



## 6400

*Small Size - Maximum Functions*

### 1/16 DIN Profile Controller

#### DESCRIPTION

The West brand 6400 1/16 DIN profiler may seem small, but it packs a punch with holding up to 4 programs of 16 free-format segments each and includes an event output. The controller can be configured from the front of the instrument or by a PC through a configuration port. The configuration port has a dual purpose; first it can be used to modify the controller setups and secondly, it can be used to transfer programs or profiles.

This control has RaPID, Response Assisted PID, a fuzzy logic algorithm plus a pre-tune algorithm, that when combined provide shorter start-up times and reduced overshoot.

The West brand 6400 contains many of the features of larger more expensive profilers such as: guaranteed soak, delayed start, profile active output, profile recovery features, profile cycling, plus an optional digital input for remote run/hold. RS-485 communications is also available with convenient, full access to all profile data.

Modular I/O options allow for field upgrades by adding or replacing boards.

#### APPLICATIONS:

Programmable profile device stores and implements temperature control sequences including ramp/soak profiles using exclusive PID techniques.

#### INDUSTRIES

- Industrial and lab ovens/furnaces, plastics and thermal forming
- Form/fill and seal
- Packaging applications
- And any others where low costs, smaller size and unmatched connectivity are critical requirements.

#### FEATURES/BENEFITS

- Dual, 4-digit, LED displays
- 1/16 DIN panel mount
- Universal Input for thermocouple, RTD, DC linear mA/V/mV user-selectable
- Up to 3 outputs; relay, 4-20mA, SSR driver, Triac
- Alarm, control, retransmit, event output functions
- PID, ON/OFF, profile (ramp/soak) control
- Optional RS-485 serial communications
- Program security

**WEST™ brand**

**6400™**

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**SPECIFICATIONS\***

**STANDARD FEATURES**

Dual Display for fast view of process and control parameters  
 Full PID capability  
 Universal input for voltage, current, thermocouple and RTD  
 Profile Cycling  
 Program loading via communications port

**ENVIRONMENTAL CHARACTERISTICS**

**Operating Temperature:** 0 to 55°C, 32 to 131°F  
**Storage Temperature:** -20 to 80°C, -4 to 176°F  
**Humidity:** 20 to 95% RH, non condensing

**ELECTRICAL**

**Line Voltage:** 90 - 264VAC, 50/60 Hz  
**Power Consumption:** 4 Watts  
**Common Mode Rej.:** 120 db at 50/60 Hz  
**Series Mode Rej.:** > 500% of span 50/60 Hz

**INPUTS**

**Thermocouple types:** J, K, T, R, S, B, L, and N.  
**RTD:** Three-wire PT100, DIN 43760  
**Volts (VDC):** 0 to 5, 1 to 5, 0 to 10, 2 to 10  
**Millivolts:** 0 to 50mVDC, 10 to 50mVDC  
**Milliamps:** 0 to 20 or 4 to 20mADC  
**Sample Rate:** 250 ms

**OUTPUTS**

**Relay:** SPDT rated at 2 amps resistive at 120/240 VAC  
**SSR Driver:** > 4.3 VDC into 250Ω minimum  
**Triac Output:** 1 amp @ 40°C derated to 1/2 amp @ 80°C  
**Current Output:** 0 - 20 mA, 4 - 20 mA, eight bit resolution  
**Volts DC Output:** 0 - 10 V, 0 - 5 V, eight bit resolution

**CONTROL**

**Control Types:** RaPID, PID, PID/on-off, on-off  
**RaPID:** Response Assisted PID is a fuzzy logic mixing/weighting of P, I, and D terms to provide dramatic performance improvements as compared to conventional PID techniques.  
**Auto Tune Types:** Pre-Tune  
**Proportional Bands:** 0 (OFF), 0.5% to 999.9% of input span @ 0.1% increments  
**Auto Reset:** 1s-99min 59sec and OFF  
**Rate:** 0 (OFF) - 99min 59sec  
**Manual Reset:** Adjustable in the range 0-100% of output power (single output) or -100% to +100% of output power (dual output)

**Deadband/Overlap:** -20% to +20% of proportional band 1 + proportional band 2  
**ON/OFF Hysteresis:** 0.1% to 10.0% of input span  
**Auto/Manual Control:** User-selectable with "bumpless" transfer into and out of Manual control.  
**Cycle Times:** Selectable for 0.5sec to 512sec in binary steps  
**Setpoint Range:** Limited by Setpoint Upper and Setpoint Lower Limits  
**Setpoint Ramp:** Ramp rate selectable 1-9999 LSDs per hour and infinite. Number displayed is decimal point aligned with selected range.

**ALARMS**

**Maximum Number:** Two "soft" alarms  
**Maximum # Outputs:** Up to 2 outputs can be used for alarm purposes  
**Combination Alarms:** Logical OR or AND of alarms to an individual hardware output is available.

**DISPLAY**

**Digital Display:** Dual 7 segment LED;  
 Top: .36" high, Bottom .28" high.  
**Status Indicators:** Individual LED indicators for OUT, Exceed, ALM, and when in Setup

**PROGRAM/PROFILE SPECIFICATIONS**

**Programs:** Four with 16 free form steps each  
**Length of program:** 16 steps per program  
**Step Types:** Ramp, dwell (soak), or end  
**Program cycling:** 1 to 9999 cycles, or infinite  
**Delayed start:** 0 to 99:59 hours:minutes or minutes seconds, depending on the time base selected.  
**Control:** Start, Run, Hold and Abort from keypad if remote run/hold is not used. Remote start, run, and hold if the option is turned on.  
**Start From:** Current process value or setpoint.  
**At End:** Controls at the last setpoint.  
**Guaranteed Soak:** During dwells (soak) the controller can be programmed to stop advancing the dwell time while the process value is outside a specific band around setpoint. This capability can be disabled or the controller can be set to wait until instructed to "run" after the soak time has expired.  
**Time Base:** Hours:Minutes or Minutes:Seconds.  
**Step Time:** 0 to 99:59 hours:minutes or minutes seconds, depending on the time base selected.  
**Ramp Rate:** 0 to 9999 least significant digits per hour or minute, depending on the time base. (this applies only when the program mode is set to Rate.)

**Event Output:** Programmable to ON or OFF at the beginning of each step. Output 2 or 3 can be used as the event output.

**Profile Active:** Output 2 or 3 can be set to be energized or de-energized whenever a profile/program is running.

**Power Loss Recovery:** If power is removed and applied while a profile is running, the unit can be programmed to re-start or continue the profile.

**REMOTE RUN/HOLD INPUT (OPTION)**

**Type:** Voltage free or TTL compatible  
**ON -** Currently selected program will run or (if currently held) resuming running.  
**OFF -** Currently running program will be held.  
**Voltage free Operation:** Connection of contacts to external switch or relay; contacts open = OFF (minimum contact resistance = 5000Ω), contacts closed = ON (maximum contact resistance = 50Ω)  
**TTL levels:** ON: -0.6V to 0.8V  
 OFF: 2.0V to 24V  
**Maximum Input Delay (OFF-ON):** 1 Second  
**Minimum Input Delay (ON-OFF):** 1 Second

**PHYSICAL DIMENSIONS**

**Dimensions:** 1/16 DIN front panel, 110mm (4.3") deep  
**Front Panel Rating:** NEMA 4X/IP65  
**Weight:** 227 g. (8 oz.) maximum

**COMMUNICATIONS**

**Type:** RS-485 serial communication port  
**Protocol:** MODBUS/RTU

**RATINGS/AGENCY APPROVALS**

CE, UL & cUL recognized (E67237),

**WARRANTY**

3 years

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 West Brand 6400 Data Sheet (7/05)



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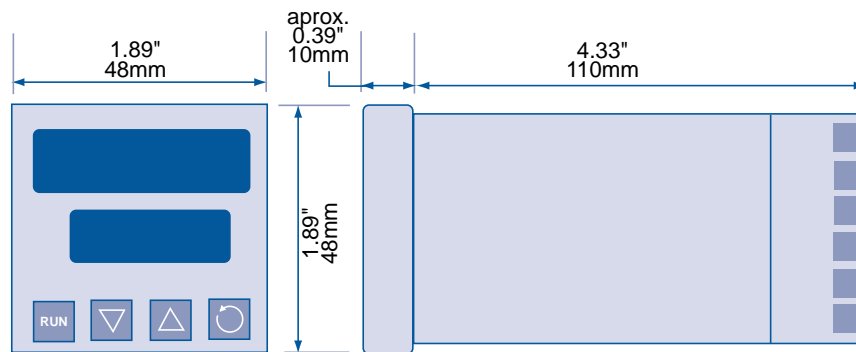
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**MODELS**

Code 1: Model #	Code 2: Input Type	Code 3: Output 1	Code 4: Output 2	Code 5: Output 3	Code 6: Options
<b>N6401Z</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
I/16 DIN Indicator with Alarm Function	1 3 Wire RTD or DC mV 2 Thermocouple 3 DC mA 4 DC Voltage	1 Relay 2 DC for SSR 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 DC for SSR 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 DC for SSR 3 DC 0-10V 4 DC 0-20mA 5 DC 0-5V 6 DC 2-10V 7 DC 4-20mA 8 Triac*	10 RS-485 Serial Communication 02 24V AC/DC Line Voltage 12 RS-485 Serial Communication and 24V AC/DC Line Voltage 30 Remote/Run/Hold (digital input) 32 Remote/Run/Hold (digital input) and 24V AC/DC Line Voltage

\* Two Triac Outputs, max.

**DIMENSIONS - 1/16 DIN**



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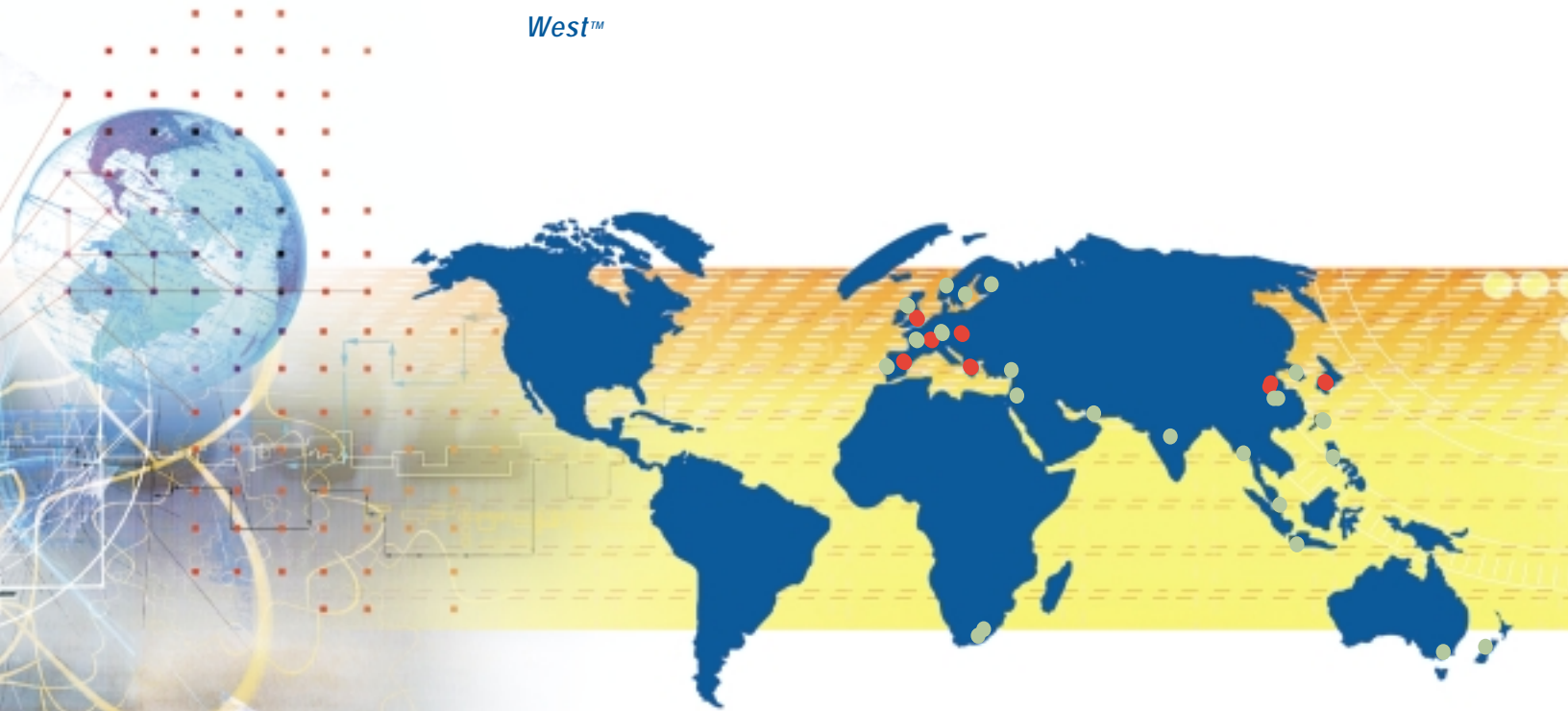
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**More Available.** With factories around the world, global sales and applications support, and an expansive network of distributors, we stay close to our customers - shortening lead times and fostering responsiveness. Three-day lead time is standard,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