

NEW



8170+™

*Affordable, Well-Featured,
Easy to Use and Adaptable*

1/8 DIN Valve Motor Drive Controller

DESCRIPTION

The West instruments 8170+ is part of a range of new generation '+' Series Valve Motor Drive Controllers (VMD) that share the same distinctive styling as the '+' Series temperature controllers. The VMD provides continuous on-line open loop tuning providing stable control at all times and features easy, user-friendly set up.

The expanded '+' Series Valve Motor Drive Controller platform includes 1/4, 1/8 and 1/16 DIN models that incorporate numerous product specification, communication, display interface and software improvements that surpass competitive VMD offerings in ease of use, delivery and value-per dollar characteristic of the growing '+' Series product family.

By adding more versatile features and user-friendly functionality like digital inputs, an easy-to-use HMI, jumperless and auto-hardware configuration, 24VDC transmitter power supply and MODBUS communication across the range - the new generation West instruments + Series Valve Motor Drive Controllers transform the complicated into the simple while saving you time (as much as 50% on product set-up), reducing inventory stock and virtually eliminating the likelihood of operator errors.

The + Series Valve Motor Drive Controllers are affordable, well-featured, easy to use and adaptable with performance features that work for you to make Valve Motor Drive control simple.

APPLICATIONS:

Ideal for temperature/process control applications requiring a modern, value-priced controller with features designed specifically for valve motor drive applications.

INDUSTRIES

- Industrial and lab ovens/furnaces
- And any others where a low cost, small size Valve Motor Drive Controller is required.

FEATURES/BENEFITS

- **NEW** Improved easy-to-use HMI
- **NEW** Jumperless input configuration
- **NEW** Auto-hardware recognition
- **NEW** Improved Windows PC configuration software
- Process & Loop Alarms
- Optional remote/dual setpoints
- Optional 10V SSR driver output
- Faster communication speeds in selectable MODBUS or ASCII format
- Backward compatible panel cutout, housing and terminal wiring capability

WEST INSTRUMENTS™ brand

8170+™

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SPECIFICATIONS*

STANDARD FEATURES

4 per second input sample rate
 Universal input
NEW Improved HMI, 4 button operation, dual 4-digit LED display
NEW Plug-in output modules – install just the function needed
NEW Jumperless input configuration
NEW Auto-detection of installed output modules
NEW Improved PC configuration software
 Process alarms
Construction/Enclosure: Rugged ABS Plastic housing
Control Types: Full PID with Pre-tune, Self-tune and manual tuning modes.

ENVIRONMENTAL CHARACTERISTICS

Operating Temp: 32° to 131°F (0° to 55°C)
Storage Temp: -4° to 176°F (-20° to 80°C)
Humidity: 20% to 95% non-condensing RH

ELECTRICAL

Supply Voltage: 100-240V, 50/60Hz, Optional 20-48VAC 50/60Hz or 22-65VDC
Power Consumption: 5W / 7.5 VA Maximum

INPUTS

Thermocouple: J, T, K, L, N, B, R, S, C; PtRh20% vs. PtRh40%
RTD: 3-wire, PT100
DC Linear (Scalable -1999 to +9999)
Volts: 0-5V, 1-5V, 0-10V, 2-10V
DC milliamps: 0-20mA or 4-20mA
DC millivolts: 0-50mV, 10-50mV
Digital Input: Selects between 2 setpoints or Auto/Manual control. Volt free or TTL input
Remote Setpoint / Valve Position Input: 0 to 20mA, 4 to 20mA, 0 to 100mV, 0 to 5V, 1 to 5V, 0 to 10V, 2 to 10V or ≥2K Ω Potentiometer Scalable -1999 to 9999. Local/Remote setpoint selected from digital input (supplied as part of Full RSP) or front panel. Valve Position Indication mode using Remote Setpoint Input.

OUTPUTS

Important: Up to 4 outputs possible. Two of the same type outputs are required to open & close the valve. Additional outputs available for alarm, 24VDC transmitter power supply or retransmit of process value or setpoint. Number of outputs and types are optional, see "MODELS" table.
Control & Alarm Relays Contacts: SPDT 2 Amp resistive at 240V AC, >500,000 operations
Dual Relay: 2 SPST with shared common; 1 Amp resistive at 120/240V AC; >200,000 operations
SSR Drive: Optional drive capability: >10 VDC nominal into 500 ohm minimum
Triac Outputs: 0.01 to 1 Amp AC, 20 to 280Vrms, 47 to 63Hz; 140V max. for Direct VMD
DC Linear Outputs: 0 to 20mA, 4 to 20mA into 500 Ω max, 0 to 10V, 2 to 10V, 0 to 5V into 500 Ω min. Accuracy ±0.25% at 250 Ω (degrades linearly to 0.5% for increasing burden to specified limits). Retransmit of PV or SP only
Transmitter Power Supply Output: 24VDC (nominal) into 910 Ω minimum to power external devices

OUTPUT FUNCTIONS

Valve Control: Open Loop Valve Motor Drive
Auto/Manual: Selected from front panel
Retransmit: Process value or setpoint

ELECTRICAL PERFORMANCE

Accuracy: ± 0.1% of input range ± 1 LSD (T/C CJC better than 1 degree C)
Input sample rate: 4 per second, 14 bit resolution
Impedance: >10M ohm for the thermocouple and mV ranges, 47k ohm for V ranges and 5 ohm for mA ranges
Sensor Break Detection: <2 seconds (except zero based DC ranges) control outputs turn off. TC & mV ranges: high alarms activate. RTD, mA or V ranges: low alarms activate

COMMUNICATIONS INTERFACE

User-selectable: 2-wire, RS-485 serial communications option with choice of Modbus RTU or ASCII protocol; 1200 to 19200 baud
PC Configuration: Offline configuration from serial port to dedicated configuration socket (comms option not required)

RATINGS/AGENCY APPROVALS

Conformance: CE, UR, cUR UL File # 67237
Safety: EN61010
EMC: EN61326

PROTECTION

IEC IP66 (NEMA 4X) front panel
 IEC IP20 (behind the panel protection)

PHYSICAL DIMENSIONS

Panel Cutout: 1.77" x 3.62" (45mm x 92mm)
Height: 3.78" (96mm)
Width: 1.89" (48mm)
Depth: 3.93" (100mm)
Weight: 0.46 lbs (0.21 kg)
Mounting: Plug in panel with fixing strap

OPTIONS/ACCESSORIES

NEW 24VDC transmitter power supply option
NEW Faster RS-485 serial communication speeds and user-selectable (Modbus® or ASCII) option
Digital Input 1 (Optional): Selects between two setpoints or auto/manual control; volt free or TTL input
Auxiliary Input Basic (Optional): 0-20mA, 4-20mA, 0-10V, 2-10V, 1-5V; scalable -1999 to 9999; local or remote setpoint selected from front panel
Auxiliary Input Full (Optional): 0-20mA, 4-20mA, 0-100mV, 0-10V, 2-10V, 0-5V, 1-5V; ≥2kΩ potentiometer; scalable -1999 to 9999; local or remote setpoint selected from digital input
Optional Choice of LED colors: (red/red, red/green, green/red, green/green); plus five indicators

WARRANTY

3 Years

* Specifications are for base models with standard features only unless otherwise noted. Specifications subject to change without notice in accordance with our DBS policy of continuous improvement. All product and brand names are trademarks of their respective owners. All rights reserved.

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 West Instruments Brand 8170+ Data Sheet (3/06)



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WEST INSTRUMENTS™ brand

8170+™

Controllers

1/8 DIN Valve Motor Drive Controller

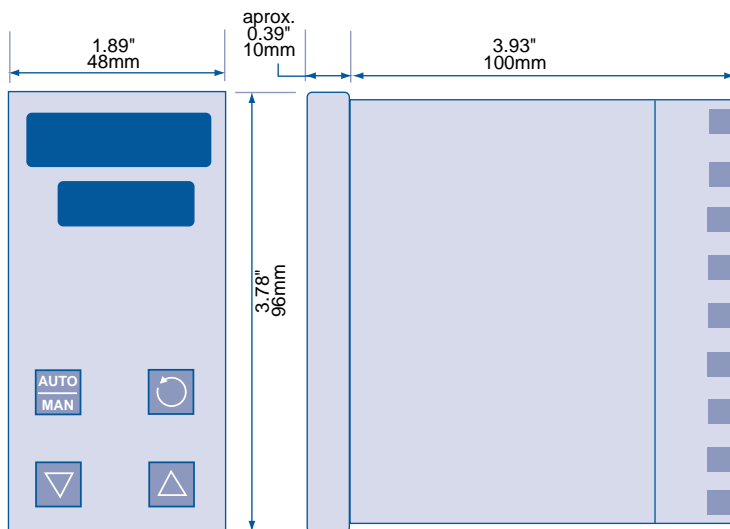
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MODELS

Code 1: Model #	Code 2: Input	Code 3: Option Slot 1	Code 4: Option Slot 2	Code 5: Option Slot 3	Code 6: Option Slot A	Code 7: Voltage	Code 8: Display Color	Code 9: Option Slot B
P8171Z	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I/8 DIN Valve Motor Drive	1 3 Wire RTD or DC mV 2 Thermocouple 3 DC mA 4 DC Voltage	0 Not fitted 1 Relay 2 SSR Driver 3 DC 0-10V 4 DC 0-20mA 5 DC 0-5V 6 DC 2-10V 7 DC 4-20mA 8 Triac	0 Not fitted 1 Relay 2 SSR Driver 3 DC 0-10V 4 DC 0-20mA 5 DC 0-5V 6 DC 2-10V 7 DC 4-20mA 8 Triac 9 Dual Relay	0 Not fitted 1 Relay 2 SSR Driver 3 DC 0-10V 4 DC 0-20mA 5 DC 0-5V 6 DC 2-10V 7 DC 4-20mA 8 Transmitter Power Supply 9 Dual Relay	0 Not fitted 1 RS485 Communications 3 Digital Input 4 Auxiliary Input (Basic)	0 100-240V AC 2 24-48V AC or DC	0 Red Upper & Lower 1 Green Upper & Lower 2 Red Upper, Green Lower 3 Green Upper, Red Lower	0 Not fitted AC R Auxiliary Input (Full)

* Two outputs of the same type are required to open and close the valve.
Use 1 x Dual Relay, 2 x Relay, 2 x Triac or 2 x SSR.

DIMENSIONS - 1/8 DIN



Panel Cutout: 45mm x 92mm (1.77" x 3.62")

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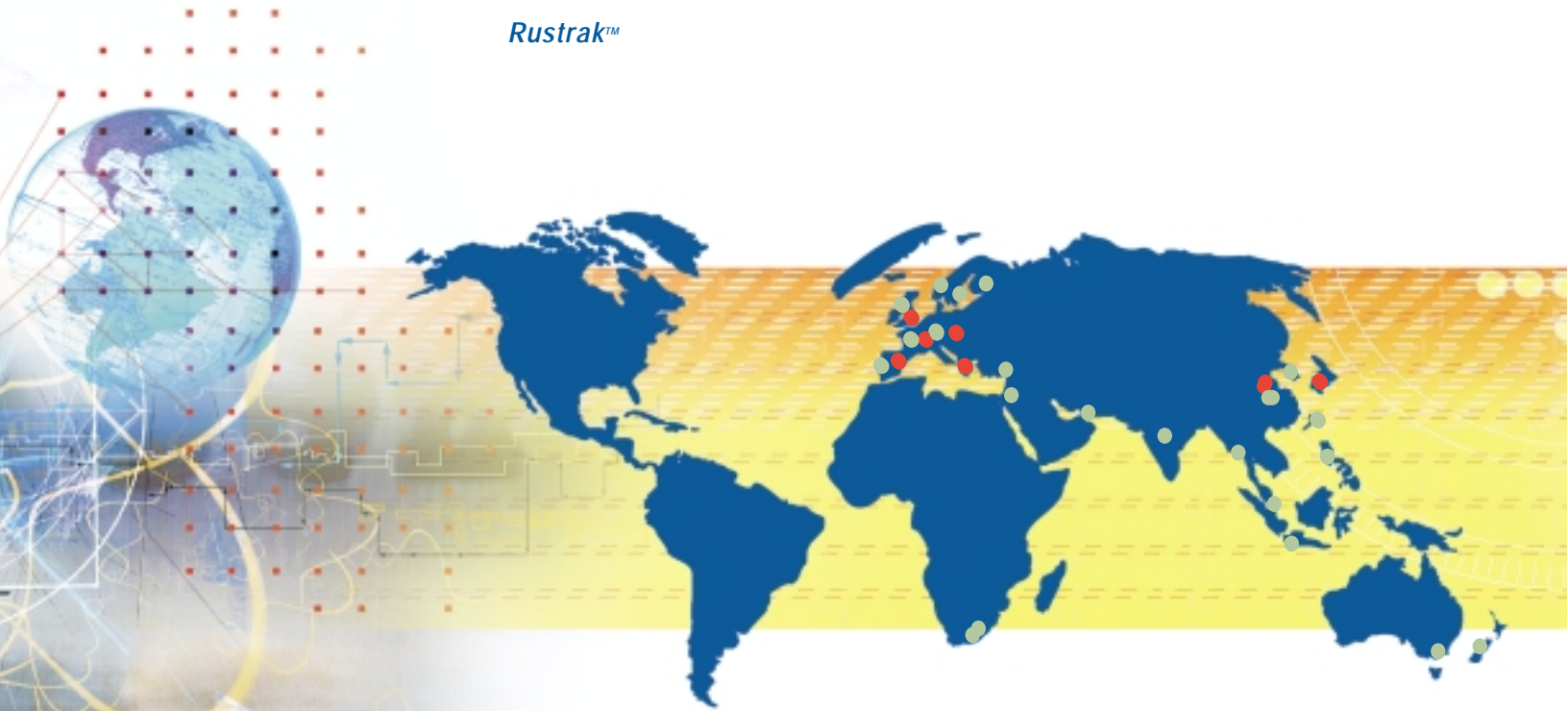
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More Available. With factories around the world, global sales and applications support, and an expansive network of distributors, we stay close to our customers - shortening lead times and fostering responsiveness. Three-day lead time is standard, with same-day shipments available on many of our products.

More Selection. We have a broad selection of controllers to meet application requirements in a variety of industries. User-configurable, accurate and flexible, with low, mid, or high level performance ranges, our controller products meet your system and budgetary requirements.

More Reliable. Our experience with more than 25,000 customers has taught us to design controllers that are reliable and durable, with quality standards that meet six sigma requirements.

For additional information or a full-line catalog, contact DICG Customer Service or visit our web site.

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West Instruments brand 8170+ Data Sheet (4/06)

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