

PROCESS WEIGHING



TENSION CONTROL



FIELD SERVICE/TECHNICAL SUPPORT



HARDY'S HISTORY



Hardy Instruments began in 1918 as Hardy Scales, specializing in weight measurement and control systems. In 1984, we changed our name to Hardy Instruments as we redefined our business focus. Today we are a leading manufacturer and designer of weighing and tension control equipment, particularly renowned for our innovative approaches to precision instrumentation. We work with our customers to develop products that will help them save money and time, improve productivity, increase throughput, and make their work environment safer. An ISO 9001:2000 company, we pride ourselves on our ability to provide superior product quality and excellent customer support.

ISO 9001:2000
CERTIFIED

We cater to many industries and have developed the most connection options in the process industry. Hardy is also a proud Encompass™ Global Partner with Rockwell Automation®.



INDUSTRIES



- Food/beverage
- Chemical/petrochemical
- Pharmaceutical
- Agriculture
- Feed and grain
- Water/wastewater
- Power
- Mining and metals
- Pulp and paper
- General automation

APPLICATIONS

- Filling
- Dispensing
- Batching/blending
- Checkweighing
- Bulk bag/IBC
- Loss-in-weight rate control
- Level control
- Tank farm monitoring
- Force measurement
- Tension control



NETWORKS

We offer the widest choice of network interfaces in the process industry to communicate over:

- DeviceNet
- ControlNet
- EtherNet
- EtherNet/IP
- Remote I/O
- Profibus
- Modbus TCP
- Analog
- Serial

LOCAL FIELD SERVICE

Our field technicians in the US can service most manufacturers' weighing equipment, not just Hardy's. Our factory engineers will also travel to your facility to help you solve challenging applications. We can support you with:



- **Installation/Start-Up:** this can include sensor installation, cable runs, instrument installation, and system commissioning.
- **Scale Verification/Calibration:** technicians can conduct calibration and certification for scale systems, perform and record scale system verifications, and keep electronic records of system accuracy.
- **24/7/365 Emergency Services:** local technicians are available to restore network communications, provide design recommendations and resolve mechanical, electrical, or installation issues.
- **Preventative Maintenance Agreements:** technicians will inspect, review and correct electrical or mechanical systems, verify or, when required, calibrate them, and supply documented results.

To request a free quote and/or a site survey for any field service, simply contact the Hardy factory.

WAVERSAVER®

Ignore vibration around scales

WAVERSAVER® Machinery surrounding your scales, such as motors, mixers, blenders, vibrators, conveyors, and even forklifts, can introduce a unique vibratory force to the scale, causing fluctuating weight displays and inaccurate batch weights. WAVERSAVER® enables you to weigh line conveyors, augers, and even mixers while they are running, and can be adjusted to ignore signals above 0.25Hz with virtually instantaneous response. No complex poles or corner filters need be tuned.

WAVERSAVER's exclusive technology:

- Ignores unwanted plant vibration on and around scales
- Enables accurate weight readings
- Allows other process activity while you weigh
- Improves batch quality and speed
- Eliminates wasted product
- Eliminates the need to reset the instrument if vibration levels change periodically

SECURE MEMORY MODULE

Back up your configuration data automatically

SMM

Secure Memory Module

Located on the instrument's rear panel for easy access, the Secure Memory Module (SMM) stores critical configuration, calibration, and set-up data, protecting this

information from corruption. During system operation, when a new parameter is entered, the SMM automatically updates that value in its memory. You can transfer the SMM between instruments to share or restore configuration data in minutes. And with the SMM-SD card, this data can also be stored and modified on a PC.

INTEGRATED TECHNICIAN®

Troubleshoot and diagnose problems in minutes



INTEGRATED TECHNICIAN (IT®) lowers your weighing system maintenance costs by letting you quickly troubleshoot and diagnose many weighing system problems. Use IT through the instrument to run maintenance

tests showing system weights, voltages, system stability, and return to zero test, to help isolate the problem to the instrument, cabling, junction box, or individual sensors.

C2® CALIBRATION

Calibrate your weighing system electronically in seconds

As soon as your weighing system is installed, C2® lets you calibrate it and verify proper scale operation with a small test weight. Calibration with test weights can mask actual scale performance problems, such as binding. C2 unmasks these hidden performance barriers before you get into production.



Each Hardy individual load sensor has NIST (National Institute of Standards and Technology) traceable performance characteristics stored on an internal memory device. Your C2 system reads these parameters and electronically calibrates the scale for you. A single reference point is entered to calibrate the scale system. The result is a calibration that is easier, quicker, safer, and typically more accurate than traditional methods used in the past.

THE BUTTON

Calibrate your weighing system at the push of a button

With one push of THE BUTTON, Hardy's weigh scale modules can automatically calibrate your C2® weighing system, making it instantaneously ready for use. With no weight on the scale, simply press on the red button and hold for about three seconds. The system's C2 load point performance parameters will combine within the module, electronically calibrating the scale system.



EMBEDDED WEB SERVER

Access your instrument from any computer browser

Use the embedded web server to set up all parameters from anywhere on the EtherNet network. This web server also gives you remote access to control information and instrument parameters, further optimizing production efficiency by sharing real-time data on the plant floor with OEM partners or off-site maintenance personnel.

Operation - Diagnostics Return to Zero Test			
Ensure that your scale is empty when doing this test.			
	Gross Weight	Tolerance	
Channel 1	-10 kg	± 11 kg	FAIL
Channel 2	0.00 lb	± 20.00 lb	PASS
Channel 3	NA lb	lb	NA
Channel 4	NA lb	lb	NA

PROCESS WEIGHING

WEIGH SCALE MODULES



Weigh Modules for CompactLogix™ or MicroLogix™ 1500

The HI 1769-WS single-scale and the HI 1769-2WS dual-scale weigh modules read weight and diagnostic data from strain gage load cells and communicate this data over the I/O chassis backplane to either the MicroLogix 1500 or the CompactLogix processor. Includes WAVERSAVER, IT, C2.



Weigh Modules for ControlLogix®

The HI 1756-WS single-scale and the HI 1756-2WS dual-scale weigh modules read net, gross, tare and rate-of-change weight, and diagnostic data from strain gage load cells, and they communicate the results over the I/O chassis backplane to the ControlLogix processor. Includes WAVERSAVER, IT, C2, THE BUTTON.



Weigh Module for SLC™ 500

The HI 1746-WS single-scale weigh module reads net, gross, tare, and rate-of-change weight, and diagnostic data from strain gage load cells and communicates the results over the I/O chassis backplane to the Allen-Bradley® SLC 500 processor. Includes WAVERSAVER, IT, C2, THE BUTTON.



Weigh Module for PLC-5®

The HI 1771-WS single-scale weigh module reads net, gross, tare, and rate-of-change weight, and diagnostic data from a scale and transmits the information over the I/O chassis backplane to the Allen-Bradley® PLC-5 processor. Includes WAVERSAVER, C2.

LOAD POINTS / LOAD SENSORS

Available for compression or tension applications, and in capacities ranging from 44 lbs to 200,000 lbs, Hardy Instruments' ADVANTAGE® load points and sensors are designed with a keen attention to details that translates into optimum performance for process weighing applications.

Made of stainless steel, ADVANTAGE load sensors feature a no-cost NPT conduit adapter, true hermetic sealing to IP68 for superior protection from moisture, on-board electronic certs, and matched parameters for easy sensor installation without corner adjusting. Inside the load cells, a Hardy C2 memory chip allows electronic calibration in seconds without test weights.



ADVANTAGE® HI HLPB

- Designed for use on light to medium capacity vessels
- Available in 44 lb, 110 lb, 225 lb, and 450 lb capacities
- Mounting hardware available in either stainless or plated steel



ADVANTAGE® HI HLPB

- Designed for use on medium to high capacity vessels
- Available in 1125 lb, 2.25 Klb, 4.5 Klb, 11.25 Klb, and 22.5 Klb capacities
- Mounting hardware available in either stainless or plated steel



ADVANTAGE® HI LPRA

- Designed for use on high capacity vessels
- Available in 33 Klb and 50 Klb capacities
- Short rocker-type load sensor
- Mounting hardware available in either stainless or plated steel

WEIGHT CONTROLLERS



HI 4050 Weight Controller

Only three inches deep, this weight controller is easily configured to meet your specific application needs. Available with AC or DC power and in panel, remote or blind DIN rail mounting, the HI 4050 installs fast with no special holes to cut. It comes standard with Serial and EtherNet, and optional EtherNet/IP, DeviceNet, Modbus TCP, Analog, RIO, and Profibus. It includes a Secure Digital (SD) based Secure Memory Module card for transfer of configuration data, and optional rate-of-change capability. Includes WAVERSAVER, IT, C2, SMM-SD, Embedded Web Server.



HI 3030 Multi-Scale Controller

The HI 3030 can control up to four scales at one time, and acts as a bridge to a PLC since one port works with all channels over optional DeviceNet, Analog, ControlNet, EtherNet/IP, Modbus TCP, Remote I/O or Profibus network. It features standard EtherNet interface with an embedded web server. Twelve set points with independent dead bands and pre-acts are assignable to four or seven optional on-board relays or external third party I/O to meet most demanding control requirements. Includes WAVERSAVER, IT, C2, SMM, Embedded Web Server.

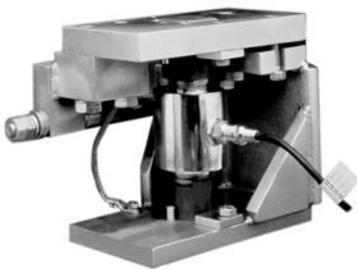


HI 2151/30WC Weight Controller

As a stand-alone unit, the HI 2151/30WC multi-purpose weight controller can independently control as many as eight relays, based on either gross, net, rate-of-change, peak hold, or totalized weight values. It can also act as a front end for a control system, transmitting weight values to PLCs or PCs. Optional interfaces include Remote I/O, Profibus, Analog, and BCD. This controller is available in panel, wall or remote mount configurations. Includes WAVERSAVER, IT, C2, SMM.

LOAD POINTS / LOAD SENSORS

The ADVANTAGE® mounting hardware is designed specifically to direct the load properly to the sensor, while resisting angular effects and reducing moment sensitivity, still permitting thermal expansion and contraction on the weighing system. Each load point is also fitted with a grounding strap and anti-lift-off protection. All ADVANTAGE load points feature IP68 rating and are NTEP Class III.



ADVANTAGE® HI LPRB/LPRC

- Designed for use on high capacity vessels
- HI LPRC available in 66 Klb and 110 Klb capacities; HI LPRB available in 132 Klb and 200 Klb capacities
- Rocker-type load sensor
- Mounting hardware available in plated steel



ADVANTAGE® HI HLPT

- Designed for use on low to medium capacity vessels in tension settings
- Available in 225 lb, 450 lb, 1125 lb, 2.25 Klb, 4.5 Klb and 11.25 Klb capacities
- Mounting hardware available in either stainless or plated steel for capacities up to 4.5 Klb, and plated steel in higher capacities



ADVANTAGE® Lite

Featuring C2 electronic calibration and IP67 rating, these medium capacity, compression type, stainless steel load sensors offer superior performance and exceptional value. Featuring lift-off protection, these load points are self-checking, eliminating the need for external rods to hold the assembly in place. Their rubber element mount provides stray voltage isolation, minor misalignment correction, thermal expansion and shock absorption. Load points are available in 440 lb, 1100 lb, 2200 lb and 4400 lb capacities.

PROCESS WEIGHING

APPLICATION-SPECIFIC CONTROLLERS



HI 3010 Filler/Dispenser

The HI 3010 can act as a stand-alone controller, or as a sub-routine in your PC, PLC, or DCS Ladder Logic control for a variety of filling, dispensing, or intermediate bulk container (IBC) applications. It powers the scale, controls the speed, evaluates the weight, automatically refills and discharges the desired amount of product and notifies you of errors through its extensive networking capabilities.

Includes WAVERSAVER, IT, C2, SMM, Embedded Web Server.



HI 4060 Rate Controller

This single-feeder, closed-loop rate controller is used with auger, belt and vibratory-based feeders to convert them from volumetric to gravimetric. It automatically controls and adjusts your feeder speed, based on the required loss-in-weight rate. It features true five-point automatic rate calibration, automatic feeder refill, various alarms, and optional DeviceNet, EtherNet/IP, Remote I/O, Profibus, Modbus TCP/IP, and Analog communications.

Includes WAVERSAVER, IT, C2, SMM, Embedded Web Server.



HI 3300 Closed-Loop Tension Controller

Used in unwinding and rewinding applications, the HI 3300 closed-loop tension controller ignores roll vibration, calibrates in seconds without test weights, and lets you access set-up, monitoring and diagnostics from your PLC or any PC with a web browser. It includes standard 4-20mA output and EtherNet interface, and optional EtherNet/IP, Remote I/O, DeviceNet, ControlNet, Profibus, and Modbus TCP. Includes WAVERSAVER, C2, SMM, Embedded Web Server.

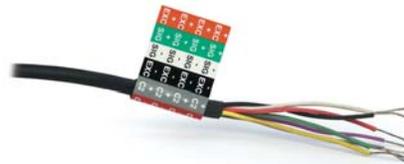
JUNCTION BOXES



Junction Boxes

Hardy's junction boxes contain circuitry in a waterproof enclosure that distributes the excitation voltage for up to four load points, and transfers their performance characteristics and weight signals to the weighing instrument. Boxes are available as OEM cards, or housed in either fiberglass, stainless, or painted steel enclosures. INTEGRATED TECHNICIAN circuitry provides easy isolation and troubleshooting of each component of your weighing system when used with a Hardy controller.

C2® CABLE



C2® Certified Cable

Hardy's C2 certified load point cable is designed and tested to easily handle the low voltages found in weighing systems, as well as the load point's performance characteristics and switching commands. Eight conductors, each a 22 AWG stranded copper wire for flexibility, carry the signals to and from the weighing instrument and the junction box.

"Hardy Instruments is my favorite company. I have been using Hardy Instruments' weight converters for almost 22 years, ever since the Accubatch Jr. I am one of the Hardy customers who recommended they come up with a loss-in-weight controller."

Gangadhar Rao Vemuganti,
Sr. Engineer, Milling R&D
Quaker Foods & Beverages

WEIGHT INDICATORS AND TRANSMITTERS



HI 2110WI Weight Indicator

The HI 2110WI weight indicator acts as a front end for a control system, transmitting stable gross, net, and tare weight data to a PLC or DCS. This indicator is available in panel mount and remote mount configurations, with a choice of Allen-Bradley Remote I/O, Profibus, Analog, or BCD interfaces. Includes WAWERSAVER, C2, SMM.



HI 200DNWM DeviceNet Weigh Module

The ODVA conformance-tested HI 200DNWM weigh module supports a single scale with up to eight ADVANTAGE load sensors, or four 350 Ohm load cells, and communicates net, gross, tare, and set point data over the DeviceNet open network interface to a PC, PLC, or DCS. It features two TTL level setpoints for control, and a "Command Interface" capability allows access to all parameters without using explicit messages.

Includes WAWERSAVER, C2, THE BUTTON.



HI 2200LT Load Cell Transmitters

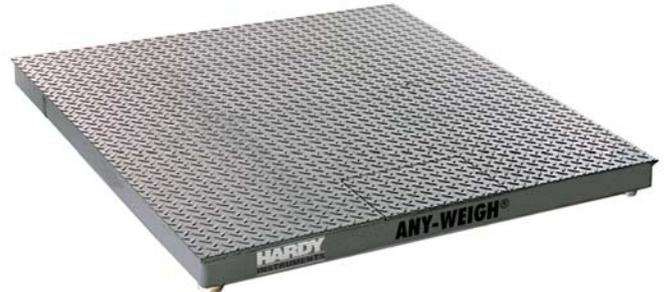
The HI 2200LT strain gage transmitters are low-cost two-wire devices for strain gage load cells and pressure transducers. Both the HI 2204LT and the HI 2201LT, which is Factory Mutual approved (Class I, Div 1), come in a choice of mounting packages and are fully warranted for three years.

ANY-WEIGH® SCALES



Bench Scales

The ANY-WEIGH® line of Bench Scales provides value and flexibility in size and capacity for use in a wide range of weighing applications. Featuring a very low profile, rugged construction, and stainless steel tops, these bench scales are a great fit for both laboratory and industrial installations. A universal version comes with a 15-foot cable for standard interfacing to strain gauge-based weighing instruments. Other versions feature built-in electronics with choice of DeviceNet (includes C2 calibration) or 4-20mA Analog output communication capabilities. Both of these come pre-calibrated from the factory and are essentially plug-and-play. An Analog version is FM approved and certified for Class I, II, III, Div I Group A, B, C, D, E, F and G T4. Scale sizes include 12"x12" and 24"x24", and capacities range from 33 to 1,300 lbs.



Floor Scales

The ANY-WEIGH® Floor Scales contain features, value, and flexibility in size and capacity for use in many industrial weighing applications. They include INTEGRATED TECHNICIAN diagnostics and C2 electronic calibration. They also feature matched ADVANTAGE load sensors, which provide a true hermetic seal and eliminate the need for cornering and potentiometers. A complete set of accessories, including access ramps, pit frames, lifting eyes, and bumpers, are available. Floor scales are available in stainless or painted steel, in sizes from 30"x30" to 6'x8', with capacities ranging from 1,000 to 10,000 lbs.

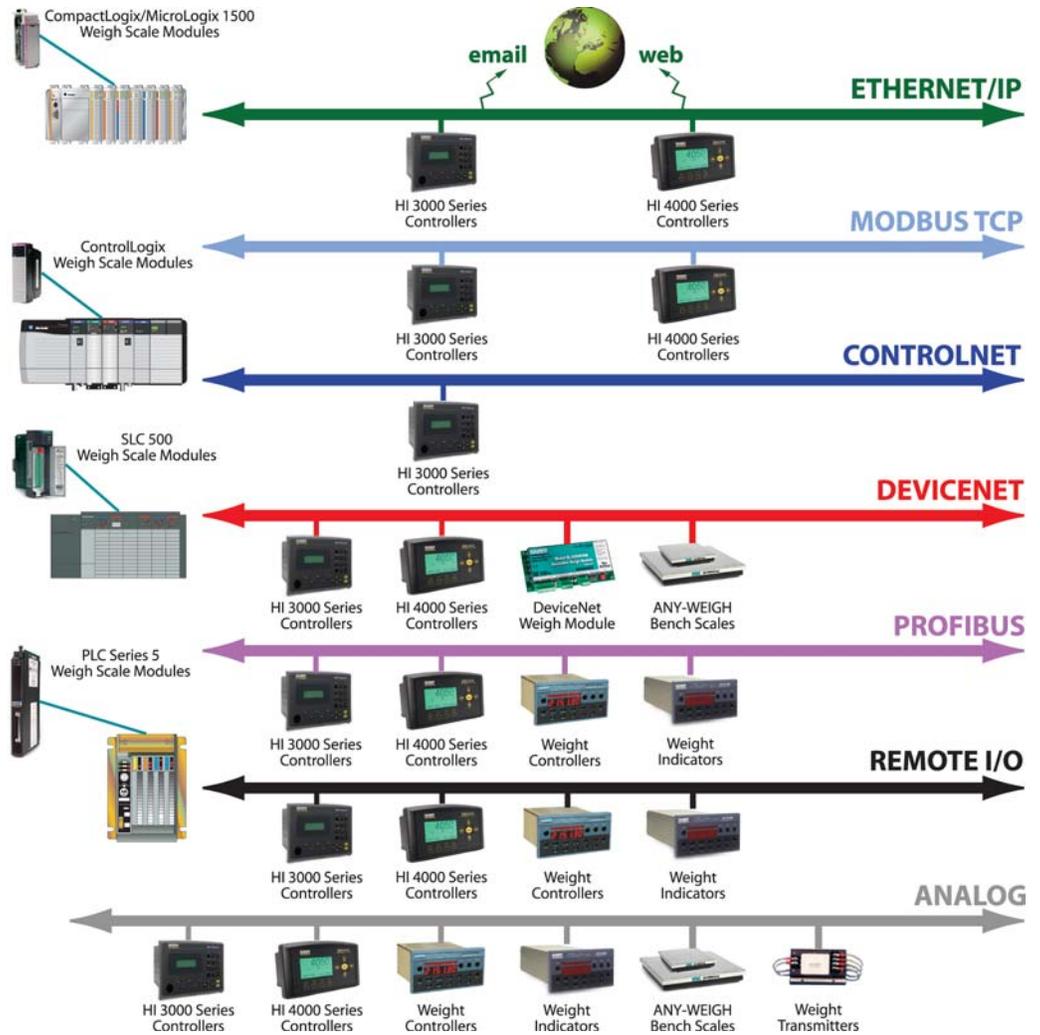
TECHNICAL SUPPORT



The mission of our Technical Support department is to provide valuable solutions accessible to customers worldwide. We offer a unique blend of support options that give you the ability to maintain your facility your way, and we are ready to join your team whenever and wherever you need us. Our service offerings include:

- Online Support:** you can quickly find answers 24 hours a day, 7 days a week, 365 days a year, from our online support site offerings, which include product datasheets, manuals and drawings, sample PLC programs, a load sensor certification tool, and the Hardy WebTech technical knowledgebase.
- Factory Repair:** when you need something repaired, upgraded, calibrated or just checked out, our factory repair department is the answer. With our Rapid Repair program, we will repair your instrument or replace it with a refurbished one within two working days from receipt at our factory for a flat-rate fee. All repaired instruments are brought up to the latest revision possible and include a 90-day warranty.
- Training:** benefit from applications, service or operator training at our factory, in your facility or over the web. Choose from standard courses or work with our training specialists to design a course specific to your needs.
- Phone Support:** to discuss your questions directly with a factory service expert, just give us a call.

CONNECTIVITY SOLUTIONS



Visit our website at
www.hardyinstruments.com
 to find additional information on our products and services:

- Product overviews
- Datasheets and specifications
- Certifications
- Manuals and drawings
- Network interfaces
- Technical support
- Load cell certification tool
- Newsletter archives (sign up at www.hardyinstruments.com/newsletter)



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