

# EL-PRESS™

Pressure Meters and Controllers for Gases and Liquids

## Quick Installation Guide

Doc. no.: 9.17.100 rev. D Date: 06-04-2020



Starting up the EL-PRESS in 9 steps

# SCOPE OF THIS GUIDE

This Quick Installation Guide covers the **EL-PRESS** series Digital Pressure Meters and Controllers. These instruments are equipped with a diaphragm type piezoelectric resistive pressure sensor and offer high accuracy, stability and reliability. These instruments are designed for laboratory and clean processing conditions and are suited to measure and control pressure ranges between 0... 100 mbar and 0...400 bar. **EL-PRESS** instruments are equipped with a digital printed circuit board, featuring diagnostics and counter functions, digital communication (RS232) and a PID controller. Thanks to the 'multibus' concept, instruments can be equipped with an onboard fieldbus interface as an option.

This Quick Installation Guide will help you start up your **EL-PRESS** in 9 steps, covering the following subjects:

1. Checking functional properties
2. Checking pressure
3. Checking piping
4. Mounting/installing instrument
5. Leak check
6. Electrical connection
7. Analog/digital operation
8. Multifunctional switch operation
9. Purging

## Other applicable documents:

- Manual **EL-PRESS** series (document no. 9.17.101)

### Interfaces

- Analog/RS232 interface
- EtherNet/IP interface
- CANopen interface
- DeviceNet™ interface
- EtherCAT® interface
- FLOW-BUS interface
- Modbus ASCII / RTU interface
- PROFIBUS DP interface
- PROFINET interface
- Modbus TCP interface
- Custom bus & I/O configurations

### Manual

- 9.17.027
- 9.17.132
- 9.17.131
- 9.17.026
- 9.17.063
- 9.17.024
- 9.17.035
- 9.17.025
- 9.17.095
- 9.17.035
- n/a

### Hook-up diagram

- 9.16.119
- 9.16.215
- 9.16.217
- 9.16.122
- 9.16.124
- 9.16.120
- 9.16.123
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- 9.16.148
- 9.16.234
- 9.16.118



- The instrument manual and hook-up diagrams can be downloaded from the **EL-PRESS** product pages on the Bronkhorst website: [www.bronkhorst.com/products/pressure](http://www.bronkhorst.com/products/pressure)
- Other documents can be found on our general download page ([www.bronkhorst.com/downloads](http://www.bronkhorst.com/downloads))

## Starting up

1

### Check functional properties

Before installing the instrument, check if the properties stated on the instrument label match your requirements:

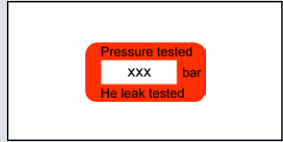
- Flow and/or pressure rate
- Media to be used in the instrument
- Upstream and downstream pressure(s)
- Operating temperature
- Valve type (N.C. - Normally Closed / N.O. - Normally Open)
- Input and output signal



2

**a. Check pressure rating**

Before installation, make sure that the pressure rating is in accordance with the safety factor of your application. The tested pressure is stated on the instrument with a red label. If this label is missing, or if the tested pressure is insufficient, the instrument must **not** be mounted in the process line and should be returned to the factory.



**b. Check operating conditions**

**EL-PRESS** instruments are suitable for use at temperatures between -10 and +70 °C. The instrument housing has ingress protection rating IP40, implying that the equipment is suited for general purpose indoor (dry) applications, like laboratories and machine enclosures.



3

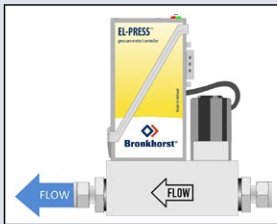
**Check if system piping is clean**

For reliable operation, always make sure the fluid stream is clean. Use filters to ensure a moisture, oil and particle free gas stream (recommended pore-size: 5 µm). If back flow can occur, the use of a downstream filter and a check valve is also recommended. Select a suitable filter size, to avoid a too high pressure drop.

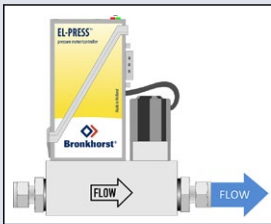
4

**Mounting/installing**

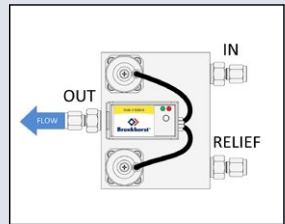
- **P-500/600/700 instruments:** install the instrument in the line in accordance with the flow arrow on the instrument body.
- **P-800 instruments:** install the fluid connections in accordance with the inscriptions on the instrument body (IN, OUT, RELIEF)



Forward pressure control (P-600)

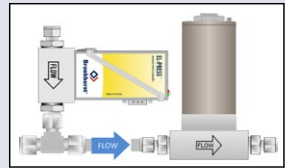


Back pressure control (P-700)



Process Pressure Controller (P-800)

For high flow rates, installing the pressure meter in a separate branch is strongly recommended (using a T-piece fitting).



- Tighten the fluid connections according to the instructions of the supplier of the fittings. The use of Swagelok RS-type stainless steel adapters and Bronkhorst® elastomer O-rings is recommended.
- Avoid installation in close proximity of mechanic vibration and/or heat sources.

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**Leak check**

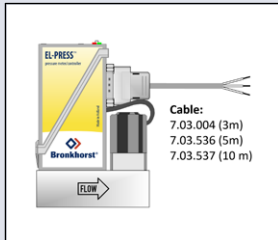
Check the fluid system for leaks before applying pressure, especially if toxic, explosive or other dangerous fluids are used.



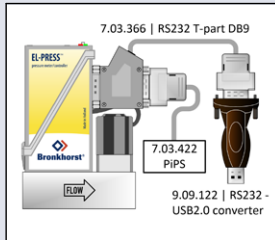
## 6

### Electrical connection

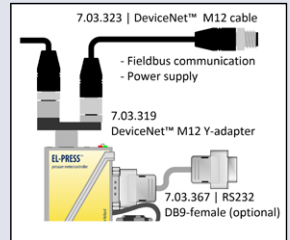
Electrical connections must be made with standard cables or according to the applicable hook-up diagram (see page 2). **EL-PRESS** instruments are powered with +15...24 Vdc.



A. Analog connection



B. Digital RS232 connection powered by plug in power supply



C. Fieldbus (e.g. DeviceNet™)



**Never** power the instrument simultaneously from **two different power sources** (e.g. fieldbus connection and Plug-in Power Supply). Doing so will damage the printed circuit board irreparably.

## 7

### a. Analog/local operation

Connect the device to the power supply/readout unit using a cable with 9-pin D-sub connector. For controllers, the setpoint is proportional to the pressure range. This principle also applies to digital operation.

### b. Digital RS232 operation

Connecting the instrument with an RS232 cable to a Windows computer enables operation using the free Bronkhorst® software for Windows, such as FlowDDE and FlowPlot. Consult the **EL-PRESS** manual for more information.

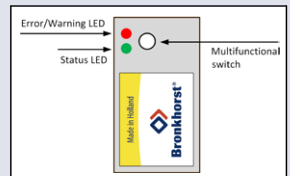
### c. Fieldbus operation

Connect the instrument according to the specific fieldbus standard. Refer to the appropriate fieldbus hook-up document.

## 8

### Multifunctional switch operation

Using the 2 LEDs and the switch on the **EL-PRESS**, several actions can be monitored and started. The green LED is used for status indication. The red LED is used for error and warning messages. The switch can be used to execute several functions, such as bus initialization and restoring factory settings. Consult the **EL-PRESS** manual (document no. 9.17.101) for details.



## 9

### Purging

If the instrument will be used with corrosive or reactive media, purging with an inert gas (e.g. Nitrogen or Argon) for at least 30 minutes is absolutely necessary before use. After use with such media, complete purging is also required before exposing the system to air.



### Warm-up time

- For best performance of a **pressure controller**, let the instrument warm up for at least 30 minutes before starting measurement and control (this can be done while purging)
- For a **pressure meter**, the warm-up time is negligible

Your **EL-PRESS** is ready to use.