

SERIES E-8000

Digital Readout / Control Systems



> Single and Dual Channel Modules

Bronkhorst High-Tech B.V., manufacturers of advanced mass flow metering and control systems, offer digital Readout/Control Modules for use with digital Mass Flow Meters/Controllers, Pressure Meters/Controllers and other transmitters and transducers with RS232 communication. The E-8000 Series have one or two colour TFT displays per module for indication of measured/totalised values and a push button menu to easily enable the user to change the setpoint, reset the counter value, select other fluids and many functions more.

> Multi Channel Configurations

Based on the modular technique of the E-8000 series, it is easy to assemble multi channel configurations in 1/2 19" and 19" housings, either for rack mount or table top. The exact number of channels to be served with one (1/2 19") or two (19") power supplies, depends on the type of instruments (meters/controllers) to be connected. For most applications one power supply can serve at least four channels.



> Configurations for CEM-system

For Controlled Evaporation Mixing (CEM) systems a single channel module for temperature control can be integrated into a 1-channel cassette and 1/2 19" or 19" housings. This module is available with or without display and with various fieldbus options.

> Features

- ◆ Bright, wide angle, 1.8" display (TFT technology)
- ◆ User friendly operation, menu driven with 4 push buttons
- ◆ Indication/operation/configuration of
 - measured value (direct or %)
 - setpoint
 - totalised flow
 - fluid / tag number
 - control characteristics
 - fieldbus settings
 - alarm functions (min/max, response, counter)
 - fluid selection (up to 8 fluids/curves stored in MFM/MFC)

> Specifications

Mechanical:

- ◆ 1- or 2-channel table top housing (1 module)
- ◆ 1- or 2-channel cassette for panel mounting (1 module)
- ◆ 1/2 19" table top housing (max. 3 modules)
- ◆ 1/2 19" rack housing (max. 3 modules)
- ◆ 19" table top housing (max. 6 modules)
- ◆ 19" rack housing (max. 6 modules)
- ◆ As an option, 1/2 19" and 19" housings can be supply with front handles or carrying handles
- ◆ An overview of the dimensions can be found on the last page

Electrical:

- ◆ Mains voltage 100...240 Vac (50...60 Hz)
- ◆ Output signal/setpoint signal: Digital: FLOW-BUS (RS-485) or RS-232
- ◆ Option for CEM-modules only: PROFIBUS DP, PROFINET, DeviceNet™, Modbus or EtherCAT® interface
- ◆ Subminiature D-connector socket for RS-232 instrument connection
- ◆ RJ45-connection for connection with FLOW-BUS communication
- ◆ Power Supply capacity +24 Vdc, 1.25 A (30 W)



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> Model number identification

I) Model key housing, mains supply and bus options

E-8 N N N - A - N A ...

Code	Bus options
0	no external communication
A	RS232
R	FLOW-BUS
Z	specified

Code	Mains and instrument power supply
0	n.a.
1	¹⁾²⁾ 100..240Vac / 24Vdc instrument/FLOW-BUS single supply
2	³⁾ 100..240Vac / 24Vdc instrument/FLOW-BUS dual supply
3	¹⁾²⁾ 220..240Vac / 24Vdc instrument/FLOW-BUS single supply
4	³⁾ 220..240Vac / 24Vdc instrument/FLOW-BUS dual supply
5	¹⁾²⁾ 110..120Vac / 24Vdc instrument/FLOW-BUS single supply
6	³⁾ 110..120Vac / 24Vdc instrument/FLOW-BUS dual supply
7	⁴⁾ 220..240Vac Mains supply
8	⁴⁾ 110..120Vac Mains supply
9	special

Code	Handles
0	no handles
1	front handles
2	carrying handle

¹⁾ Single supply in cassette or 1/2 19" housing, max. load: 30 Watt
²⁾ Dual supply in 19" housing, max. load: 2x30 Watt
³⁾ Mains supply for CEM only

Code	Housing
1	1/2 19" tabletop housing
2	19" tabletop housing
3	1/2 19" rack housing
4	19" rack housing
5	tabletop cassette
6	panelmount cassette
9	special

II) Model key power supply modules

E-8 N N N - A - N A ...

Code	Rear panel
0	FLOW-BUS Power Supply (only at 1 st or 2 nd Supply unit)
A	2x 9pSub Instrument Power Supply

Code	Front panel
0	blind

III) Model key readout/control modules

E-8 N N N - A - N A ...

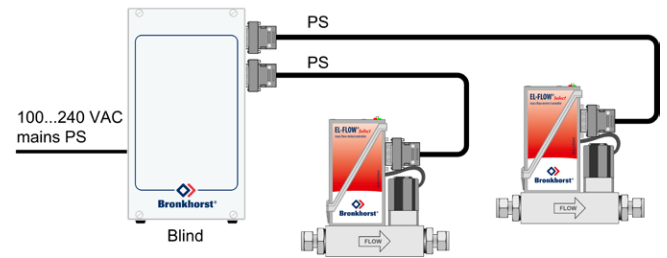
Code	Rear panel
0	none, FLOW-BUS terminal only
A	RS232 instrument readout

Code	Front panel
0	blind
1	1 display
2	2 displays

> Examples of typical configurations

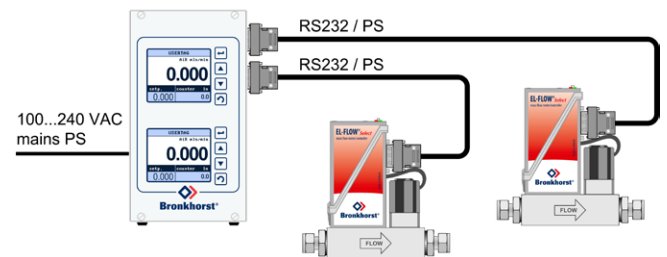
Blind power supply

By means of a blind power supply module one or two instruments can be powered (total power consumption max. 30 W). The model key for this typical example is **E-8501-0-0A**



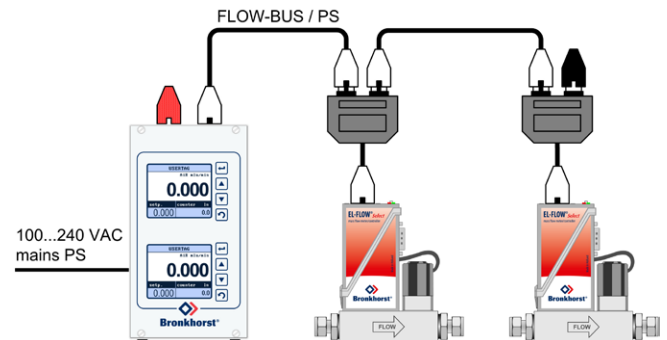
Instrument terminal

Via RS232 one or two instruments can be hooked up per module. The model key for this typical example is **E-8501-0-2A**



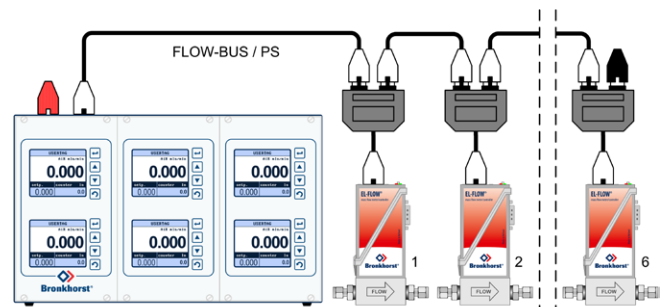
FLOW-BUS terminal

FLOW-BUS is a field bus, designed by Bronkhorst, based on RS485 technology, for digital communication between digital devices, offering the possibility of host-control by PC or digital R/C-module (E-8000 or BRIGHT). Below example shows two instruments with integrated FLOW-BUS interface in a bus configuration with an E-8000 module. The model key for this typical example is **E-8501-R-20**



Below you will find a FLOW-BUS set-up with 6 Mass Flow Meters.

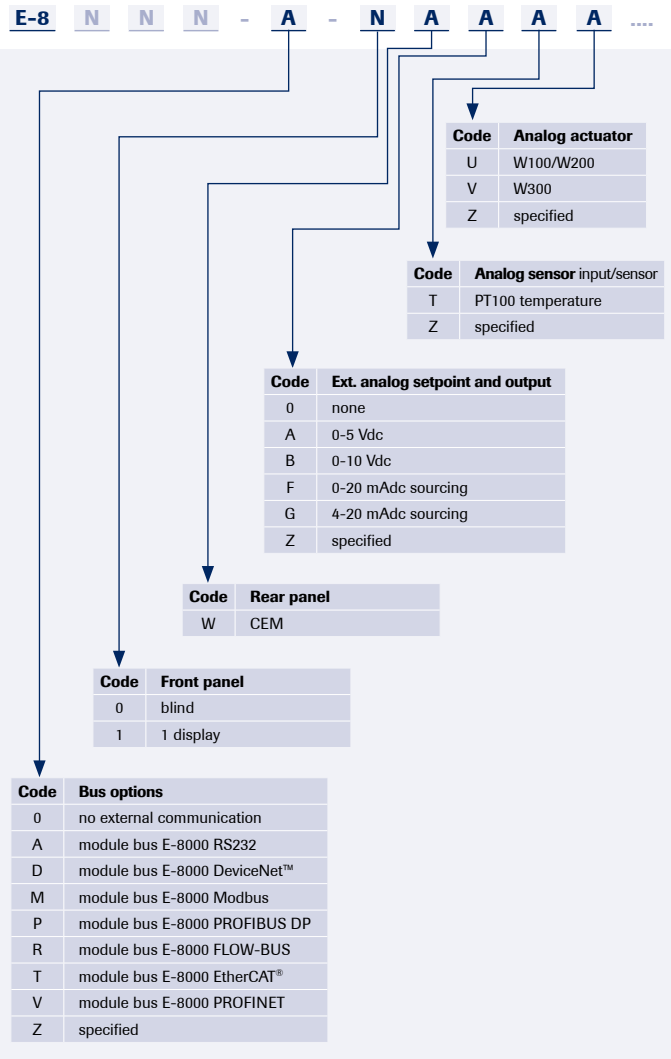
The model key for this example is **E-8101-R-20-20-20**



Alternatively only one display can be used to readout these instruments sequentially; model key for this option is **E-8101-R-10-00-00**

> Model number identification

IV) Model key CEM (Controlled Evaporation Mixing) modules

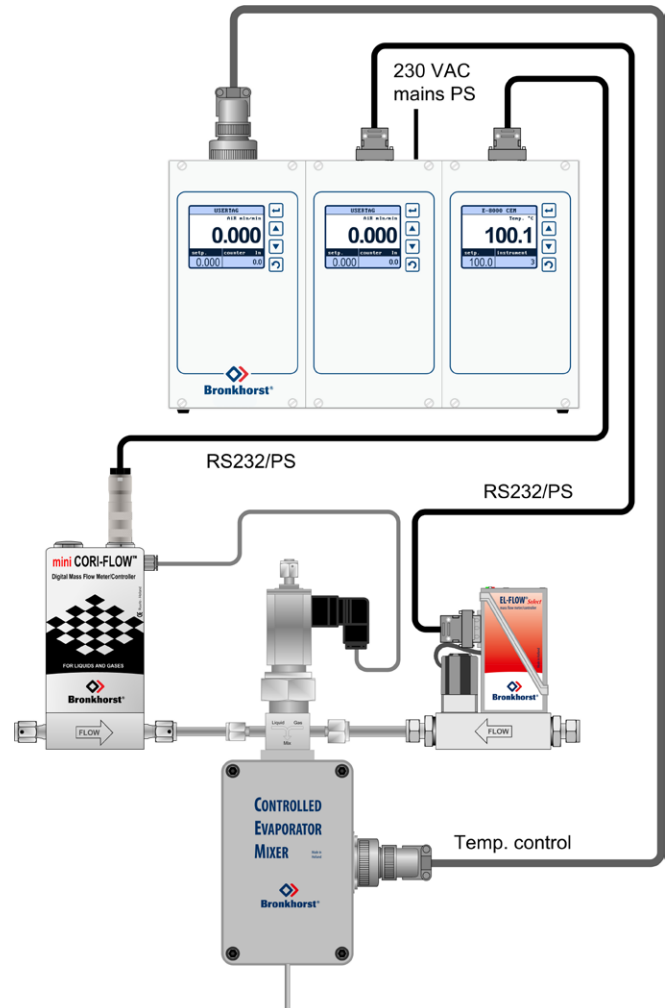


Fieldbus connections for CEM temperature control

> Examples of typical configurations

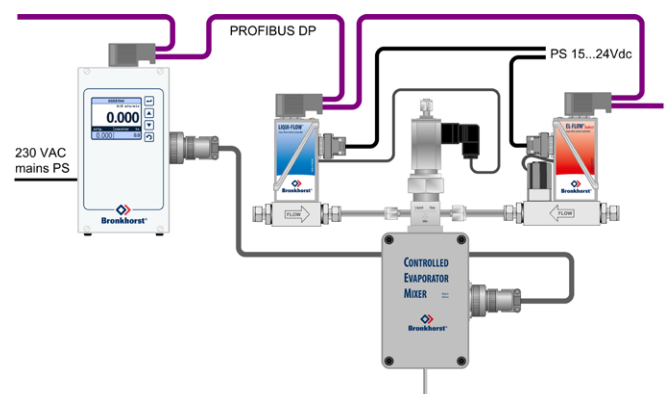
CEM-System, RS232 set-up

The following hook-up drawing illustrates a typical example of a stand-alone Controlled Evaporation Mixing (CEM) system, consisting of a Mass Flow Meter for liquid (e.g. a precursor or water used for humidification purposes), a Mass Flow Controller for carrier gas and a mixing device with subsequent heater element. The E-8000 unit powers the three devices and communicates via RS232. Model number for this example is **E-8103-0-1WATU-1A-1A**



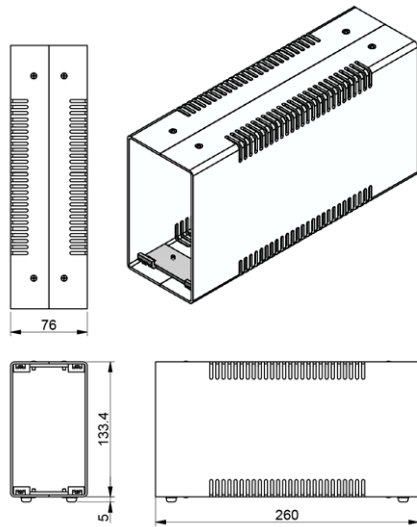
CEM-System, fieldbus set-up

When the Controlled Evaporation Mixing (CEM) system should be part of a fieldbus system, the set-up may be arranged as in below drawing, where the devices are hook-up to a PROFIBUS network. Model number for the PS/Readout in this illustration is **E-8507-P-1WATU**

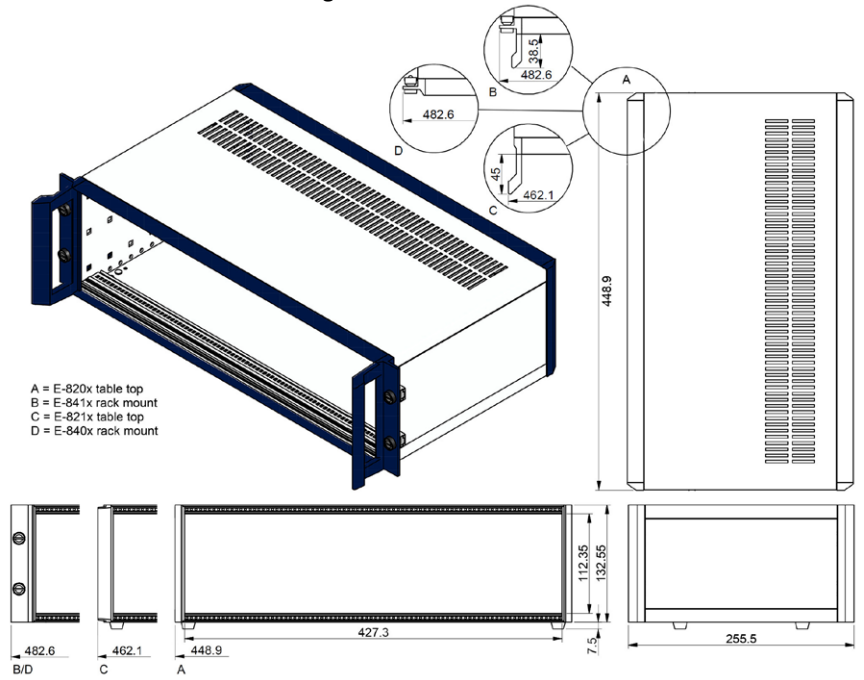


> Dimensions

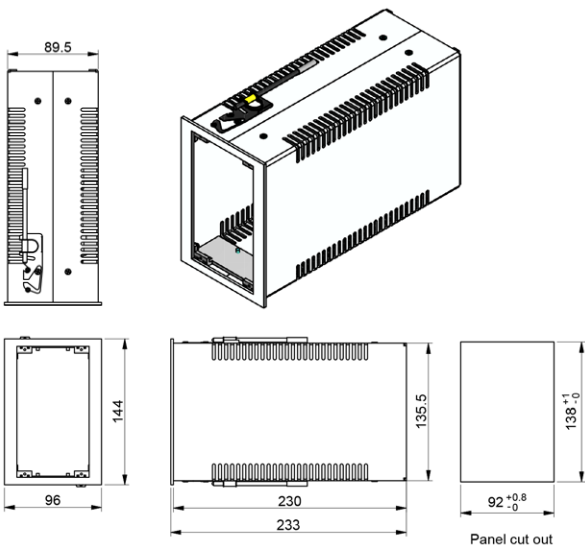
14TE Cassette table top housing



19" housing



14TE Cassette rack mount housing



1/2 19" housing

