



## 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™**

**Small Size - Maximum Functions**

**1/16 DIN Profile Controller**

**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

\* 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.

West™ brand and 6400™ are trademarks of Danaher Industrial Controls Group. All rights reserved.  
© 2005 DICG Corp.  
West Brand 6400 Data Sheet (7/05)



**WEST™ brand**

**6400™**

**1/16 DIN Profile Controller**

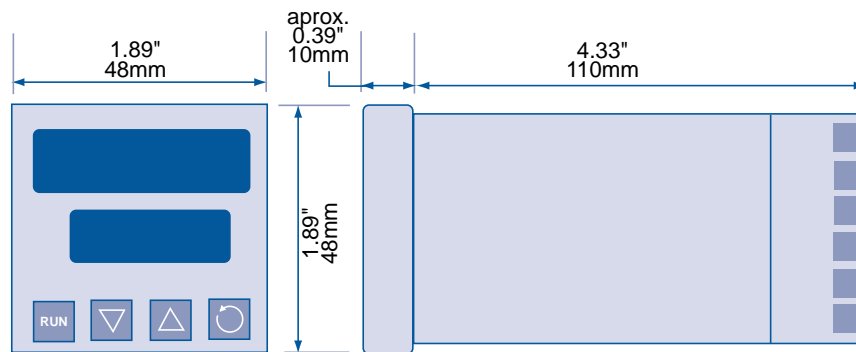
**Small Size - Maximum Functions**

**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**



**Headquarters:** 1675 Delany Road • Gurnee, IL 60031-1282 • USA  
 Phone: +1 847.662.2666 • Fax: +1 847.662.6633

**Satellite Locations:**

**North America:** North Carolina, South Carolina, Connecticut, Massachusetts, New York, Canada, British Virgin Islands • **Europe:** United Kingdom, Italy, France, Germany, Spain, Slovakia • **Latin America:** Brazil • **Asia:** China, Japan, Korea, Singapore



Process Automation Worldwide Brands: LFE™ • Partlow™ • PMA™ • Rustrak™ • West™

*Process Automation Worldwide Brands:*

*LFE™*

*Partlow™*

*PMA™*

*Rustrak™*

*West™*



**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.

\* 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.

West™ brand and 6400™ are trademarks of Danaher Industrial Controls Group. All rights reserved.

© 2005 DICG Corp.

West Brand 16400 Data Sheet (7/05)

