# Weigh Scale Module

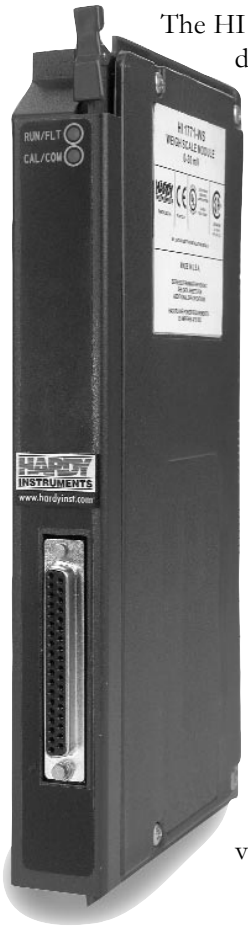
**The Hardy Instruments HI 1771-WS is a single slot weigh scale module that mounts in an Allen-Bradley 1771 Universal I/O chassis. It reads weight data from strain gage load sensors and communicates this data over the I/O chassis backplane to one of Allen-Bradley's PLC-5 family of Programmable Controller Processors. The HI 1771-WS module reduces installation costs as it needs no external stand-alone scale instrument, and provides a wired communications link to the PLC.**

The HI 1771-WS conditions and digitizes the weight signal 20 times per second with over one million counts of resolution over a differential signal range of 0 to 30mV. It then transmits the selectable Gross, Net and/or Rate-of-Change data to the processor. This high resolution allows the module to tolerate large dead loads and oversizing of the load sensors while retaining a high level of usable resolution. The module supplies 10V of DC excitation to drive up to four 350 ohm load sensors, or load cells, associated with a single scale. It will support additional load cells with an external power supply.

## FEATURES

Two independent firmware set points are included that provide control capability. Each have a separate preact to compensate for in-flight material as well as system response delays along with a deadband that compensates for potential relay chatter.

Two bi-color LEDs on the module's front panel report its functional characteristics. Calibration can be performed in traditional ways (hard cal), or by our exclusive **C2®, Second Generation Calibration**, which enables electronic calibration in seconds without test weights.




The HI 1771-WS has an internal diagnostics switch, which takes the sense and signal load cell lines and connects them to an internal resistance. If the weight reading with this resistance pulled in is stable and repeatable, the input section of the module is functioning correctly and the problem is elsewhere.

An **Auto Zero Tracking** feature allows the module to automatically ignore a material build-up on the weighing system within an adjustable zero tolerance. Automatically re-zeroing the module eliminates deviations due to accumulated ingredient build-up in the weigh vessel or on the scale.

## WAVERSAVER®

The HI 1771-WS Weigh Scale Module utilizes Hardy Instruments' industry-proven WAVERSAVER® technology. WAVERSAVER® eliminates the effects of unwanted plant vibration on a vessel during weighing by permitting the weigh scale module to "see" through the unwanted vibration signals - as low as 0.25Hz - while yielding a stable actual weight reading.

## APPLICATION DATA SOFTWARE

The HI 1771-AD Weigh Scale Application Data Software contains a Dynamic Linked Library (dll) file. This file links the HI 1771-WS with Rockwell Software's RSLogix™ 5.0 Version 4.0 and provides a graphic interface for on-line configuration of the module. The latest version of this software is downloadable from the Hardy Instruments web site.



## Model HI 1771-WS

## Applications

**Process Weighing:**

- Batching/Blending
- Filling/Dispensing
- Level by Weight
- Check Weighing

ROCKWELL AUTOMATION ENCOMPASS™ GLOBAL PARTNER

## Features

- **WAVERSAVER®:** Ignores Vibration On and Around Scales
- **C2®, Second Generation Calibration:** Calibrates Electronically

SECOND GENERATION CALIBRATION

HARDY INSTRUMENTS

## OPTIONS

- **Remote Termination Assembly (-RT)**

The weigh scale module's optional Remote Termination Assembly provides connection points between the cable assembly to the module and the individual wires from the junction box or load sensor. The RT is designed for standard DIN mounting rails or standoffs. With an RT configuration, you can replace the weigh scale module without disturbing the wiring.

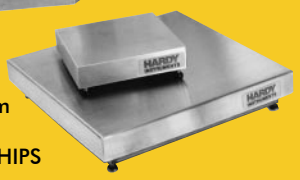
- **Cables (-C6, -C10)**

Hardy provides optional cable assemblies from the weigh scale module to the remote termination assembly. We offer two lengths for ease of installation: 6 feet (-C6) and 10 feet (-C10).

## COMPONENTS TO COMPLETE YOUR HARDY INSTRUMENTS SYSTEM

- **Hardy Platform Scales and Load Points**

Load Point
Model HI LPRA

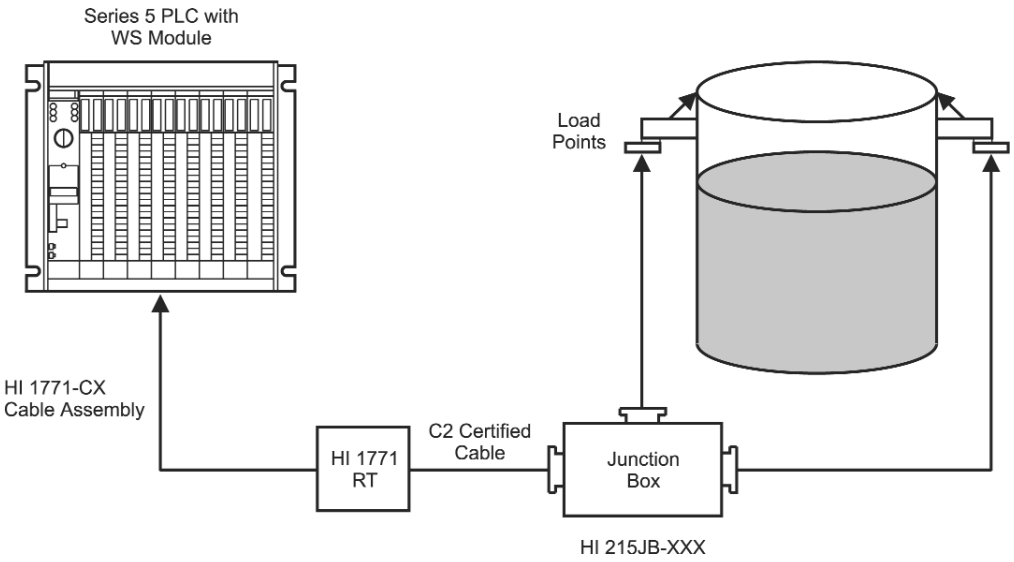


Platform
Scale
Model HIPS

- **Hardy C2® Certified Cable**
- **Hardy Junction Box with INTEGRATED TECHNICIAN® (HI 215IT Series)**

HARDY INSTRUMENTS

## TYPICAL CONFIGURATION




## SPECIFICATIONS

- **Power**
– +5Vdc +/-5% from the 1771 I/O universal chassis
– 1,000Vdc minimum isolation from backplane logic circuitry
- **Backplane Current**
1.5A (maximum)
- **Inputs**
– Signal: -0.3mV thru +30.3mV dc
– Sense: +/-5V dc +/-5% (10V dc +/-5% differential)
– C2®, Second Generation Calibration data
- **Outputs**
– Excitation: 10V dc +/-5% 1.5W (maximum)
– Set point: 2 independent TTL level drive signals
- **Common Mode Rejection**
100dB at or below 60 Hz (minimum)
- **Resolution**
Reported: 1:985,000 (for 3mV/V load cell)
1:656,000 (for 2mV/V load cell)
Internal: 1:1,048,576
- **Vibration Frequency Rejection**
0.25 Hz and above in 5 selectable steps
- **I/O Chassis Location**
Any single I/O module slot
- **Compatible I/O Chassis**
1771-A1B, -A2B, -A3B, -A3B1, -A4B, 1771-AM1, -AM2
- **I/O Chassis Keying Positions**
Between 24 and 26
Between 32 and 34
- **I/O Chassis Addressing Mode**
2-slot, 1-slot, or ½-slot (Note: 8-bit I/O image density)
- **Weight**
1.6 Lbs (0.6kg)
- **Environmental Conditions**
Operating Temperature: 0 to 60°C (32 to140°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
- **Relative Humidity**
5 to 95% (non-condensing)
- **Weighing Modes**
Net, Gross, Rate-Of-Change
- **Calibration**
– Electronic (C2®)
– Traditional (test weights)
- **Conversion Rate**
20 updates per second
- **Certifications**
UL, CSA
- **Connecting Cable(s)**
HI 1771-C6, 6ft (1.8m)
HI 1771-C10, 10ft (3m)

**Visit our website to learn more about the HI 1771-WS:**

- **full product specifications**
- **ordering information**
- **application notes**
- **technical description**
- **downloadable operator's manual**

**www.hardyinst.com**

**or call us: 800-821-5831**
**858-278-2900**

**Hardy Instruments**
3860 Calle Fortunada
San Diego, CA 92123-1825
tel. 858-278-2900
tel. 800-821-5831
fax 858-278-6700
www.hardyinstruments.com
hardyinfo@hardyinst.com

ISO 9001 CERTIFIED
Since 1993