

SERIES E-7000

Digital Power Supply / Readout Systems

> Digital Single Channel Module

Bronkhorst High-Tech B.V., manufacturers of advanced mass flow metering and control systems, offer the Digital Single Channel Control Module for use with Thermal Mass Flow Controllers, Pressure Controllers and other transmitters and transducers or, as in master/slave control systems, in combination with these.

The Bronkhorst High-Tech E-7000 Series is designed to easily enable the user through a menu format to program and power one Mass Flow Meter/Controller, Pressure Transducer/Controller or other device. The micro-processor based unit offers great flexibility in indication of tags, fluid names and counter units in combination with measuring and setpoint values, both in percentages or actual units. Furthermore polynomial functions of max. 8 calibration curves, offering an accuracy of $\pm 0,5\%$ off reading plus $\pm 0,1\%$ off full scale, can be stored.

> Specifications

Mechanical:

- ◆ 96 x 144 mm cassette for panel mounting
- ◆ 76 x 134 x 260 mm table top housing

Electrical:

- ◆ Mains voltage 100...240 Vac (50...60 Hz) or 24 Vdc/Vac
- ◆ Output signal/setpoint signal:
 - Analog: 0...5 (10) Vdc; 0 (4)...20 mA
 - Digital: FLOW-BUS (RS-485)
- ◆ Subminiature D-connector socket for instrument connection
- ◆ Subminiature D-connector socket + mating connector for analog I/O-functions
- ◆ RJ45-connection for connection with RS-485 communication (FLOW-BUS)
- ◆ Power Supply capacity +15 Vdc, 2 A, -15 Vdc, 300 mA



Front:

- ◆ 2-line 16-character LCD screen with backlight for rate of flow or pressure indication in percentage or direct reading combined with totalized flow or batch control
- ◆ 5 control keys (up/down/left/right/enter)

> Features

A user friendly readout/control/alarm/totalization module with 5-key pushbutton menu format for:

- ◆ operation with digital or analog instruments
- ◆ direct or percentage reading
- ◆ internal/external setpoint control mode
- ◆ master/slave control mode
- ◆ totalizer/batchcounter function
- ◆ one programmable alarm function
- ◆ one NO/NC relay
- ◆ storage of polynomial calibration functions (max. 8 per channel)
- ◆ settings protected by means of password
- ◆ setpoint slope control
- ◆ easy access to purge mode/shutoff mode

Optional feature:

- ◆ HOST CONTROL by personal computer, by means of an RS-232 or Profibus interface



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> Multi channel configurations

Based on the modular technique of the single channel modules, it is easy to assemble multi channel configurations. This way 3 channels fit into a 1/2 19" housing and 6 channels fit into a 19" housing, either for rack mount or table top. For most applications one power supply can serve three channels. In that case one module '10' or '11' (incl. power supply) may be combined with max. two modules '12' (excl. power supply).



> EX-FLOW configurations

For application with EX-FLOW instruments one blind power supply module ('03'/'04') should be used in combination with max. two single channel modules. EX-FLOW modules ('20'/'21'/'22') contain an additional isolation amplifier for intrinsically safe operation of the field mounted instruments. Alternatively, for stand-alone purposes without R/C-panel, a blind 24 Vdc powered intrinsically safe power supply module can be offered ('23'/'24'/'25').

> Configurations for 'CEM'-system

For Controlled Evaporation Mixing ('CEM') systems two single channel modules can be combined with a module for temperature control ('33'/'34'/'35'/'36'/'37'). These modules can be used for local temperature indication and control. Modules for remote temperature control are available on request.

> Host control

For application requiring host control by PC, Bronkhorst High-Tech offers a module including a RS-232/FLOW-BUS interface ('40') or a Profibus-DP/FLOW-BUS interface ('41'). More information about digital communication can be found in a separate leaflet.

> Other Bronkhorst High-Tech PS/Readout systems

For users who do not require the advanced features of the FLOW-BUS Series, Bronkhorst High-Tech offers the E-5700 Series. This series comprises a number of standard, low cost units for use with analog mass flow meters/controllers offering most basic requirements. The E-5700 Series is described in a separate brochure in detail. Custom systems with non-standard functions are available on request.

> Model number code readout systems

E-7	N	NO	-	NN	-	NN	-	NN
				Housing	Power supply			
1	1/2 19" Table top	00	100...240 Vac					
2	19" Table top	10	220...240 Vac					
3	1/2 19" Rack	20	110...120 Vac					
4	19" Rack	30	24 Vac					
5	Table top cassette (76x134x260 mm)	40	24 Vdc					
6	Panel mount cassette (96x144 mm)	90	other					
Modules (14TE)								
Modules with blind front								
01	Blind							
03	Blind with power supply							
04	Blind with power supply, mains entry and FLOW-BUS connection							
05	Blind with power supply, mains entrance and RJ45 conn. for +15 Vdc supply							
06	Blind with power supply and RJ45 conn. for +15 Vdc supply							
40	Blind with RS-232/FLOW-BUS interface							
41	Blind with Profibus-DP/FLOW-BUS interface							
Readout/Control (R/C) modules for analog instruments								
10	R/C-panel with power supply, mains entrance and cable							
11	R/C-panel with power supply							
12	R/C-panel							
Readout/Control (R/C) modules for FLOW-BUS instruments								
13	R/C-panel with power supply, mains entrance and cable							
14	R/C-panel with power supply							
15	R/C-panel							
Readout/Control (R/C) modules with Ex-proof functions								
20	R/C-panel with intrinsically safe power supply for 'Ex'-meter							
21	R/C-panel with intrinsically safe power supply for 'Ex'-meter and valve with XB-coil							
22	R/C-panel with intrinsically safe power supply for 'Ex'-meter and valve with XC-coil							
23	Blind with intrinsically safe power supply for 'Ex'-meter							
24	Blind with intrinsically safe power supply for 'Ex'-meter and valve with XB-coil							
25	Blind with intrinsically safe power supply for 'Ex'-meter and valve with XC-coil							
Modules for temperature control for 'CEM'-systems								
33	Temperature R/C-panel with 10 W supply (for W-101 / W-102)							
34	Temperature R/C-panel with 100 W supply (for W-202)							
35	Temperature R/C-panel excl. supply (for W-303; 1000 W power supply will be supplied separately)							
36	Temperature R/C-panel excl. supply (for W-303); mains 230 Vac							
37	Temperature R/C-panel excl. supply (for W-303); mains 120 Vac							
99	Other (specify)							

> Additional code for the signals

	NN	-	A	A	A	
			Output signal (sensor)	Output Signal (module)	Input Signal (module) = ext. command/master	
A	0...5 V		A	0...5 V	A	0...5 V
B	0...10 V		B	0...10 V	B	0...10 V
C	0...20 mA sinking		C	0...20 mA	C	0...20 mA
D	4...20 mA sinking		D	4...20 mA	D	4...20 mA
E	15...20 mA (ex-proof)					
F	0...20 mA sourcing					
G	4...20 mA sourcing					
R	FLOW-BUS RS-485					

Example: 20-EDD = R/C module for 'Ex'-meter with 4-20 mA I/O for the module



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