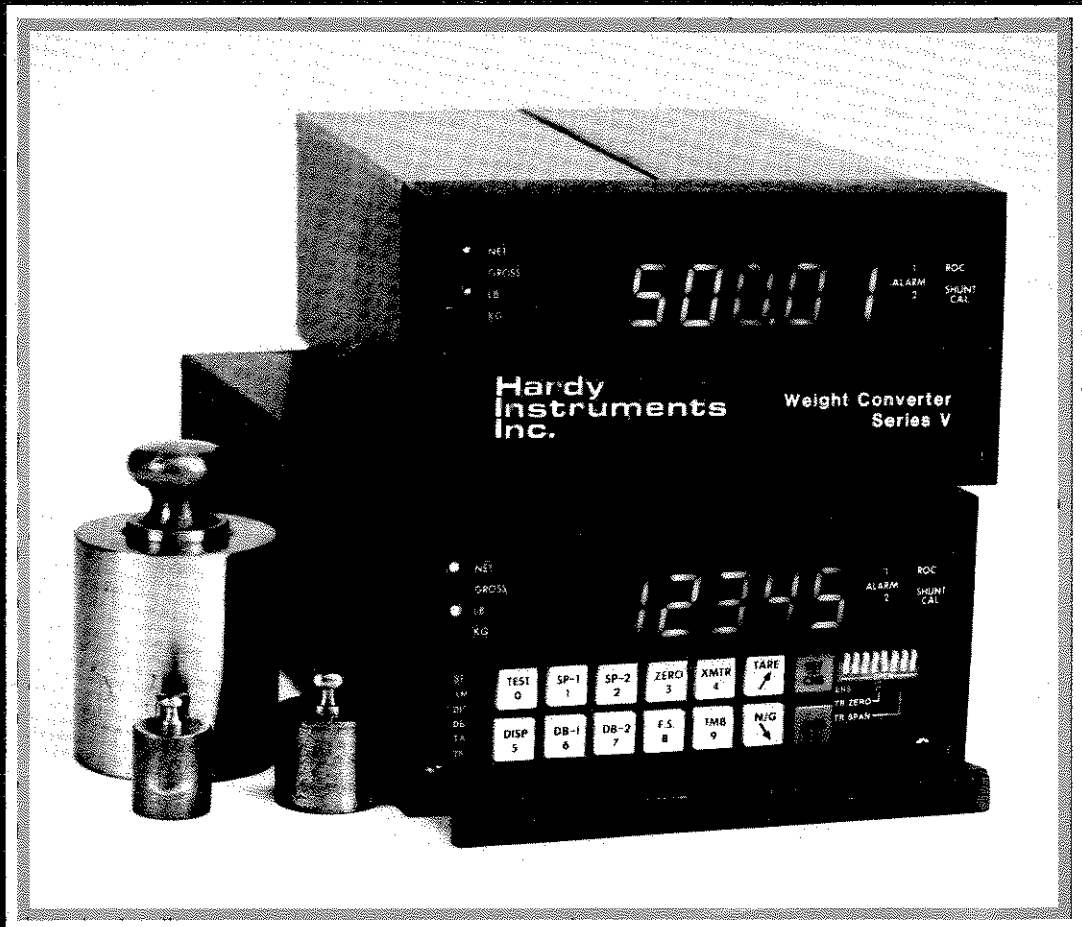


# SERIES V WEIGHT CONVERTER



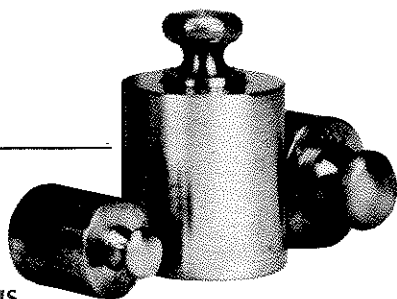
- Microprocessor-Based
- Display Resolution 1:50,000
- Accurate to  $\pm 0.01\%$
- Dual Set Points
- Digital and Analog Outputs

# Series V

**The Series V is a totally unique concept in scale technology. No other basic instrument on the market today provides as much flexibility or as many operational benefits.**

The standard unit is designed for applications from basic vessel and platform weighing to complex process-oriented operations. Accurate, economical and easy to use, this microprocessor-based instrument includes:

- Three modes of operation
- Digital Calibration
- Pushbutton Zero and Tare
- Dual Measurement Ranges
- Programmable Controller Interface



## Three Simultaneous Modes of Operation:

**GROSS:** All weight sensed above the empty weight of the scale assembly. The mode normally used to set high and low level alarm points.

**NET:** Enables use of the instrument's TARE functions. TARE is used in batching operations to "re-zero" the scale between ingredient additions or to compensate for any residue left after a batch has been discharged.

Platform scales utilize the TARE function to offset the weight of pallets, containers, etc. so that the actual weight of product can be indicated.

**RATE-OF-CHANGE:** Computes the current flow rate into or out of the scale.

## Dual Set Points:

Two independent SPDT outputs that can be set in any of the three operating modes. A typical application could have one used as a high-level alarm in the GROSS mode while the other would be set to actuate at a selected RATE-OF-CHANGE.

Both set points include "deadband" offsets. These determine if the set point is a high- or low-level type alarm. That is, if the deadband is a negative value (e.g., "-1.0 lbs.") the output will trip at the ordered value and re-set at 1 lb. under the set point.

Deadbands can be used to cause a single output to operate as both a high- and low-level signal (e.g., set point = 2,000 lbs.; deadband = 1,900 lbs. The alarm would trip at 2,000 lbs. and reset at 100 lbs.).

The key to the Series V's success is its ease of calibration and setup. Totally digital, the span and zero values are entered through the keyboard. These settings are independent and non-interactive eliminating the time-consuming "fine tuning" adjustments required by other instruments. Other operational parameters including alarm points, increment size, etc. are also set via the keyboard.

## Two Scaling Ranges:

Normally labeled pounds/kilograms, but any engineering unit can be used. As an example, one range could be in gallons while the other would indicate total weight. Both ranges are user-selected for desired function or value.

## Adjustable Update Rate & Minimum Graduation:

The basic update rate of the Series V is 40 times per second (25ms.). This can be adjusted incrementally via the keyboard to a maximum of 102 seconds. The number of load cell readings averaged to achieve these rates range from 2 to 4096.

Minimum increment size (count by 1, 2 or 5 with up to two dead zeros) and decimal point placement are also selected through the keyboard. The display can be set to indicate a maximum of 1 part in 50,000.

This flexibility allows the instrument to be quickly "site tuned" to eliminate erratic indication and control problems caused by physical noise in and around the scale assembly.

## Enter/Run Mode Selection:

The keyboard functions that set the instrument operating parameters may be disabled from the front panel or by a customer supplied keyswitch. All operator active controls can be selected from the instrument or by remote inputs.

## Status Lights:

L.E.D. indicators verify the mode of operation, scale range and status of control outputs.

## Battery Back-up:

Variable data entries are protected from loss due to power failure for a minimum of 90 days.

## Diagnostics:

Includes verification of instrument electronics, calibration and display modules.

## Options

### Analog Outputs:

Several optional analog outputs are available, including voltages, currents and frequencies. The actual output is both independent and isolated from the digital conversion process. It can be selected to operate in any of the three operating modes.

Calibration of this option is via the keyboard with its full-scale range anywhere from 2% to 100% of the instrument capacity.

Specifications for this option are:

ACCURACY:  $\pm 0.01\%$  of F.S.

RESOLUTION: 1 part in 30,000

### Digital Interfaces:

The Series V instrument may be fitted with either one of two digital interfaces.

- Full Parallel B.C.D.
- RS232-C/20 mA. Current Loop

Regardless of the type of interface selected, all necessary protocol and "handshakes" are incorporated to ensure against the transmission of erroneous data.

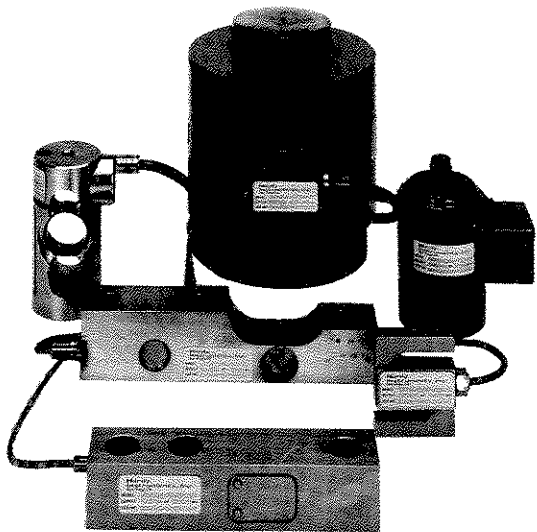
The serial outputs are link selected for baud rate and parity bit.

### Enclosures:

The basic instrument is supplied suitable for panel mounting. It can also be furnished as a desk-top unit or to any of the following NEMA standards (ref: Hardy Data Sheet; Series V Model SS4):

NEMA 4 - Water Tight

NEMA 9 - Explosion Proof



## Complementary Products

### Load Cells:

Hardy Scales load cells are precision transducers with excellent stability, accuracy and repeatability characteristics. Standard capacities range from 10 to 500,000 lbs. Both tension and compression models are available in most capacities.

### Installation Hardware:

Hardy manufactures a full line of load cell mounting hardware and check rod assemblies. All are designed to eliminate side loading while providing lateral stability. Our application engineers can assist you in selecting and applying these items.

### Junction Box and Cable:

NEMA 4 and explosion proof junction boxes. Four and six conductor shielded load cell cable. Intrinsically safe barriers for application in hazardous areas.

## Hardy Services

Application engineering assistance is included with every Series V instrument. We will review all associated mechanical design details furnishing feedback to ensure the best possible environment for an accurate and reliable scale.

Factory-trained technicians located throughout the country are available for supervision of the installation. Service contracts providing regular scheduled inspection and preventative maintenance functions are also offered.

# Series V Weight Converter

## General Specifications:

### Display:

6 digit, 7 segment LED; digit height 1.42 cm (0.56")

### Resolution:

1 part in 50,000 maximum

### Update Rate:

25 ms. to 102 sec. specific rate for individual applications set via the instrument keyboard.

### Accuracy:

± 0.01% of F.S. or ± 0.1% of load applied, whichever is greater.

### Output Contacts:

SPDT rated for 3 Amps at 120 Vac or 28 Vdc (non-inductive)

### Common Mode Rejection:

120db at dc to 400 Hz (with 1K ohm source impedance imbalance)

### Common Mode Voltage:

600 Vdc or peak ac, maximum

### Power:

120/230/240 Vac, ± 10% 50-60 Hz, 30 watts max.

### Operating Temperature:

0 to 50°C (32 to 122°F) ambient

### Temperature Coefficient:

Less than 0.005% of span/degree C. Includes zero and span.

### Humidity:

0-90% non-condensing

### Excitation:

5V, 10V or 15V. Drives up to four 350 ohm strain gauge load cells per station.

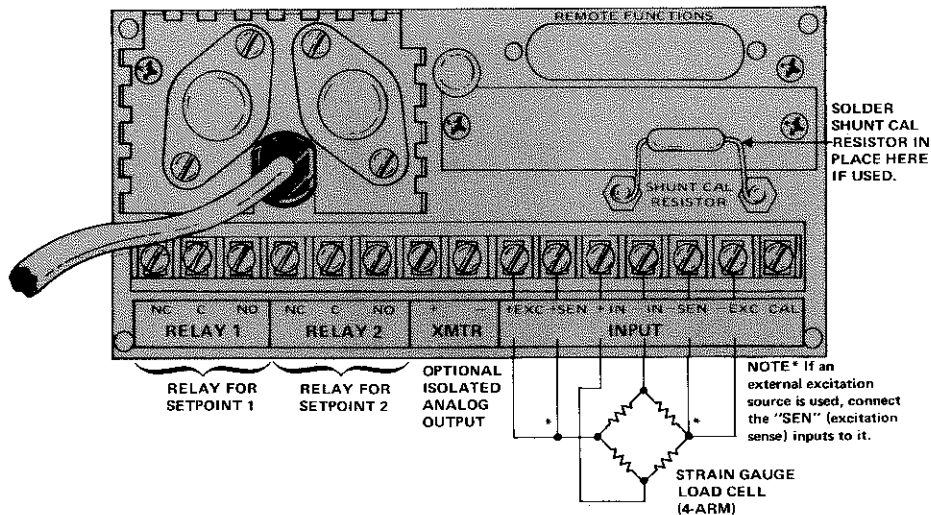
### Depth Behind Panel:

267 mm (10.5") maximum

### Panel Cutout:

78.4 × 146 mm (3.09" × 5.75")

The Series V is covered by a one year parts and labor warranty.



**Hardy  
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Represented By:

Specifications subject to change without notice.