)		47	Analog Input 8 (+)
23	Analog Input 2 (-)		48	Analog Input 8 (-)
24	Analog Input 3 (+)		49	Analog Input 9 (+)
25	Analog Input 3 (-)		50	Analog Input 9 (-)
26	Analog Input 4 (+)		51	Digital Output 6
27	Analog Input 4 (-)		52	Digital Output 7
28	Analog Input 5 (+)		6,19,30,53,54,61	GND_Signal
29	Analog Input 5 (-)		11,13,15,17,55,56,57,58,59	Analog Mass (Analog return)
31	Digital Output 8			

²⁾ The 24 V supply voltage is available at all Pins +24 V/0 V for switching with digital inputs / outputs. Together, a maximum of 1 A current may flow through.

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Figure 12: PrismaPro Multi-I/O Option, DB62 Connector

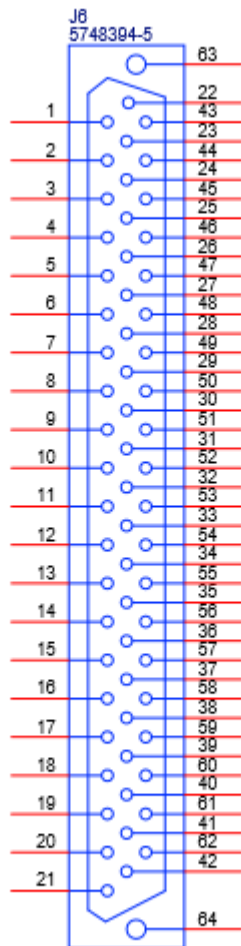
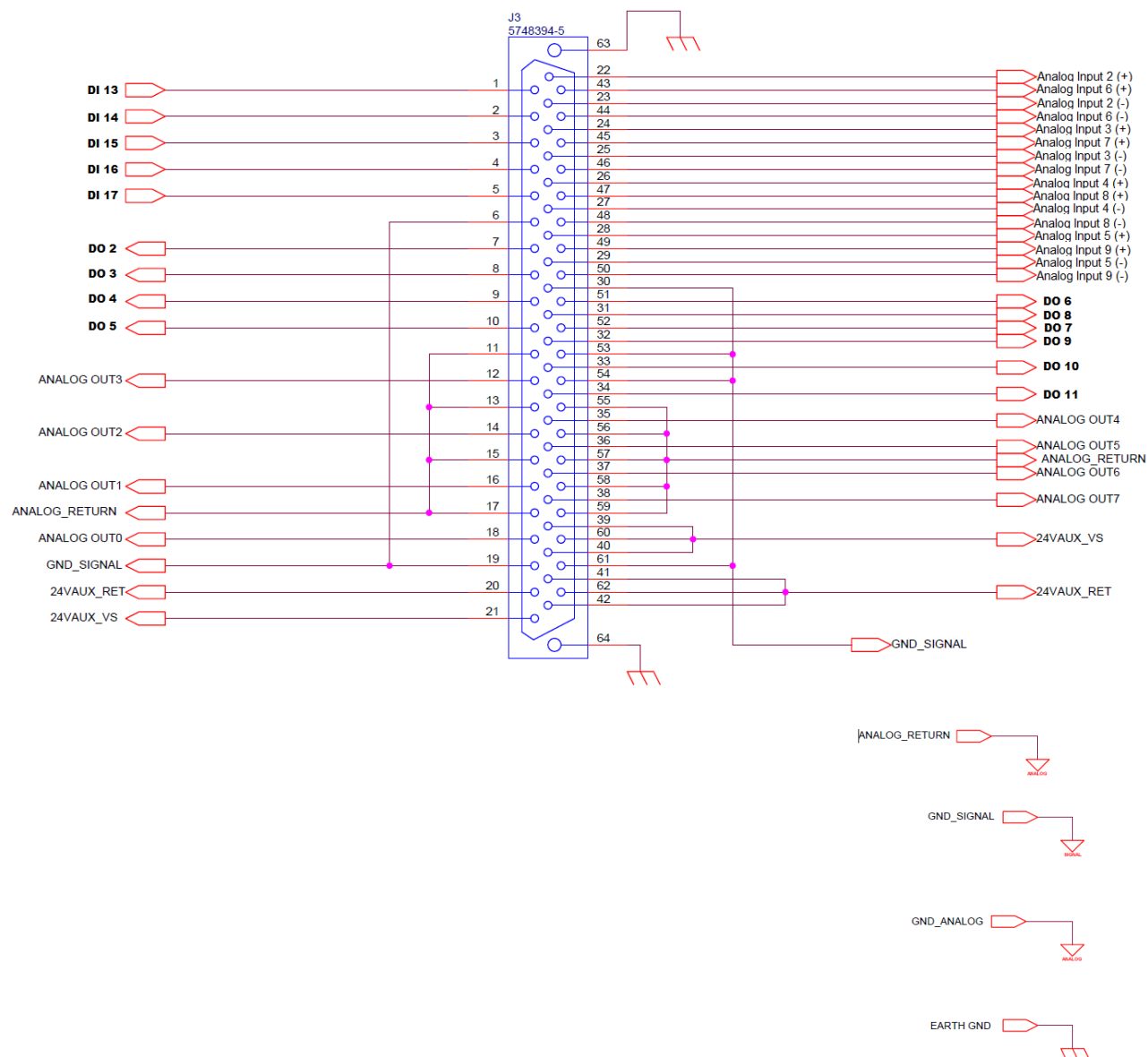


Figure 13: Schematic Extended Connector



Extended-I/O-Description:

This section describes the Multi-I/O option for PrismaPro.

When configured with the Multi-I/O option, the PrismaPro electronics module supports the following input and output functions through the DB62 connector located on the back panel of PrismaPro.

Analog Out

There are eight, 16-bit analog output channels available through the 62 pin DSUB connector. These channels are designated in the software as Analog Output 0 through Analog Output 7. The output range is 0 to 10 Volts. Pin assignments are noted in Table 1. Connector pins are shown in Figure 11-13.

Table 1 - Analog Out - Pin Assignments

Software Designation	DB62 connector Pin
Analog Output 0	18
Analog Output 1	16
Analog Output 2	14
Analog Output 3	12
Analog Output 4	35
Analog Output 5	36
Analog Output 6	37
Analog Output 7	38
Analog Return	11,13,15,17,55,56,57,58,59

Analog In

There are eight, 16-bit differential analog input channels available through the 62 pin DSUB connector. These channels are designated in the software as Analog Input 2 through Analog Input 9. The input range is +/- 10 Volts. Pin assignments are noted in Table 2. Connector pins are shown in Figure 11-13.

Table 2 - Analog In - Pin Assignments

Software Designation	DB62 connector Pin	Software Designation	DB62 connector Pin
Analog Input 2(+)	22	Analog Input 2(-)	23
Analog Input 3(+)	24	Analog Input 3(-)	25
Analog Input 4(+)	26	Analog Input 4(-)	27
Analog Input 5(+)	28	Analog Input 5(-)	29
Analog Input 6(+)	43	Analog Input 6(-)	44
Analog Input 7(+)	45	Analog Input 7(-)	46
Analog Input 8(+)	47	Analog Input 8(-)	48
Analog Input 9(+)	49	Analog Input 9(-)	50

Digital Out (Open Collector)

There are ten digital output channels available through the 62 pin DSUB connector. These channels are designated in the software as Digital Output 2 through Digital Output 11. Pin assignments are noted in Table 3. Connector pins are shown in Figure 11-13

Table 3 - Digital Out - Pin Assignments

Software Designation	DB62 connector Pin
Digital Output 2	7
Digital Output 3	8
Digital Output 4	9
Digital Output 5	10
Digital Output 6	51
Digital Output 7	52
Digital Output 8	31
Digital Output 9	32
Digital Output 10	33
Digital Output 11	34
GND_SIGNAL	6,19,30,53,54,61

Digital In (Sinking Input)

There are five digital input channels available through the 62 pin DSUB connector. These channels are designated in the software as Digital Input 13 through Digital Input 17. Pin assignments are noted in Table 4. Connector pins are shown in Figure 11-13.

Table 4 - Digital In - Pin Assignments

Software Designation	DB62 Connector Pin
Digital Input 13	1
Digital Input 14	2
Digital Input 15	3
Digital Input 16	4
Digital Input 17	5
GND_SIGNAL	6,19,30,53,54,61

Figure 14: Digital Inputs

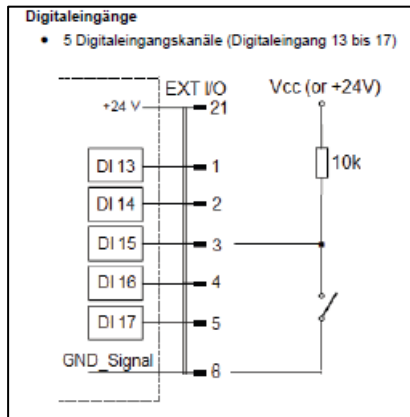


Figure 15a+b: Digital Outputs

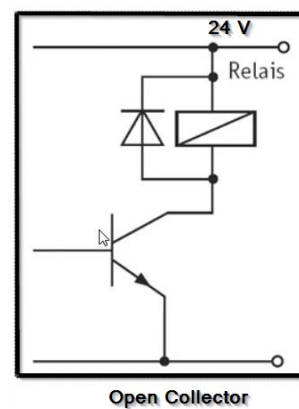
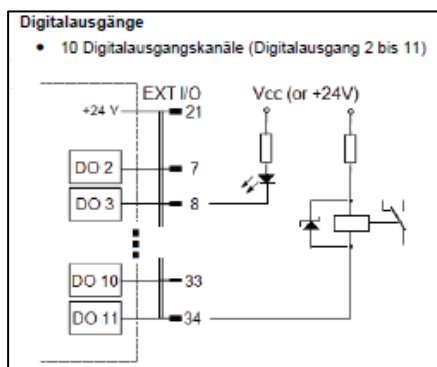


Figure 16: Testbox Standard + Extended
(24 V DC are supplied by PrismaPro)

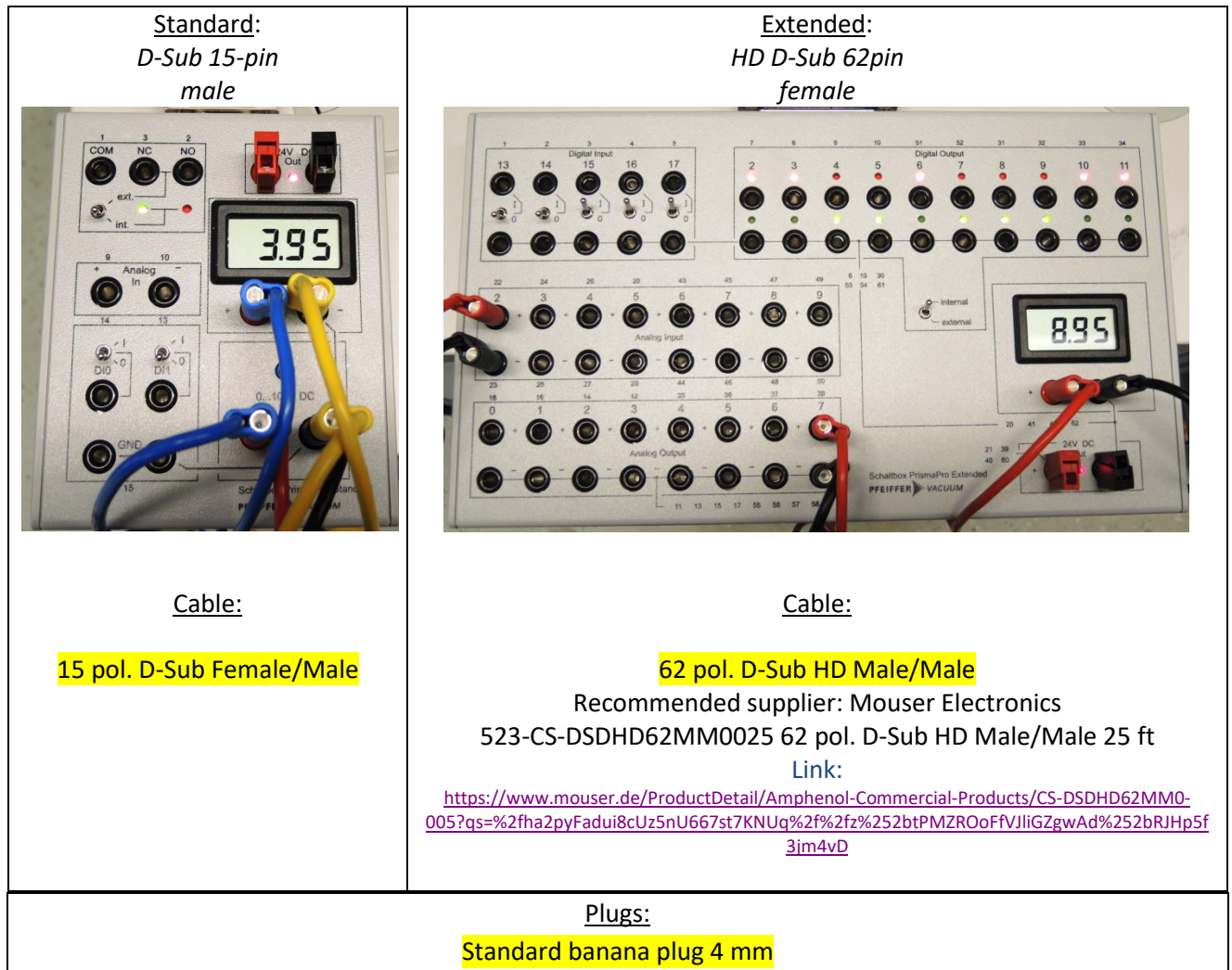


Figure 17: Cabling-Overview Testbox Standard + Extended

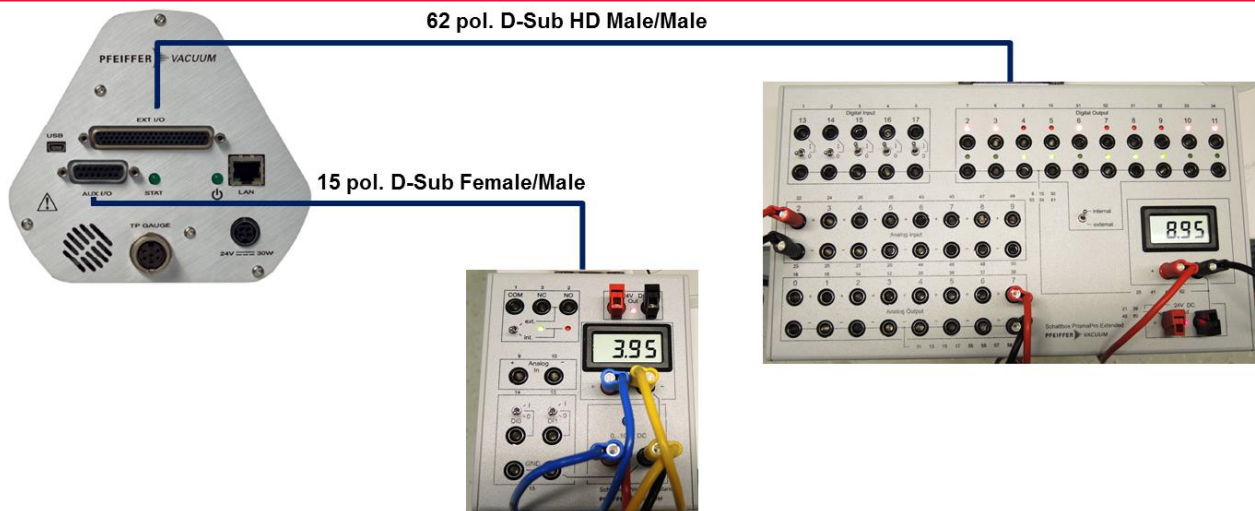


Figure 18: Cabling for External Pressure Gauge

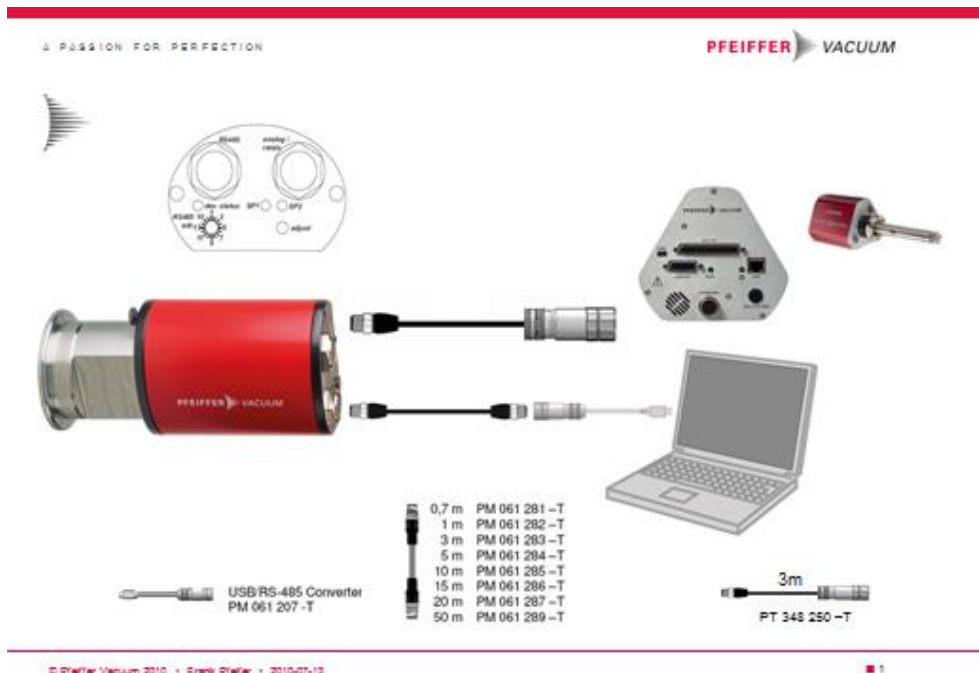


Figure 19: For "easy-to-use" wiring

