



# HI 6200 Single Channel Weight Processor User Guide

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[Ways to Set Scale Parameters](#)

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# CONTENTS

<b>How to Use This Guide.....</b>	<b>6</b>
Introduction.....	6
Audience.....	6
Changes in This Revision.....	6
Related Documents.....	6
User Feedback.....	6
Organization of the Guide.....	7
Document Conventions.....	8
<b>1 Product Description .....</b>	<b>9</b>
1.1 Overview.....	10
1.2 Models.....	11
1.3 Key Features.....	12
1.3.1 WAVERSAVER®.....	12
1.3.2 C2® Electronic Calibration.....	12
1.3.3 INTEGRATED TECHNICIAN™ Operator Diagnostics.....	12
<b>2 Installation.....</b>	<b>13</b>
2.1 Hardy Field Service.....	14
2.2 Pre-installation Planning.....	14
2.3 Unpacking.....	16
2.4 Climatization.....	17
2.5 Handling Precautions.....	17
2.5.1 Sources of Electrical Interference.....	18
2.6 Mounting the HI 6200.....	19
2.7 Wiring the HI 6200.....	21
2.8 Powering on the HI 6200.....	22
<b>3 Initial Setup .....</b>	<b>23</b>
3.1 Initial Setup.....	24
<b>4 WAYS TO SET Scale Parameters .....</b>	<b>26</b>
4.1 Using the Touch Screen.....	27
4.2 Using the Embedded Webserver.....	29

---

4.2.1 Saving “Known Good” Parameters .....	33
4.2.2 Restoring from “KnownGood” Parameters .....	35
4.3 Using a PLC .....	37
4.3.1 EIP .....	37
4.3.2 Setting Up Communications .....	37
4.3.3 Configuration Parameters .....	39
4.3.4 Configuration with AOP .....	40
4.3.5 Modbus .....	40
4.3.6 PROFINET .....	45
4.3.7 PLC Commands .....	46
READ PARAM CMD .....	47
ZERO CMD .....	47
TARE CMD .....	48
CAL LOW CMD .....	48
CAL HIGH CMD .....	48
C2 CAL CMD .....	49
IT Test .....	49
Stability Test .....	49
IT Test Reduced .....	50
C2 Search .....	50
WRITE CMD .....	50
Set Default Parameters .....	51
Set Default Network Parameters .....	51
Write to NVM (non-volatile memory) .....	51
Save Last Good Configuration .....	51

## **5 Setting Scale Parameters..... 57**

5.1 Pre-Calibration Procedures .....	58
5.2 Calibration Setup Procedures .....	59
5.2.1 Unit of Measure .....	59
5.2.2 Motion Tolerance .....	59
5.2.3 Zero Tolerance .....	59
5.2.4 Auto Zero Tracking .....	59
5.2.5 Auto Zero Tolerance .....	60
5.2.6 Number of Averages .....	60
5.2.7 Span Weight .....	60
5.2.8 Ref Weight .....	60
5.2.9 Gravity Correction .....	60
5.2.10 Tare Weight .....	61
5.2.11 WAVESAVER® .....	62
5.3 Calibrating the Scale .....	63
5.3.1 C2® Calibration .....	63

---

5.3.2 Hard Calibration.....	63
<b>6 Troubleshooting .....</b>	<b>64</b>
6.1 Troubleshooting Table.....	65
6.2 Weighing System Test .....	66
6.3 Electrical Check Procedures .....	66
6.3.1 Load Sensor/Point Input/Output Measurements .....	66
6.3.2 Load Check .....	67
<b>7 Hardy Installation and Commissioning .....</b>	<b>69</b>
7.1 Emergency Service and Support.....	69
<b>Index .....</b>	<b>79</b>

# HOW TO USE THIS GUIDE

## Introduction

The Hardy Process Solutions HI 6200 Weigh Processor is a state-of-the-art product. It uses advanced microprocessor technology and front-end signal processing of strain-gauge type load sensors to provide super-accurate weighing coupled with operator-friendly interfaces and reliability. These features make the instrument ideally suited for all types of industrial manufacturing weighing applications.

To benefit from Hardy's entire feature set of WAVESAVER®, C2® Calibration, and INTEGRATED TECHNICIAN™ diagnostics, complete your scale system using all Hardy components.

Do not operate or work on this equipment unless you have read and understand the instructions and warnings in this manual. Failing to follow the instructions or heed the warnings can result in injury or death.

## Audience

This manual describes how to install, configure, operate, maintain, and troubleshoot the HI 6200 Weigh Processor. It is intended for individuals responsible for installing, configuring, operating, and servicing the HI 6200.

## Changes in This Revision

Added information about the PROFINET version.

## Related Documents

Hardy Process Solutions provides manuals in PDF format that can be downloaded from our website free of charge. Go to <http://www.hardysolutions.com/>, click the **Support Center** link, and then hover over **Doc & Program Downloads** for each product.

## User Feedback

Hardy Process Solutions appreciates your business, and welcomes all corrections or suggestions for improving this manual. Please send your comments to [hardysupport@hardysolutions.com](mailto:hardysupport@hardysolutions.com). Include the document title, and refer to specific sections and paragraphs whenever possible. All comments become the property of Hardy Process Solutions. Thank you!

## Organization of the Guide

- **Chapter 1 – Product Description**

This chapter provides an overview of the HI 6200, along with a description of the available models and key features.

- **Chapter 2 – Installation**

This chapter describes how to install the HI 6200.

- **Chapter 3 – Initial Setup**

Describes the initial setup steps to perform before using the HI 6200 for the first time.

- **Chapter 4 – WAYS TO SET Scale Parameters**

This chapter describes the different ways to set HI 6200 scale parameters.

- **Chapter 5 – Setting Scale Parameters**

This chapter describes how to calibrate the HI 6200.

- **Chapter 6 – Troubleshooting**

This chapter provides information for identifying and resolving HI 6200 problems.

- **Chapter 7 – Hardy Installation and Commissioning**

This chapter describes Hardy product installation and commissioning.

- **APPENDIX A - Specifications**

This appendix lists the HI 6200 specifications.

- **APPENDIX B - List of Parameter IDs**

This appendix lists the parameter IDs for the HI 6200.

- **APPENDIX C - Frequently Asked Questions**

This appendix provides answers to frequently asked questions.





## Document Conventions

This document uses the following conventions to draw attention to certain information.

## Terminology

In this guide, the terms “HI 6200,” “instrument,” and “system” are used interchangeably to describe the Hardy Process Solutions HI 6200.

## Safety and Warnings

Symbol	Meaning	Description
	Note	Notes emphasize or supplement important points of the main text.
	Tip	Tips provide helpful information, guidelines, or suggestions for performing tasks more effectively.
	Caution	Indicates a potential hazard or unsafe practice, which, if not avoided, could result in minor injury, harm to the patient or operator, or damage to property or the device.
	Warning	Warnings indicate that failure to take a specified action could result in data loss or other serious consequences.

## Typographic Conventions

Convention	Description
<b>Bold</b>	Indicates text on a window, other than the window title, including menus, menu options, buttons, fields, and labels.
<i>Italic</i> or < >	Indicates a variable, which is a placeholder for actual text provided by the user or system.
page/code	Indicates text that is displayed on page or entered by the user.
[ ] square brackets	Indicates optional values.
{ } braces	Indicates required or expected values.
vertical bar	Indicates a choice between two or more options or arguments.



# 1 PRODUCT DESCRIPTION

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**Topics:**

- ^ *Overview (page 10)*
- ^ *Models (page 11)*
- ^ *Key Features (page 12)*

This chapter provides an overview of the HI 6200 Single Channel Weight Processor. This chapter also lists the available models and describes the instrument's key features.

## 1.1 Overview

The HI 6200 series are high-performance, single-channel Weight Processors featuring industrial Ethernet-based communication, Industrial Internet of Things (IIoT) compatibility, remote diagnostics, and a user-friendly touch-screen interface. The HI 6200 is ideally suited for OEMs and system integrators who build machinery where fast, stable weight data along with low-cost of ownership are critical components to their successful design.

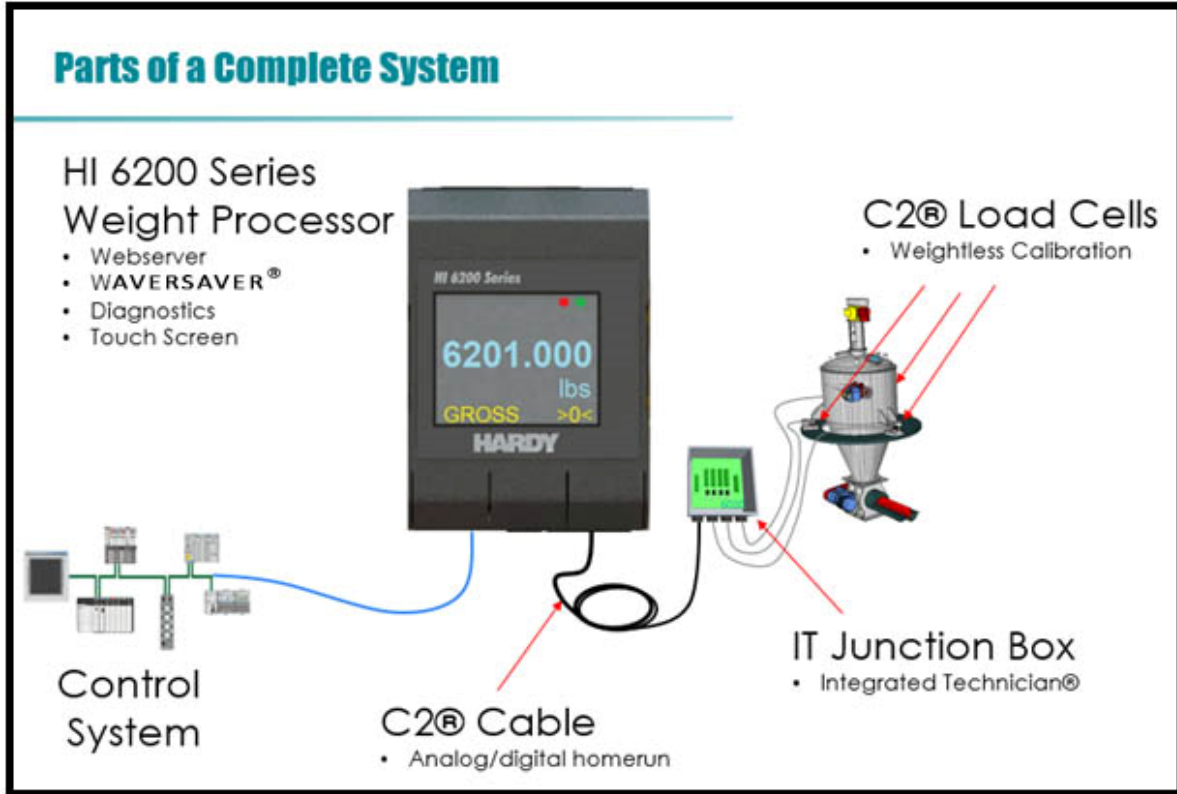
Ultra-compact at just 2 inches wide and 3 inches high, the HI 6200 series saves cabinet space. This form factor allows for high-density panel design over traditional weighing instrumentation, reducing machine cost and control cabinet footprint.

The HI 6200 is designed for a wide variety of process weighing applications such as:

- Batching
- Blending
- Filling and dispensing
- Check weighing
- Force measurement
- Level by weight and weight rate monitoring

The 24-bit analog-to-digital converter is capable of sampling sensor (s) output up to 4,800 times per second and provides fast stable weight measurements to a control system at 100 times per second. These capabilities provide accurate weight measurement and control and tolerate large “dead” loads or over sizing of load sensors.

The HI 6200 also features Hardy’s entire Process Toolbox™. The Hardy Process Toolbox is a set of productivity tools that support industrial weighing functions. Each tool saves time, increases accuracy, improves efficiency or reduces risk in process weighing applications, including WAVERSAVER® to eliminate vibration, C2® electronic calibration and Integrated Technician™ diagnostics.



## 1.2 Models

The HI 6200 is available in the following models.

Figure 1-1. HI 6200 Models

Model	Description
HI6200-WP-10-EIP-000	Single Channel Weight Processor, Ethernet Comms with Display
HI6200-WT-10-ANA-000	Single Channel Weight Processor, Analog Out with Display
HI6200-WP-10-PFN-000	Single Channel Weight Processor, PROFINET Comms with Display

## 1.3 Key Features

### 1.3.1 WAVERSAVER®

Hardy's WAVERSAVER® core technology eliminates the effects that surrounding vibration has on the scale weight signal, providing only true data for fast, accurate weight reading.

### 1.3.2 C2® Electronic Calibration

The Hardy C2® core feature provides quick and easy electronic calibration of a weighing system without requiring heavy test weights.

### 1.3.3 INTEGRATED TECHNICIAN™ Operator Diagnostics

Hardy's INTEGRATED TECHNICIAN (IT) core feature helps you troubleshoot your weighing system and diagnose problems from the HI 6200 webserver. These tests display system weights, voltages, and pass/fail information that allow you to isolate a problem to the instrument, cabling, or sensors, reducing troubleshooting times and maintenance costs.

## 2 INSTALLATION

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**Topics:**

- ^ *Hardy Field Service (page 14)*
- ^ *Pre-installation Planning (page 14)*
- ^ *Unpacking (page 16)*
- ^ *Climatization (page 17)*
- ^ *Handling Precautions (page 17)*
- ^ *Mounting the HI 6200 (page 19)*
- ^ *Wiring the HI 6200 (page 21)*
- ^ *Powering on the HI 6200 (page 22)*

This chapter describes how to install the HI 6200 Weight Processor.

## 2.1 Hardy Field Service

Hardy Process Solutions provides local field service for all scales and weighing equipment. Hardy's factory trained technicians can perform service on all Hardy equipment as well as most other manufacturers' systems. Enabled by the Hardy Process Toolbox, our technicians spend less time onsite, saving you money and reducing your downtime.

Services include the following (click a service below for more information):

- [Installation & Commissioning](#)
- [Calibration and Preventative Maintenance](#)
- [Onsite Emergency Support](#)
- [Service Agreements with Defined Turnaround Times](#)
- [Product, Service, and PLC Integration Training](#)
- [Pre-Installation Site Audit](#)
- [Scale Installed-Base Evaluation](#)
- [PLC Integration Support](#)
- [Engineering Design Support and Specification Development](#)
- [Quality Documentation Creation](#)

To request any of these services, or to discuss your needs with a trained Hardy Service Agent, call 800-821-5831 option 4 between 6:30 AM and 5:30 PM PST. For emergency downtime service after hours, leave a message in our emergency mailbox and your call will be returned promptly, or email us at [hardysupport@hardysolutions.com](mailto:hardysupport@hardysolutions.com) for a response the next business day.

## 2.2 Pre-installation Planning

Successful installation of the HI 6200 requires careful pre-installation planning. Proper planning will help provide for a more efficient installation and greater reliability, availability, and serviceability.

All pre-installation activities should be scheduled and completed before equipment delivery. The pre-installation process includes:

- Working with Hardy Field Service to ensure that all hardware and cables in the specified configuration and all cables of the appropriate length are on-site and ready to install
- Selecting key personnel who will handle the installation.
- Preparing a preliminary layout of the installation.
- The HI 6200 device shall be placed in a suitably rated enclosure for end-use applications.

- Reviewing the power and the heating, ventilation, and air-conditioning (HVAC) requirements, and then ordering any additional support equipment.
- Making a final layout of the installation and reviewing the layout with Hardy Field Service.
- Verifying that the electrical service wiring has been installed at the predetermined location before installing the HI 6200.

To aid with your pre-installation planning, verify the availability of each item in the following site preparation checklist. The following tasks might require several weeks to complete:

- Acquiring required power outlets.
- Arranging for an electrician.
- Adding or modifying air conditioning systems.
- Making room alterations to accommodate the HI 6200.
- Ordering third-party equipment to support the HI 6200.

Checklist Question	Yes	No
<b>Safety</b>		
Is the installation location room free of any equipment servicing hazards, such as electrical or data cables that obstruct access?		
Does the installation location have a fire-protection system?		
<b>Space Planning</b>		
Are there cutouts or channels to route cables?		
Can the temperature be maintained between -20°C to 55°C (-4°F to 131°F) during operations?		
Can the humidity level be maintained between 0% and 90% non-condensing?		
Is the installation location protected against dust, pollution, and metallic particulate contamination?		
Does the installation location take into account environmental considerations, such as vibration and acoustics?		
Is all equipment not supplied by Hardy Process Solutions (for example, power supply) on site and ready for use?		
<b>Electrical Requirements</b>		
Is there a sufficient number of AC outlets for the equipment?		
Are the AC outlets on different lines?		
Are the input circuit breakers adequate for equipment loads?		
Are uninterruptible power supplies (UPS) in place?		
Have all sources of electrical interferences been addressed?		
The HI 6200 must be installed in a suitable Type 4/4X UL/CUL approved panel or enclosure.		

## 2.3 Unpacking

The HI 6200 is shipped directly from Hardy Process Solutions.

1. Before signing the packing slip, inspect the packaging for damage, and report damage of any kind to the carrier company.
2. Check that everything in the package matches the bill of lading.
3. If items are missing or you have any questions, contact [Customer Service](#) by phone, fax, or email.
4. Record the model number and serial number of the HI 6200 series instrument. Store this information in a convenient, secure location for reference when contacting [Customer Service](#), buying parts, or upgrading firmware.

A Return Material Authorization (RMA) number is required before returning any damaged product. Use the website to request an RMA at <https://www.hardysolutions.com/support-center/repairs-form/view> Have the following items ready:

- Your Name, Company name, shipping address, email address and telephone number
- Model Number & Serial number of the unit
- Brief description of the problem

In case of damage due to shipping, notify the delivering carrier immediately for an inspection.



**WARNING: ELECTROSTATIC DISCHARGE MAY DAMAGE SEMICONDUCTOR COMPONENTS IN THE INSTRUMENT. DO NOT TOUCH THE CONNECTOR PINS.**



**AVERTISSEMENT: UNE DÉCHARGE ÉLECTROSTATIQUE PEUT ENDOMMAGER DES COMPOSANTS SEMI-CONDUCTEURS DANS LE INSTRUMENT. NE PAS TOUCHEZ LE CONNECTEUR.**



**WARNING: POWER DOWN THE SYSTEM BEFORE SERVICING THE INSTRUMENT. DO NOT UNPLUG UNDER POWER.**



**AVERTISSEMENT: SYSTÈME D'ALIMENTATION AVANT D'ENTREVOIR LE INSTRUMENT. NE PAS DÉBRANCHER SOUS LE POUVOIR.**



## 2.4 Climatization

An HI 6200 shipped or stored at extreme temperatures requires time to adjust to operating temperatures before startup.

If the HI 6200 arrives in very hot or very cold weather, do not unpack it until it has been allowed to reach room temperature (one to two hours).

Immediately exposing the HI 6200 to warm temperatures can cause condensation to occur, which could damage the electronics.

If you notice any condensation, allow the HI 6200 to stand unattended for one to two hours, and then unpack it.

## 2.5 Handling Precautions

Observe the following precautions when handling the HI 6200:

- Wear an approved wrist-strap grounding device when handling the instrument.
- Touch a grounded object or surface to rid yourself of any electrostatic discharge prior to handling the instrument.
- Handle the instrument from the bezel in front away from the connector. Never touch the connector pins.
- Do not install the instrument right next to an AC or high voltage DC module.
- Route all the load voltage cables away from high voltage cables.

## 2.5.1 Sources of Electrical Interference

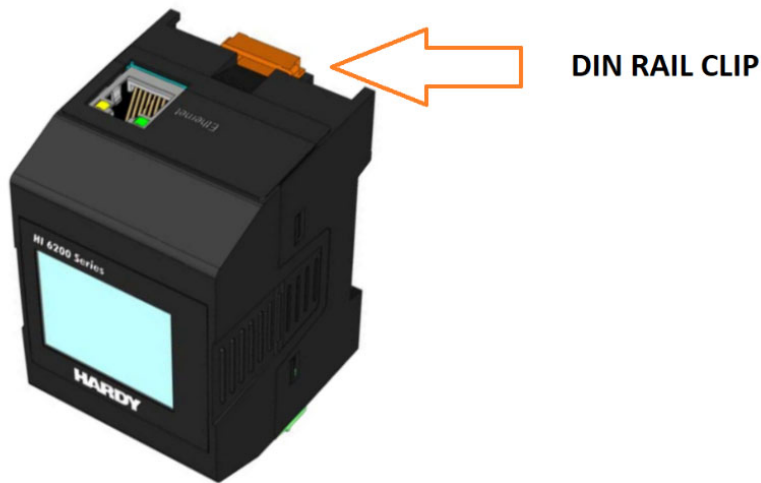
Ensure that the HI 6200 is protected from sources of electrical interference. The following table provides examples of electrical interference.

Potential Source	Description
Wall outlets	Power outlets for building maintenance and janitorial equipment, such as vacuum cleaners and floor buffers, must be wired from circuit breakers on a power panel separate from the computer system panel. The ground wires from these outlets must connect to the normal building distribution panel and not to the system ground. If a separate power source and separate ground are not provided, maintenance and janitorial equipment can induce electrical noise that can affect operation of the HI 6200. Your electrician can verify whether maintenance outlets are on separate panels.
Lightning	In geographical areas subject to lightning storms, you may want install lightning protection for your HI 6200. The principles of lightning protection and personnel safety are described in the National Fire Protection Association (NFPA) Handbook.
Electromagnetic interference	Electromagnetic interference can cause various problems. The HI 6200 is designed to reduce its susceptibility to radiated and conducted interference. A Hardy Process Solutions representative can advise you about common causes of electromagnetic interference.

## 2.6 Mounting the HI 6200

The HI 6200 is designed for mounting on a 35mm DIN rail using the spring-loaded DIN clip integrated into the body of the instrument. The HI 6200 must be installed in a suitable Type 4/4X UL/CUL approved panel or enclosure.

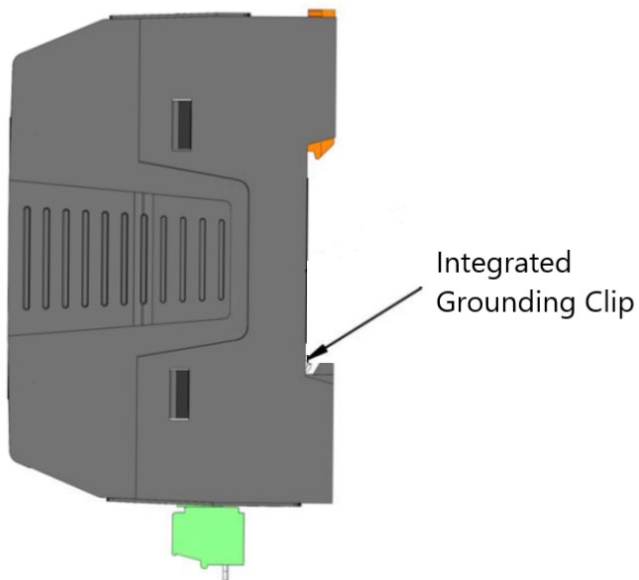
**Figure 2-1**



**Figure 2-1. DIN Rail Clips**

To mount the HI 6200:

1. Engage the bottom of the DIN rail.



2. Snap the top of the HI 6200 onto a DIN rail.

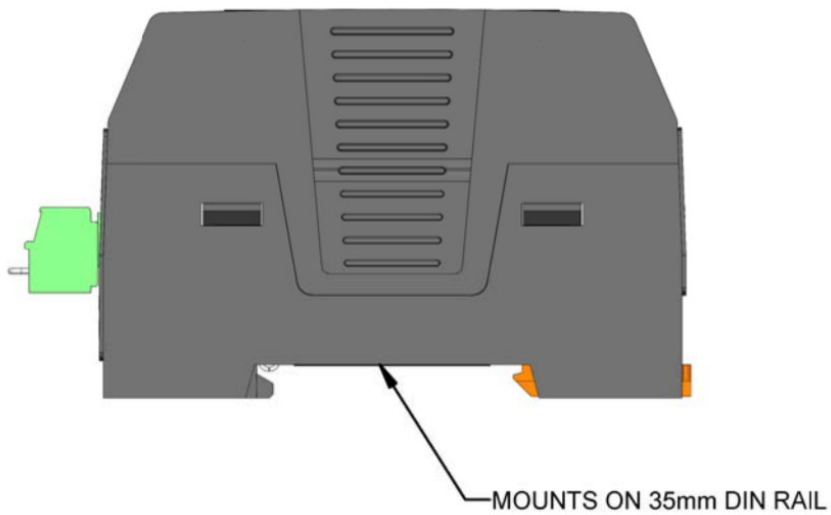


Figure 2-2. Mounts on the DIN Rail (Horizontal Mounting)



Figure 2-3. Mounts on the DIN Rail (Vertical Mounting)

To remove the HI 6200:

1. Locate the slot on the top of DIN rail clip.
2. Gently pry up until the instrument releases.

## 2.7 Wiring the HI 6200

The HI 6200 has screw-down terminal blocks for power and load cell connections, and an RJ-45 jack on the top for Ethernet communications. For detailed information about wiring terminations, refer to the installation and interconnection drawing, document #0584-0107 (EIP), #0584-0108 (ANA) or #0584-0109 (PFN) on the [Hardy website](#).

When tightening wiring onto the screw-down terminal blocks, remove the terminal blocks from the instrument to prevent undue stress on the instrument.

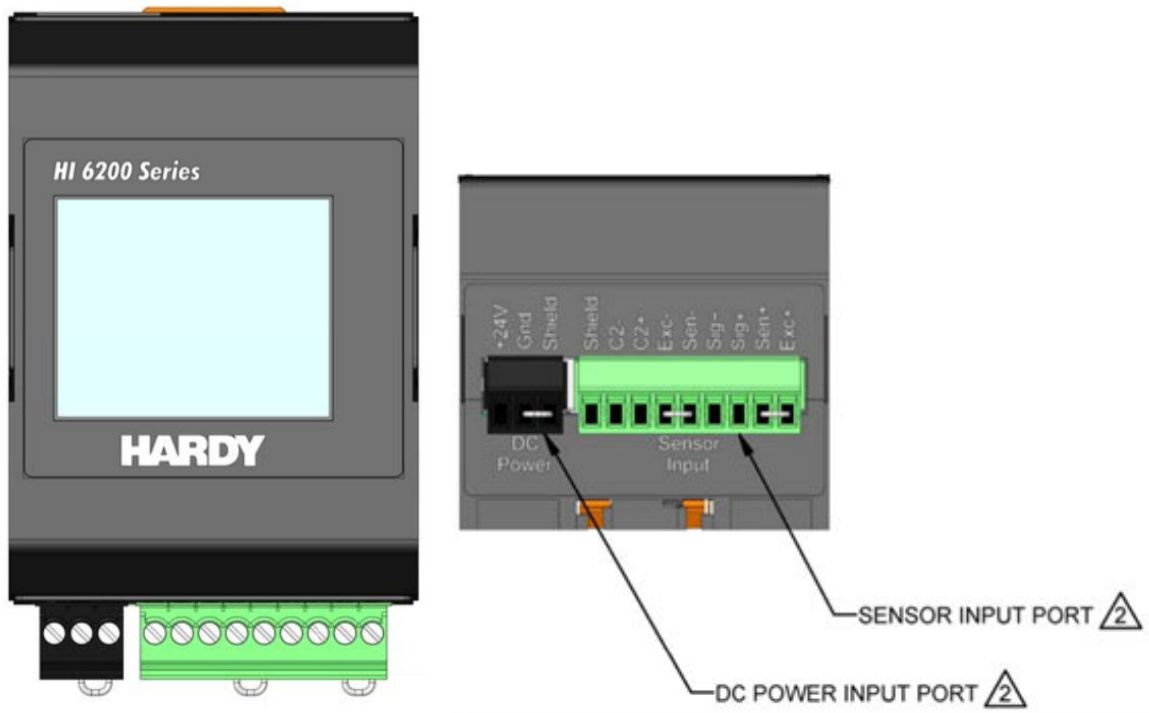


Figure 2-4. HI 6200 Wire Terminations to Hardy Sensors and Junction Boxes



**Caution:** Do not over-tighten the screw-down terminal blocks. Otherwise, you might shear sensor wires and cause intermittent or complete failure of the weighing system.

Observe the following wiring best practices:

- If conduit is used, do not run load cell cable parallel to, or in the same conduit with, power wiring, relay cable, or other high-energy cables.
- If you connect four wire load sensors with C2 and four wire load sensors without C2 directly to the termination base assembly, install wire jumpers in the termination base assembly where indicated.
- Required load cell cable for C2 electronic calibration system and INTEGRATED TECHNICIAN is Hardy Process Solutions part number C2 Cable (6020-0001-0).

## 2.8 Powering on the HI 6200

After wiring the HI 6200, power on the instrument and check that **Status** and **Scale** LEDs on the front panel indicate normal operation. Press Status Light for additional detail on condition.

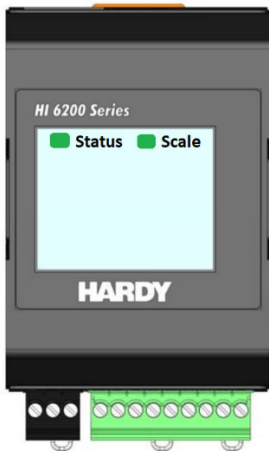


Figure 2-5. Status and Scale LEDs

Table 2-1. LEDs

LED Color and Status	Description
Steady Green	Instrument is operating normally.
Flashing green	Error, no calibration. Press the on-screen <b>Status</b> button for more information.
Steady red	Read failure or EEPROM write error. Press the on-screen <b>Status</b> button for more information.
Flashing red	Read convert error. Press the on-screen <b>Status</b> button for more information.

## 3 INITIAL SETUP

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**Topics:**

- ^ *Initial Setup (page 24)*

This chapter describes how to set up the HI 6200 prior to initial use.

## 3.1 Initial Setup

The following steps describe the minimum configuration procedures to perform when setting up the HI 6200 for the first time. Perform these procedures in the order shown.

For detailed descriptions of scale parameters and how to use them when setting up a scale system, see Chapter 5.

1. Choose a calibration method: **C2** OR **Hard Cal** (not both).

### **Recommended Method: Perform C2 – Electronic Calibration:**

- a. Remove all live weight from the scale. Leave all dead load weight, like vessels, mixers, etc. on the scale.
- b. Press **Do C2 Cal**.
- c. Place a verification weight on the scale to ensure the weight reading matches and that calibration is successful.

### **Alternate Method: Perform Hard Cal- Traditional**

- a. Traditional Calibration requires a zero point and the physical placement of test weights on the scale. To set the Zero Value, if all “live load” weight is removed from the Scale, the Zero Value should be 0.00. If any weight is on the scale when setting this value, the weight must be equal to the amount of load on the scale.
- b. Wait 12 seconds or more.
- c. Click in the Ref Weight text field and enter the reference weight you want. In our example, we entered 0 lbs. If you want the reference weight to be 5.0 lbs., enter 5.0.
- d. Click the Do Cal Low button to do the Trad Cal Zero. A “Cal Completed OK” message appears briefly if the calibration was successful. An Error number appears if the calibration was not successful. See the Error list in Chapter 8 for help in correcting the error.
- e. To set the Span Weight, place a certified test weight on the scale.
- f. In the Span Weight text field, enter the amount of live load weight placed on the scale.
- g. Click the Do Cal High button. A “Cal Completed OK” message appears briefly if the calibration was successful.
- h. An Error message appears if the calibration was not successful. See the error list in Chapter 8, for help in correcting errors.
- i. Step 9. The scale is now calibrated



## Multi-Point Calibration

Multi-Point Calibration, (also called midpoint correction) is simply a calibration with 3-5 points.

Standard two-point calibration assumes linearity (a straight line). However, calibration to just 2 end points may not accommodate for non-linearity (a curved line) that may happen in the middle of the load curve.

Multi-Point calibration lets users calibrate at three, four or five values on the curve. A multi-point calibration means, in comparison to a two-point calibration, that you can calibrate non-linearity significantly more accurately

To achieve the best possible accuracy, the multi-point calibration should cover the entire range of the desired measurement values (from zero to the highest possible value).

To access Multi-Point Calibration from the web browser, click on the Multi-Point Calibration link at the bottom of the Calibration page.

- a. First, select the number of Cal Points necessary to accommodate for non-linearity that can't be mechanically corrected in the system. Users that have previously performed a Calibration or set the span weight value using traditional calibration, will see that value populated as the highest number of Cal Points selected (for example, point 3-5 depending on your instrument.).
- b. Perform each calibration step by step from Cal Point 1 to the next point Weight (e.g. Cal Point 2 then Cal Point 3) until you reach your last selected point
- c. The system will be calibrated with multiple points, providing the most accurate method for a non-linear calibration.



**Note:** Multi-Point Calibration is only available through the Webserver, not the panel display.

## 4 WAYS TO SET SCALE PARAMETERS

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### Topics:

- ^ *Using the Touch Screen (page 27)*
- ^ *Using the Embedded Webserver (page 29)*
- ^ *Using a PLC (page 37)*

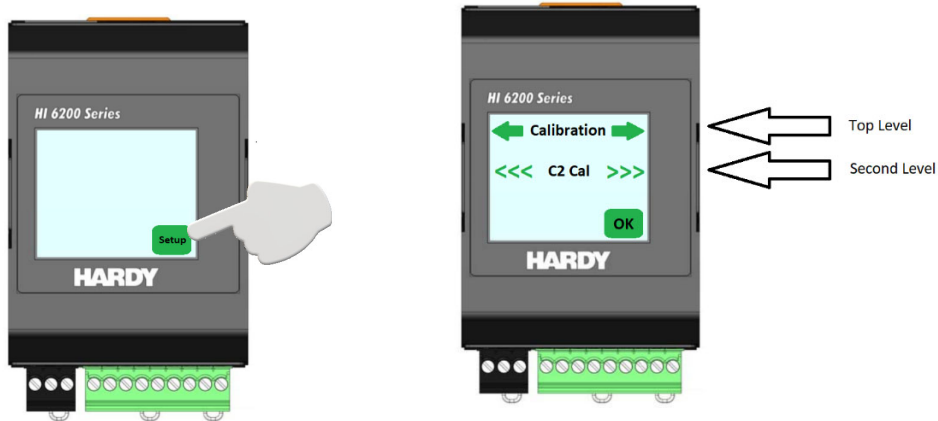
For convenience, the HI 6200 Weight Processor provides the following ways to set scale parameters:

- Front panel touch screen — provides access to all instrument settings and parameters.
- Embedded Webserver — provides access to the touch screen settings along with advanced diagnostics, parameter cloning, and firmware upgrade parameters.
- PLC — provides PLC communications (EIP, PFN or Modbus).

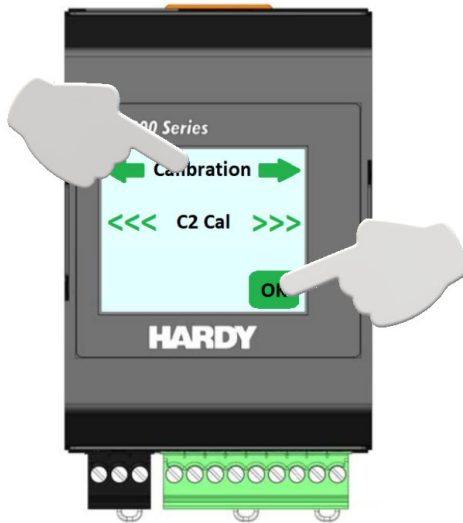
## 4.1 Using the Touch Screen

To set up the HI 6200 using its front panel touch screen:

1. At the lower right side of the screen, press the **Setup** button to access the Setup menus.



2. From the Set-up area, press the left or right arrow key to scroll through the main menus.
3. Press the top selection or the **OK** button to access the secondary menus.



4. Press the left or right arrow key to scroll through the secondary menus.
5. To make a selection, press a secondary menu item or the **OK** button.
6. To return to the previous menu, press the **Back** button.
7. To return to the home screen, press the **Home** button.

Table 4-1 shows the organization of the touch screen menus.

**Table 4-1. Touch Screen Menus**

Home	Zero	<b>Command</b>			
	Tare	<b>Command</b>			
	Mode	Net Gross			
Set-Up	<b>Calibration</b>	C2	Gravity	<i>User Input variable</i>	
			Ref Weight	<i>User Input variable</i>	
			Do C2	<b>Command</b>	
			Num Devices	<i>Device Info</i>	
		Hard Cal	Cal Low Weight	<i>User Input variable</i>	
			Do Cal Low	<b>Command</b>	
			Span Weight	<i>User Input variable</i>	
			Do Cal High	<b>Command</b>	
		Cal Date	<i>User Input variable</i>		
		<b>Communication</b>	EtherNet TCP/IP	Enable DHCP	On Off
				Fixed IP	<i>User Input variable</i>
				Dynamic IP	<i>User Input variable</i>
	Mask Address			<i>User Input variable</i>	
	Gateway Address			<i>User Input variable</i>	
	DNS Server			<i>User Input variable</i>	
	EtherNet UDP		Hardy Port	<i>User Input variable</i>	
	Modbus TCP		Status	<i>Device Info</i>	
	EtherNet/IP		Status	<i>Device Info</i>	
	PROFINET		Status	<i>Device Info</i>	
	<b>Filter</b>	Filter	Fast		
			Balanced		
			Stable		
			Custom		
			Off		
	<b>Operations</b>	Auto Zero	Auto Zero	Enable Disable	
			Tolerance	<i>User Input variable</i>	
		Tare Ops	Tare Weight	<i>User Input variable</i>	
		Zero Ops	Zero Tolerance	<i>User Input variable</i>	
			Zero		
	<b>Settings</b>	Decimal Pt.	0, 1, 2, 3, 4, 5 : increases the number of digits after the decimal point.		
		Capacity	<i>User Input variable</i>		
		Grads	1, 2, 5, 10, 20, 50, 100, 200, 500, 1000 Grads are the smallest increment of change on the front keypad. So if set to 1, the weight changes in steps of 1. If set to 5, the weight would count by 5.		
		Instrument ID	<i>User Input variable</i>		
		Motion Tolerance	<i>User Input variable</i>		
		Operator ID	<i>User Input variable</i>		
		Units	oz lb ton g kg mt		
		<b>Security</b>	None	check mark	
			Medium	check mark	
			High	check mark	
	Password		<i>User Input variable</i>		
<b>Info</b>	FW Version	<i>information only</i>			
	Product SN	<i>information only</i>			
	HW rev.	<i>information only</i>			

## 4.2 Using the Embedded Webserver

The embedded Webserver is a graphical point-and-click interface that can be accessed using a computer that has an Internet connection. Using the embedded Webserver, you can access the same instrument settings and parameters available from the front panel touch screen plus the following additional features:

- Advanced diagnostics
- Parameter cloning
- Firmware upgrade

To set up the HI 6200 using its embedded Webserver:

1. If the HI 6200 is powered on, power it off.
2. Connect either end of a straight-through or crossover Ethernet cable to the RJ-45 connector on the top of the HI 6200. Connect the other end of the cable to a Network Switch, Router or laptop.
3. Power up the HI 6200. The instrument automatically negotiates settings suitable for a variety of operating systems and network configurations.
4. Wait approximately 15 seconds, and then check whether the green light of the Ethernet port is blinking. If it is blinking, the computer can communicate with the HI 6200 and you can skip to step 5. Otherwise, perform the following steps:

- a. Check the IP Address of the HI 6200. The way to check for the IP address from the front display of the module:

EIP modules:

1. Press SETUP button
2. Right arrow to Comms
3. Press OK button
4. Press OK button at TCP/IP
5. Address is shown

PROFINET modules:

1. Press SETUP button
2. Right arrow to Comms
3. Press OK button
4. Press OK button at 'Profinet'
5. Address is shown.

If the unit has security on it (Both EIP and PROFINET modules):

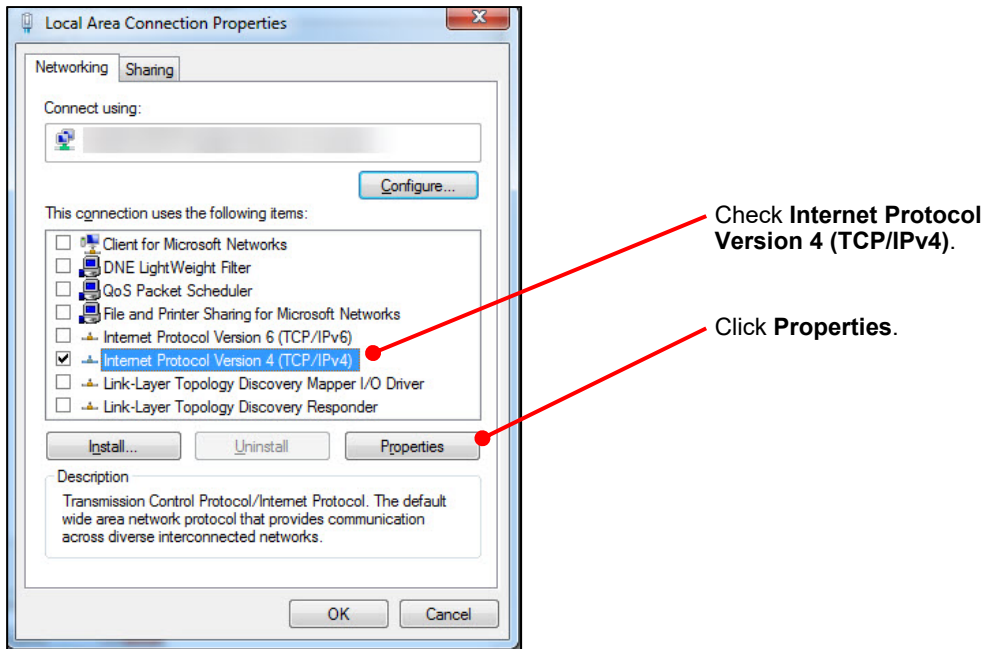
1. Press SETUP button,
2. Press Info button
3. Address is shown

NOTE: Do not set the IP address of the Unit to the same address as another device on your network. In PROFINET networks, the IP address is assigned by the PROFINET Server to ensure there is no duplication.

To communicate with the instrument, configure the computer's IP address so the network matches the IP address on the instrument, except for the last three digits, which must be different (Between 1 and 255) On your computer, right-click the **Local Area Connection** icon of the network adapter, and then click **Properties** (Defaults are used in the illustration).

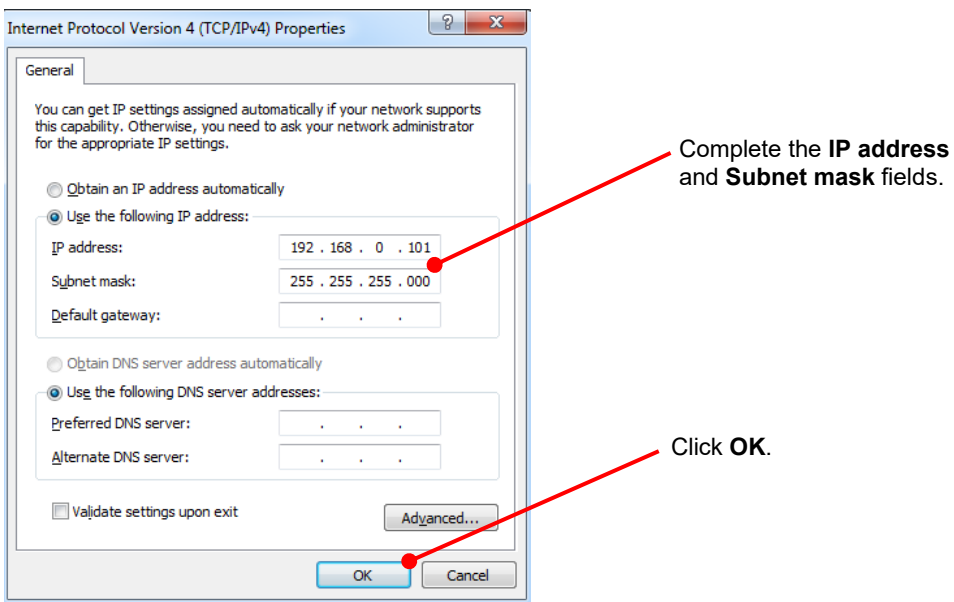
NOTE: This step may not be necessary if the computer and HI 6200 are on the same network.

- b. In the **Networking** tab, check **Internet Protocol Version 4 (TCP/IPv4)**, and then click **Properties**.



- c. Write down your current network values before changing them. In the **General** tab, select the **IP Address of the Unit**, and then enter the following values:

- **IP address** = XXX.XXX.X.101 (increment by 1)
- **Subnet mask** = 255.255.255.000



- d. Click **OK** in the TCP/IP Properties dialog box.
  - e. To return the computer to the original network settings, return to the Internet Properties (TCP/IP) dialog. Either select check **Obtain an IP address automatically**, and click **OK**. Or if not using DHCP, you must change it manually. Use the address you wrote down in step 4c.
8. Open a web browser on the computer, enter the static IP address of the HI 6200 instrument (the IP address you just set), and press the Enter key. The Home page appears (see Figure 4-1).



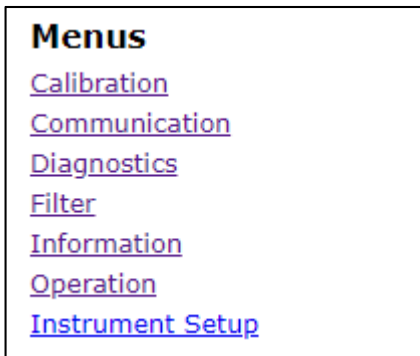
Figure 4-1. Embedded Webserver Home Page



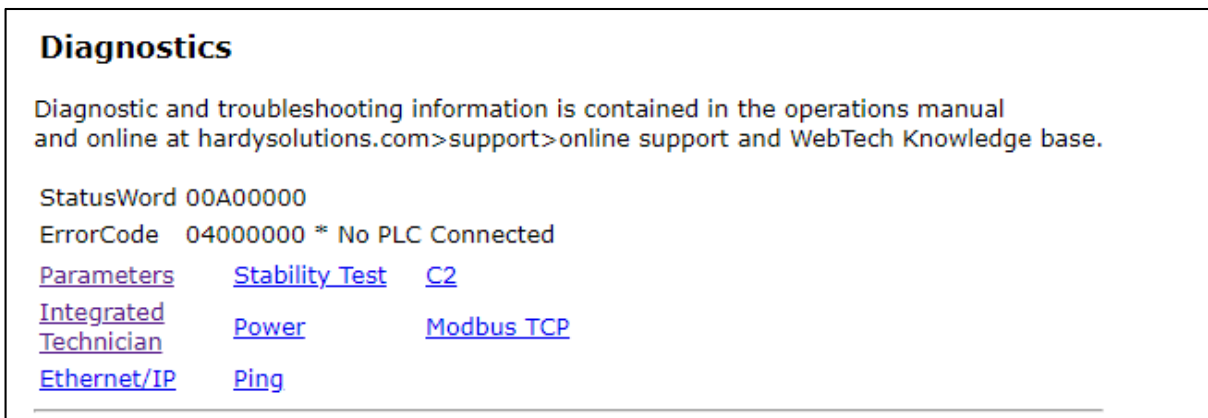
## 4.2.1 Saving “Known Good” Parameters

You can save the HI 6200 configuration to a different location in memory in order to restore the configuration if it becomes compromised.

1. Open a web browser on the computer, enter the static IP address of the HI 6200 instrument that you set in a previous step and press the Enter key. The Home page appears (see Figure 4-1 on page 32).
2. Click **Configuration**, and then click **Diagnostics**.



3. Click **Parameters**.



4. Make sure all the parameter values are set to your requirements.

### Operation - Diagnosticst

#### Parameter Dump

[Other Parameters](#)  
[Kown Good Cfg](#)

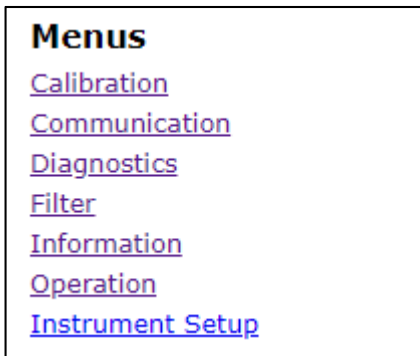
```
00007985 Firmware Revision=HI6200 1.0.1.15
00002881 Unit=1 [lb]
00002883 Grads=0 [1]
00002882 Decimal Point=2 [2]
00002884 Operator ID=OPID
00002885 Instrument ID=HARDY HI6200
00002081 WAVERSAVER®=0 [OFF]
00002082 Num Averages=10
00002886 Zero Tolerance=10.00
00006302 AutoZero Tolerance=10.000
00006301 AutoZero=0 [OFF]
00004081 Loadcell Sensitivity=0 [1.0 mV/V]
00002887 Motion Tolerance=9999.00
00002888 Scale Capacity=66.00
00004101 Ref Weight=5.00
00004182 Span Weight=1000.00
00002889 Zero counts=8439784
00004084 Cal Zero counts=8439784
00004085 Cal low counts=8513034
00004087 Cal high counts=8388608
```

5. Click the **Save As KnownGood** button.

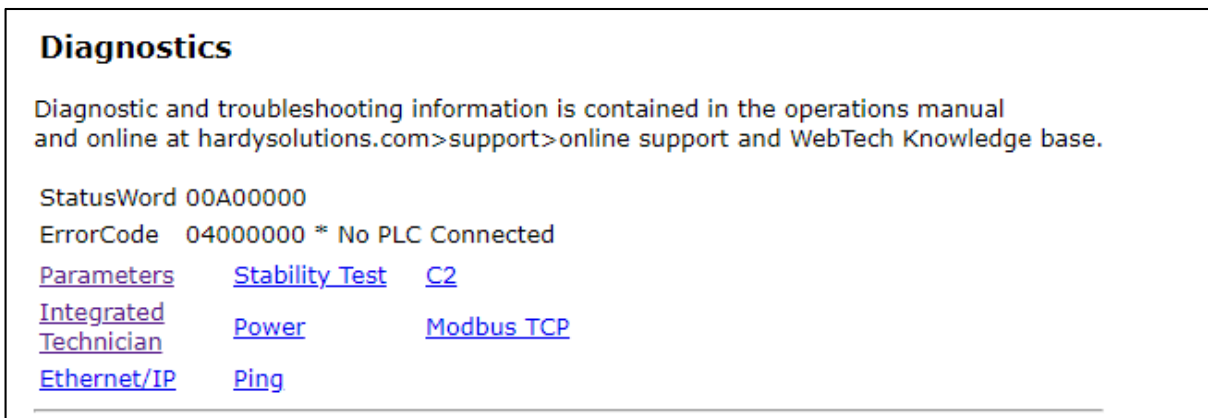
## 4.2.2 Restoring from “KnownGood” Parameters

After you use the procedure in section 4.2.1 to save a last-known good configuration, you can restore the HI 6200 to that configuration if necessary.

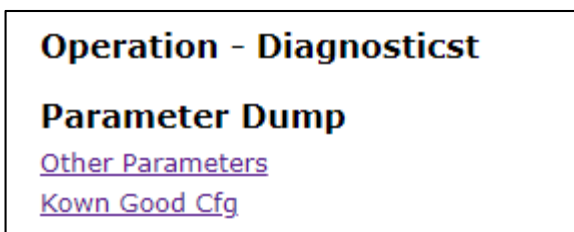
1. Open a web browser on the computer, enter the static IP address of the HI 6200 instrument (192.168.000.100), and press the Enter key. The Home page appears (see Figure 4-1 on page 32).
2. Click **Configuration**, and then click **Diagnostics**.



3. Click **Parameters**.



4. Click **Known Good Cfg**.



5. Click the **Restore KnownGood** button.

### LastKownGood Cfg Params Dump

```
00007985 Firmware Revision=HI6200 1.0.1.15
00002881 Unit=1 [lb]
00002883 Grads=0 [1]
00002882 Decimal Point=2 [2]
00002884 Operator ID=OPID
00002885 Instrument ID=HARDY HI6200
00002081 WAVERSAVER®=0 [OFF]
00002082 Num Averages=10
00002886 Zero Tolerance=10.00
00006302 AutoZero Tolerance=10.000
00006301 AutoZero=0 [OFF]
00004081 Loadcell Sensitivity=0 [1.0 mV/V]
00002887 Motion Tolerance=9999.00
00002888 Scale Capacity=66.00
00004101 Ref Weight=5.00
00004182 Span Weight=1000.00
00002889 Zero counts=8439784
00004084 Cal Zero counts=8439784
00004085 Cal low counts=8513034
00004087 Cal high counts=8388608
```

**[Please Verify the Values before Restore Them.]**

## 4.3 Using a PLC

### 4.3.1 EIP

Many of the set-up procedures in this section require an EIP system. In this section, the Allen Bradley system is used.



**Note:** The HI 6200 is not compatible with the obsolete HI 215IT Junction Boxes. Make sure the HI 6200 is installed with the HI 6020IT, HI 6020JB, HI 6010IT or HI 6010JB Junction Boxes. It is compatible with the HI 215JB without the IT functions.

### 4.3.2 Setting Up Communications

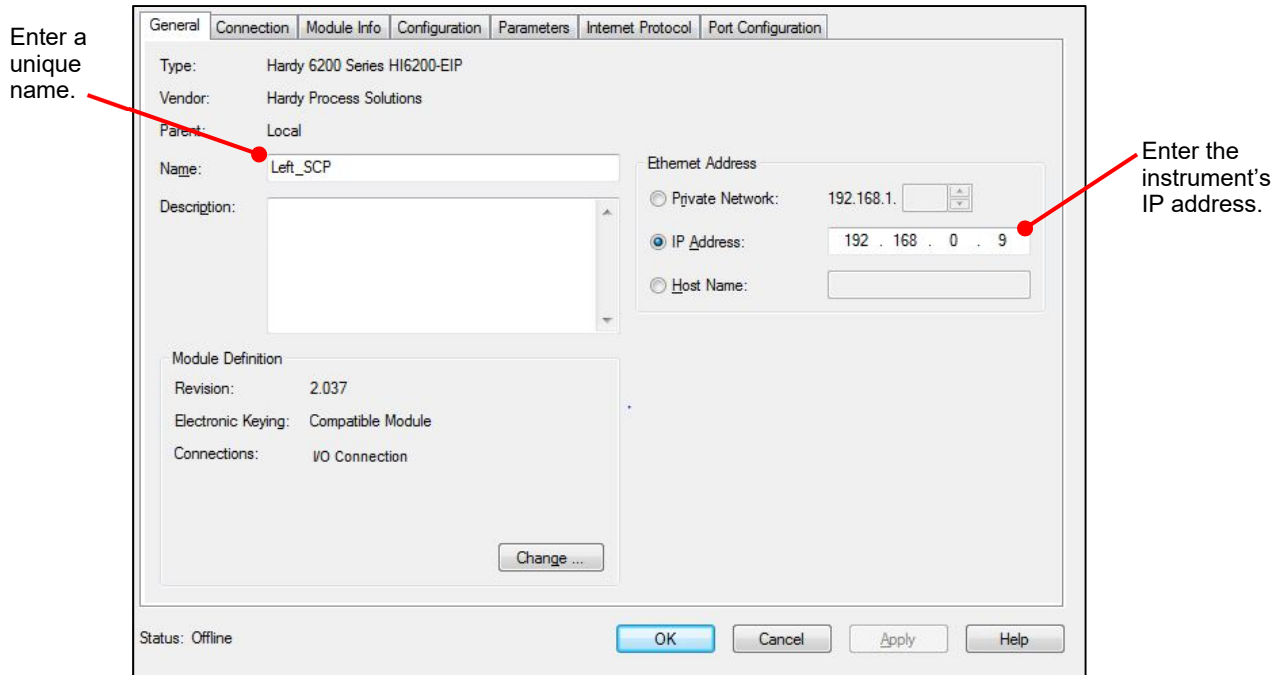
The following procedure describes how to set up communications between the ControlLogix PLC and the HI 6200. This procedure requires a new or open RS Logix® 5000 project. For instructions, see your RS LOGIX 5000 manual.

For this setup example/instructions, use the `EDS_AOP` file. This file is available as a free download from the [Hardy website](#). For information about how to install EDS files, see the Rockwell instructions.

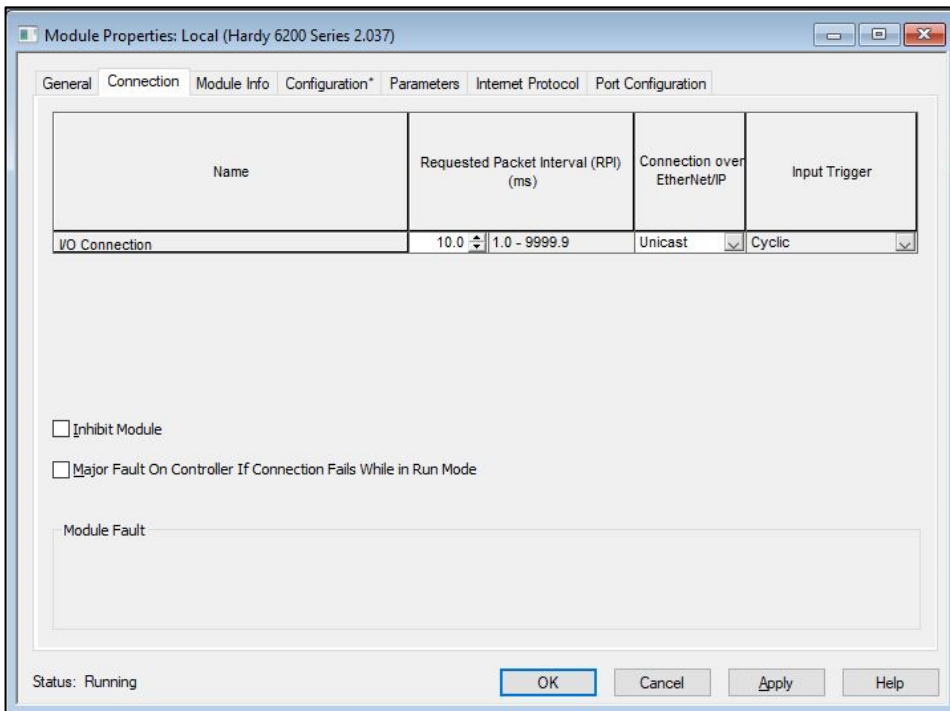
1. In the program Controller Organizer, find the **I/O Configuration** section.
2. Right-click the Ethernet Module under which you will be installing the HI6200-WS module.
3. Select **New Module** to display a list of modules.
4. From the catalog list, select the HI 6200-EIP Series `EDS_AOP` module.

Catalog Number	Description	Vendor	Category
1734-AENT	1734 Ethernet Adapter, Twisted-Pair Media	Allen-Bradley	Communication
Hardy 4000 Series	HI-4050 Weight Controller/Check Weigh	Hardy Process S...	Generic Device(depr
Hardy 6200 Series	HI6200-EIP	Hardy Process S...	Generic Device(keya
Hardy 6500 Series	HI65x0-EIP	Hardy Process S...	Generic Device(keya
Hardy 6600 Series	HI6600-EIP	Hardy Process S...	Generic Device(keya

- Configure the module by entering a unique name and entering the instrument's IP address.



- In the **Connection** tab, make sure the **Requested Packet Interval (RPI)** is set to **10ms**.



7. Click **OK**. The module appears in the controller organizer in the I/O configuration under the **Ethernet** section.
8. Repeat this procedure for any additional modules.

### 4.3.3 Configuration Parameters

Table 4-2 lists the parameters used when configuring the IO. (See an explanation of Parameters in Chapter 5.)

**Table 4-2. IO Parameters**

Configuration Parameters	Data Type
Enable/Disable Configuration	INT
Decimal Point	SINT
Grads	SINT
Unit	SINT
WAVERSAVER	SINT
Num Averages	INT
Loadcell Sensitivity	INT
AutoZero	INT
AutoZero Tolerance	FLOAT
Gravity Correction	FLOAT
Motion Tolerance	FLOAT
Zero Tolerance	FLOAT
Tare Weight	FLOAT
Reference Weight	FLOAT
Span Weight	FLOAT
Scale Capacity	FLOAT

### 4.3.4 Configuration with AOP

Using the `EDS_AOP` file makes configuring the HI 6200 instrument fast and easy.



**Note:** If the configuration is “enabled” in the AOP or configuration table, the configuration table downloads into the instrument every time the connection is established.

1. Open the `Properties` of the `Module` and go to the **Configuration** section.
2. To use the configuration parameters, set the parameter **Enable/Disable Configuration Table** to **Enable**. Otherwise any changes done through the configuration tab will not be applied to the instrument.

ID	Name	Value	Units	Style	Description
* 18	Enable/Disable Config Table	Enable			
19	Motion Tolerance	10.0		Float	Enter Motion Tolerance
20	Zero Tolerance	10.0		Float	Enter Zero Tolerance value
21	Tare Weight	0.0		Float	Enter Tare Weight
22	Ref Weight	0.0		Float	Enter Reference Weight

3. Make any required changes.
4. Click **Apply**. The configuration table is downloaded to the instrument. The instrument then uses the information in the table to set parameters automatically.

### 4.3.5 Modbus

Modbus is an application-layer messaging protocol that supports client/server communications between devices connected on different types of buses or networks. All HI 6200-EIP series units have Modbus TCP built-in (PFN do not). To have the instrument communicate through Modbus-TCP, use the touch screen or web browser to configure the HI 6200 for Modbus TCP.

If you do not have a Modbus PLC available to test the Modbus communications, download the Hardy Modbus-Link client software from the Hardy website to test communications with the HI 6200 instrument. The package communicates with the HI 6200 only and is not a full communications package. If you encounter problems with this test, contact [Hardy Customer Service](#).

Modbus services are specified by function codes that are elements of MODBUS request/reply PDUs. MODBUS is implemented for the HI 6200 using TCP/IP over Ethernet.



In this client/server configuration, the client is the module requesting data and the server is the module providing the data.



**Note:** MODBUS is located at level 7 of the OSI model and accessed at a reserved system port 502 on the TCP/IP stack. It supports communication with up to 10 different hosts (sockets).

#### 4.3.5.1 Configuring MODBUS

1. Download the Hardy Modbus-Link client software:
  - a. Open a web browser on your computer.
  - b. Go to the Hardy website: <http://www.hardysolutions.com>
  - c. Click **Products>Weighing Instruments>Weight Processors>HI 6200**
  - d. Click the **Docs & Programs** tab. Download the Modbus Link Test Program EXE
2. After downloading the client software, double-click the `Hardy Modbus-Link .exe` file to install the software on your computer. When the installation completes, a Hardy Modbus-Link icon appears on your Desktop.
3. Double-click the Hardy Modbus-Link icon to open the Hardy Modbus-Link display (see Figure 4-2).

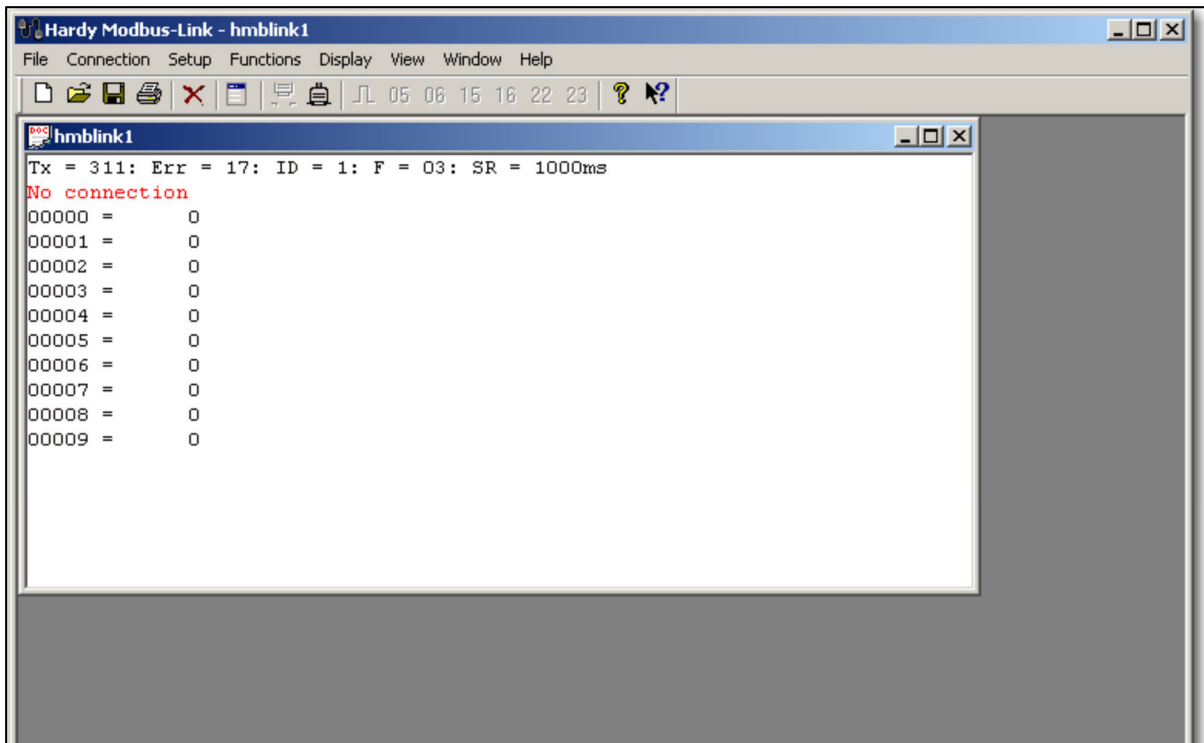
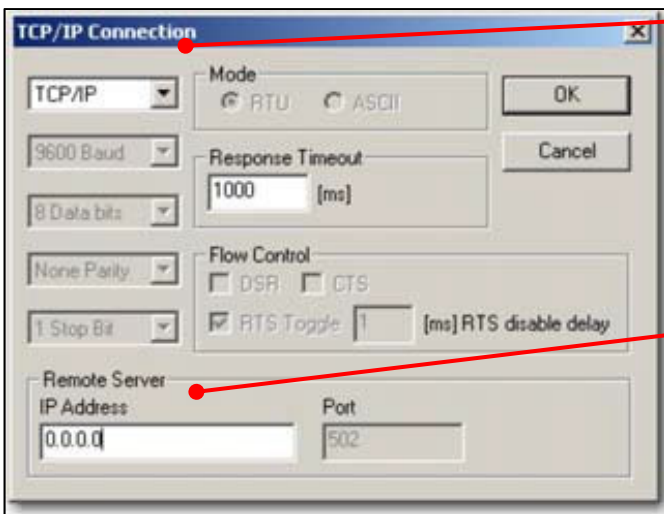


Figure 4-2. Hardy Modbus-Link Display

- From the **Connection** menu, click **Connect**. The TCP/IP Connection dialog box appears.



- If **TCP/IP** is not selected in the top-right field, select it from the pull-down list.
- In the **IP Address** field at the bottom left, type the address of the HI 6200 instrument with which you want to communicate.



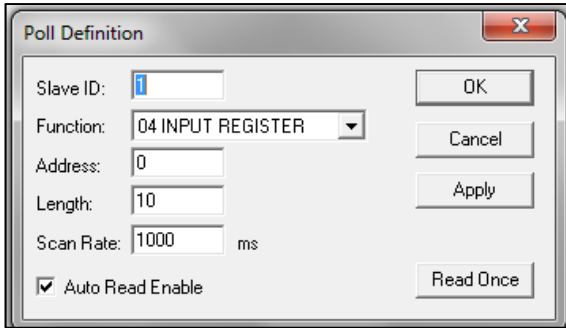
Select **TCP/IP**.

Type the address of the HI 6200 instrument.

- Click **OK**. The red **No Connection** message disappears and the values at the top of the page change. Your computer is now connected to the HI 6200.

```
Tx = 32: Err = 3: ID = 1: F = 03: SR = 1000ms
00000 = 0
00001 = -13952
00002 = 0
00003 = 0
00004 = 0
00005 = 0
00006 = -23593
00007 = 16448
00008 = -23593
00009 = 16448
```

8. From the **Setup** menu, click **Poll Definition**. In the Poll definition dialog box, select the following settings, and then click **OK**:
  - **Function** = 04 INPUT REGISTER
  - **Address** = 0
  - **Length** = 10



9. On the Hardy Modbus-Link page, from the **Display** menu, click **Float**. The Weight value appears in register 6 (net) or register 8 (gross). Other registers are not float values, so be aware of random numbers in other registers.

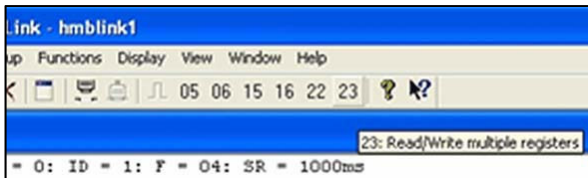
00000	=	-0.0000
00001	=	
00002	=	0.0000
00003	=	
00004	=	0.0000
00005	=	
00006	=	3.0000
00007	=	
00008	=	3.0000
00009	=	

10. From the **Display** menu, click **Long**. This allows you to write an integer value into the non-float registers.
11. From the **Functions** menu, select **Read/Write Registers**:

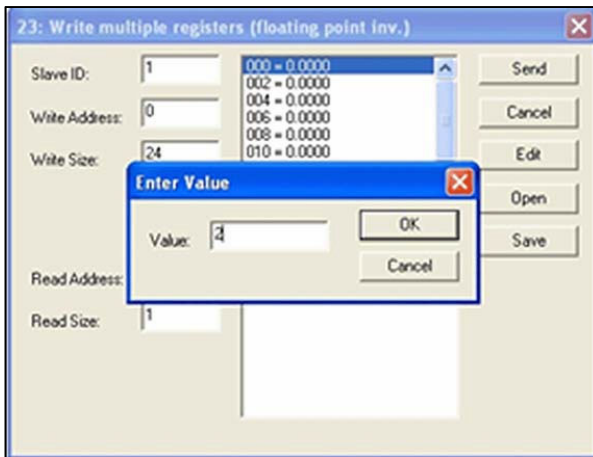


OR

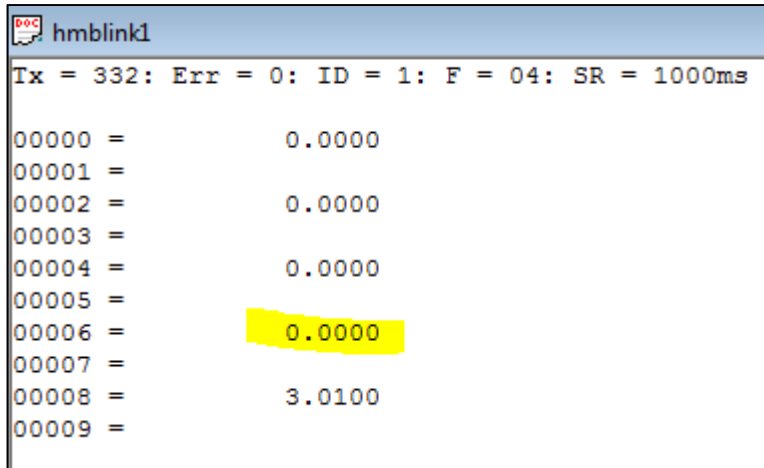
Click button 23 to open the Write multiple registers dialog box



12. Double-click the top register. When the Enter Value box appears, enter the new value you want to write to this register. The following figure shows writing a value of **2**, which is the Tare command number.



13. Click **OK** to accept the value, and then click the **Send** button to send the values to the HI 6200.
14. When the Response OK message appears, click **OK**.
15. Change the display back to Float and confirm that the Tare command changed the Net weight to zero.



```
hmblink1
Tx = 332: Err = 0: ID = 1: F = 04: SR = 1000ms

00000 =      0.0000
00001 =
00002 =      0.0000
00003 =
00004 =      0.0000
00005 =
00006 =      0.0000
00007 =
00008 =      3.0100
00009 =
```

## 4.3.6 PROFINET

PROFINET is a digital industrial network protocol that is used to exchange data between control device and field devices. This protocol is based on Ethernet and it integrates existing fieldbus system like PROFIBUS. The HI 6200 PROFINET version has PROFINET protocol built-in. Use the touch screen or web browser to configure the HI 6200 for PROFINET.

Only the Model # HI6200-WP-10-PFN-000 is available with PROFINET. It must be used with a PROFINET supported PLC and configured using the Siemens TIA Portal (or a functionally equivalent tool). Hardy supplies a .GSD file for use that can be downloaded from the [HI 6200 product](#) page on the Hardy Website

### 4.3.6.1 Configuring PROFINET

- Download the GSD file from Hardy website.

Once the PROFINET controller is configured, use the following steps to configure the HI 6200 as a device in the PROFINET network. Using Siemens TIA Portal, add the HI 6200 as a PROFINET device on the network.

1. Go to menu item “Options”, then “Manage General Station Description files (GSD)”
2. Browse or type in the directory where the HI 6200 PROFINET GSDML file is located

3. Place a check mark in the check box of the HI 6200 GSDML file, if the status shows “Not yet installed”
4. Click “install” and confirm pop up dialog box. This process may take some time
5. Go to the Hardware catalog by clicking the tab on the right side of the window
6. Click on “Other field devices” then:
  - a. “PROFINET IO”
  - b. “I/O”,
  - c. “Hardy Instrument”
  - d. “HI 6200”
  - e. “Hardy 6200 IO”
  - f. Click and drag Hardy 6200 IO device into the network view where the controller is located
7. Click on the blue “Not assigned” text in the Hardy 6200 network object, and select the name of the “PROFINET PLC NAME” given to the network from the drop down.
8. Once added to the network, TIA Portal assigns DCP station names and IP addresses. This could make the PROFINET network run with those default values. To change them, refer to the Siemens manual on how to assign DCP station name and IP address.
9. Click on “Save project” or CTRL+S to save the project
10. From the Device View or Network View, click on the HI 6200 device, then click on Compile button in the main menu bar underneath “Window.”
11. Setup is now complete.

See Section 4.3.7 PLC Commands for the commands used for weighing functions.

### 4.3.7 PLC Commands

The PLC can control the HI 6200 using the commands in Table 4-3. The sections following the table provide detailed descriptions about the commands.

**Table 4-3. Hardy Commands**

Command Number	Command
(0x00)0	<a href="#">Read Parameter</a>
(0x01)1	<a href="#">Zero Cmd</a>

Command Number	Command
(0x02)2	<a href="#">Tare Cmd</a>
(0x64) 100 dec	<a href="#">Cal Low Cmd</a>
(0x65) 101 dec	<a href="#">Cal High Cmd</a>
(0x66) 102 dec	<a href="#">C2 Cal Cmd</a>
(0x80) 128 dec	<a href="#">IT Test</a>
(0x81) 129 dec	<a href="#">Stability Test</a>
(0x82) 130 dec	<a href="#">IT Test</a> (Reduced Voltage)
(0x83) 131 dec	<a href="#">C2 Search</a>
(0x92) 146 dec	<a href="#">Write Value Command</a>
(0x94) 148 dec	<a href="#">Set Default Parameters</a> (all parameters except IP addresses)
(0x95) 149 dec	Set Default Network Parameters (IP addresses only)
(0x97) 151 dec	Save Last Good Configuration to Non-volatile Memory
(0x98) 152 dec	Restore Last Good Configuration from Non-volatile Memory

## READ PARAM CMD

Hex value: 0x00

Decimal value: 0

To read a parameter, write the hexadecimal value 0x00 to the CMD register (register #0), and write the parameter number in the `ParameterID` register of the output table. The parameter value may then be read from the `ParameterValue` register in the input table. This value can be in integer or floating-point format, depending on the parameter. The Command status register in the reply contains the lower 16 bits of the system Command status word.

Status word bit 0:	A/D error
Status word bit 7 (0x80):	Not Found - the requested parameter number does not exist
Status word bit 6 (0x40):	Motion status

## ZERO CMD

Hex value: 0x01

Decimal value: 1

Write the hexadecimal value 0x01 to the command register to zero the gross weight. If this command succeeds, the status register reads 0.

Status Error code 1	Fail
---------------------	------

Status Error code 2	ADC Failure
Status Error code 3	Out of tolerance
Status Error code 4	Motion
Status code FF	cmd in progress

### TARE CMD

Hex value: 0x02

Decimal value: 2

Performing a tare command changes the net weight to “0” and moves the tared value into the “tare weight” parameter. Write the hexadecimal value 0x02 to the command register to zero the net weight. If this command succeeds, the Cmd Status (lower 8 bits of CmdStatusNCount) reads 0.

Status Error code 1	Fail
Status Error code 2	ADC Failure
Status Error code 4	Motion
Status code FF	cmd in progress

### CAL LOW CMD

Hex value: 0x64

Decimal value: 100

Write the hexadecimal value 0x64 to the command register to perform the low step of a traditional calibration. If this command succeeds, the status register reads 0.

Status Error code 1	Fail
Status Error code 2	ADC Failure
Status Error code 4	Motion
Status code FF	cmd in progress

### CAL HIGH CMD

Hex value: 0x65

Decimal value: 101

Write the hexadecimal value 0x65 to the command register to perform the high step of a traditional calibration.

Status Error code 1	Fail
---------------------	------



Status Error code 2	ADC Failure
Status Error code 4	Motion
HardcalFailCounts 8	Insufficient number of counts between hard cal hi and hard cal lo
Status code FF	cmd in progress

### C2 CAL CMD

Hex value: 0x66

Decimal value: 102

Write the hexadecimal value 0x66 to the command register to perform a C2 calibration.

Status Error code 1	Fail
Status Error code 2	ADC Failure
Status Error code 4	Motion
Status Error code 5	no C2 cells
Status Error code 6	C2 capacities not equal
Status Error code 7	Non-Hardy C2 load sensor
Status code FF	cmd in progress

### IT Test

Hex value: 0x80

Decimal value: 128

Write the hexadecimal value 0x80 to the command register to perform an Integrated Technician test. This test requires an IT summing card.

Status Error code 1	Fail or no IT Summing Card Found
Status code FF	cmd in progress

### Stability Test

Hex value: 0x81

Decimal value: 129

Write the hexadecimal value 0x81 to the command register to perform the stability test.

Status Error code 1	Fail
Status code FF	cmd in progress

### IT Test Reduced

Hex value: 0x82

Decimal value: 130

Write the hexadecimal value 0x82 to the command register to perform an Integrated Technician test with reduced voltage. This test requires an IT summing card.

Status Error code 1	Fail or No IT Summing Card Found
Status code FF	cmd in progress

### C2 Search

Hex value: 0x83

Decimal value: 131

Write the hexadecimal value 0x83 to the command register to force the module to search for and read/update C2 data.

Status Error code 1	Fail
Status code FF	cmd in progress

### WRITE CMD

Hex value: 0x92

Decimal value: 146

Set the value of a parameter. Write the hexadecimal value 0x92 in the command register 0, the parameter ID number in the `ParameterID` register, and the desired value in the `ParameterValue` register of the output table.

Status Error code 1	Fail
Status Error code 0x0B	Value out of range too high
Status Error code 0x0C	Value out of range too low
Status Error code 0x0D	Not allowed
Status Error code 0x80	Invalid parameter ID

### Set Default Parameters

Hex value: 0x94

Decimal value: 148

Write the hexadecimal value 0x94 to the command register to set all parameters and calibration back to default settings.

Status Error code 1	Fail
---------------------	------

### Set Default Network Parameters

Hex value: 0x95

### Write to NVM (non-volatile memory)

Hex value: 0x96

### Save Last Good Configuration

Hex value: 0x97

**Table 4-4. Instrument Status Word Bits**

Bit	Description
0	A/D converter error - bad input from the load sensor.
1	A/D converter failure - no output from the converter to the processor.
2	Motion - indicates weight is in motion (changing).
3	Center of Zero
6	Calibration in Progress
7	Error parameter ID Not Found

**Table 4-5. Command Status Return Value**

Return Value	Description
0	Success
1	Fail
2	Fail - ADC error and ADC failure
3	Fail - out of tolerance
4	Fail - motion
5	Fail - no C2 load cells found

Return Value	Description
6	Fail - C2 capacities not equal
7	Fail - non-Hardy C2 load sensor
8	Fail - not enough counts between Cal low and Cal high weights
11	Fail – param value too high
12	Fail – param value too low
13	Fail – not allowed
128	Fail – Parameter ID not found

#### 4.3.7.1 I/O Tables for Communications to PLC

Table 4-6 and Table 4-7 are common for the EtherNet/IP, PROFINET, and Modbus – TCP communication protocols.

**Table 4-6. Output Table**

Output Table	Type
Command	INT
Aux Command Information	INT
Parameter Value	DINT
Parameter ID	INT
Reserved 1	INT
Reserved 2	INT
Reserved 3	INT
Reserved 4	INT
Reserved 5	INT
<b>Total</b>	<b>10</b>

Command, Aux Command Information, Parameter ID, and Parameter Value are used to send commands to the instrument, write new parameter values, read existing parameter values, and read data values. The command is a 16-bit value used for the command string, as shown above in the command section.

The 16-bit Aux Command Information is reserved for future use and is currently not used. This register is ignored if doing a read. The following values are reserved to provide padding:

- Reserved 1
- Reserved 2
- Reserved 3
- Reserved 4
- Reserved 5

**Table 4-7. Input Table**

Input Table	Type
Command Echo	INT
Command Status and Sample Counts	INT
Parameter Value	DINT
Parameter ID	INT
Instrument Status	INT
Net Weight	REAL
Gross Weight	REAL
<b>Total</b>	<b>10</b>

The first four variables in the input table in Table 4-7 — `Command Echo`, `Command Status`, `Parameter ID`, and `Parameter Value` — match closely the first four variables in the output table in Table 4-6.

`Command Echo` echoes the command from the output table. This allows the user to ensure that the correct command has been executed and that the command status value is valid.

`Command Status and Sample Counts` returns the command status of the command being run and a continuous counter that increments to provide a “heartbeat. It counts from 0 – 255 and then repeats. The value returned in the lower byte of the register is the status code for the command. This code is one of the following values:

- A zero indicating the command passed
- A value of 0xFF indicating the command is in process
- An error code indicating the reason the command failed (see Table 4-5).

The upper 8 bits of the register are a cyclic “measurement update count,” which increment by 1 (one) each time a new measurement value is taken, following a 0 to 255 then repeat cycle. If this value remains the same in two consecutive reads from the instrument, the communication or the measurement function has failed and appropriate action must be taken.

Parameter ID is an echo of the value sent in the output table. Parameter Value is the current value for the specified Parameter ID. This parameter value may either be an integer or in floating point format depending on which Parameter ID is specified.

Instrument Status is a 16-bit value that provides the current state of all the major functions within the instrument. They reflect the status of all the major functions and should be used with the “measurement update count” to determine the health of the instrument.

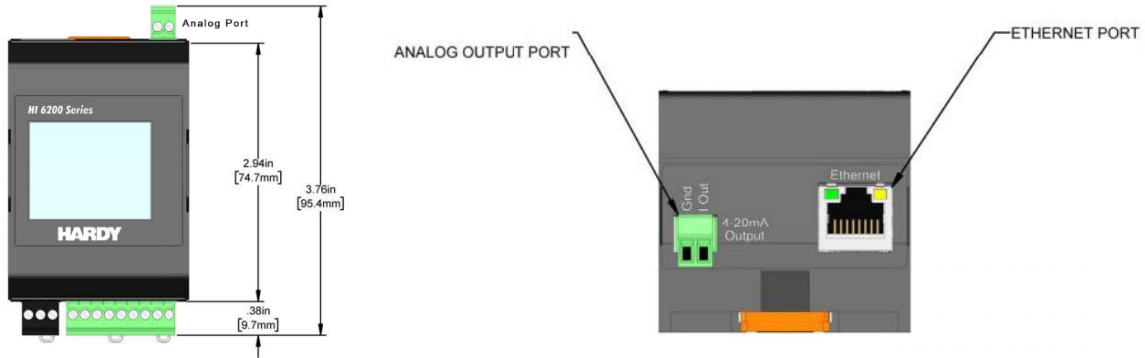
The Net Weight and Gross Weight values are always provided.

### 4.3.7.2 Default Parameter Values

Table 4-8 shows the default parameters values.

**Table 4-8. Default Parameters Values**

Configuration Table	Data Type	Default	Range	Values
Gravity Correction	FLOAT	1.0	0.9-1.1	
Decimal Point	BYTE	2	0-5	
Grad Size	BYTE	0	0-9	0 = 1 1 = 2 2 = 5 3 = 10 4 = 20 5 = 50 6 = 100 7 = 200 8 = 500 9 = 1000
Motion Tolerance	FLOAT	10.0	.00001-999999.99	
Zero Tolerance	FLOAT	10.0	.00001-999999.99	
Tare Weight	FLOAT	0.0		
Reference Weight	FLOAT	0.0	.00001-999999.99	
Scale Cap	FLOAT	999999.0	.00001-999999.99	
Span Weight	FLOAT	1000.0	.00001-999999.99	
AutoZero Tolerance	FLOAT	10.0	0 -999999.99	
Enable AutoZero Tracking	BYTE	0	0-1	0 = off 1 = on
Unit	BYTE	1	0-5	0 = oz 1 = lb 2 = ton 3 = g 4 = kg 5 = t



Configuration Table	Data Type	Default	Range	Values
Load Cell Sensitivity	BYTE	4	0-8	0 = 1.0 mV/V 1 = 1.5 mV/V 2 = 2.0 mV/V 3 = 2.5 mV/V 4 = 3.0 mV/V 5 = 3.5 mV/V 6 = 4.0 mV/V 7 = 4.5 mV/V 8 = 5.0 mV/V
Waversaver	BYTE	3	0-5	0 = Off 1 = 7Hz 2 = 3.5 Hz 3 = 1Hz 4 = 0.5Hz 5 = 0.25Hz
Num Averages	INT	10	1-255	

#### 4.3.8 Analog 4-20 mA (Available on the ANA models only)

The Analog 4-20 mA connector is located at the top of the HI 6200 Analog unit (HI6200-WT-ANA-000) as shown in the illustrations below.

*The HI 6200 Analog Port is located on the top of the unit.*

The analog 4-20mA output is directly proportional to a programmed gross or net amount by setting the low value equal to 4mA and the high value equal to 20mA. These values are found in the communication section and can be set from either the display or the web interface.

- Step 1. Select the source for the 4 to 20mA output, the default is GROSS.
- Step 2. Set the 4mA value, typically zero.
- Step 3. Set the 20mA value, typically full scale of the sensor or summed sensors.
- Step 4. Save Parameters

For troubleshooting or diagnostics, the 6200 features the ability to force an output value by selecting MANUAL as the Weight Source setting and entering a value equal to or between 4mA and 20mA.

- Step 1. Select MANUAL as the source for the 4 to 20mA output.
- Step 2. Set the 4mA value Output value.
- Step 3. Save Parameters.



## 5 SETTING SCALE PARAMETERS

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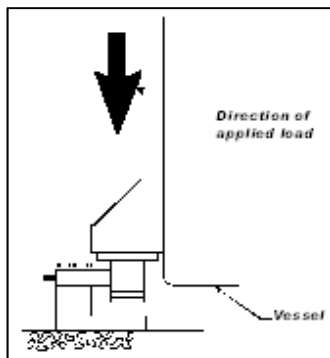
**Topics:**

- ^ *Pre-Calibration Procedures*  
(page 58)
- ^ *Calibration Setup Procedures*  
(page 59)
- ^ *Calibrating the Scale* (page  
63)

This chapter provides the recommended calibration procedure for the HI 6200 Weight Processor. For the instrument to work properly, it must be calibrated prior to operation, and then verified periodically or when not in use for extended periods of time. We recommend a scale verification rather than a calibration. Be sure to follow all the procedures completely to ensure that the weights read by the instrument are accurate.

## 5.1 Pre-Calibration Procedures

1. Determine whether the load sensors are installed properly. See your load sensor's installation manual for proper installation instructions.
2. A down arrow on some sensors and cells shows the correct direction of the applied load. If the arrow points in the wrong direction, reposition the load sensor so the arrows face down.



3. Check for binding on the load sensor, mount, or other parts of the weighing system.



**WARNING: BINDING ON A SCALE/VESSEL OR LOAD CELL DOES NOT ALLOW THE LOAD SENSOR FREE VERTICAL MOVEMENT AND MAY PREVENT THE INSTRUMENT FROM RETURNING TO THE ORIGINAL ZERO REFERENCE.**



**AVERTISSEMENT: LIER SUR UNE ÉCHELLE / RÉCIPIENT OU CELLULE DE CHARGE NE PERMET PAS LA CELLULE DE CHARGE LIBRE CIRCULATION VERTICALE ET PEUT EMPÊCHER L'APPAREIL DE REVENIR AU POINT DE RÉFÉRENCE ZÉRO D'ORIGINE.**

4. Load sensors must be mounted so that 100% of the load (Vessel w/Contents) passes vertically through all the sensors comprising the system. Verify that nothing is binding the load sensors. This means that nothing is draped across the scale/vessel or the load sensor, such as a hose, electrical cord, tubes, or other objects.
5. Verify that nothing is in contact with the scale/vessel other than service wires and piping that have been properly mounted with flexible connections. Flexible pipes are not to be used in any other than the horizontal plane and are not to be used to correct pipe alignment problems. Vertical or at angles other than horizontal will have a negative effect on the scale's ability to repeat and provide accurate weight readings.

## 5.2 Calibration Setup Procedures

### 5.2.1 Unit of Measure

The unit of measure can be set to ounces, pounds, tons, grams, kilograms, or metric tons. Any weight value input to the module (for example, REFERENCE WEIGHT, SPANWEIGHT) is in the currently selected units. The unit of measure can be set at any time, not just at calibration. Setting the unit of measure before calibrating reminds you what unit of measure is being displayed.



**Note:** The weigh scale module does not need to be calibrated again after changing the unit of measure.

### 5.2.2 Motion Tolerance

Motion Tolerance defines the amount the weight reading needs to change in a 1 second period of time to make the scale go into MOTION status. If the change over the last 1 second is less than the Motion Tolerance, the scale will not indicate in motion. “Motion Indicate” means the weight on the scale is currently changing. The scale cannot be calibrated, tared, or zeroed while in motion.

### 5.2.3 Zero Tolerance

Zero Tolerance sets the range of weights so that the Zero Command works as an offset of the calibrated Zero. The amount of weight zeroed off is cumulative. The zero command fails if the current gross weight plus any previously zeroed amount exceeds the Zero Tolerance.

### 5.2.4 Auto Zero Tracking

Auto Zero Tracking adjusts for zero weight automatically. This capability allows the module to ignore material build-up in the weighing system within a preset auto zero tolerance. For auto zero to work, the current gross weight must be within the auto zero tolerance. The current gross, plus any previously zeroed weight must be within the Zero Tolerance level value and the scale must not be in motion. Zero This is not used in all applications and should be reviewed before use.

Track Enable either enables the Auto Zero tracking if on or disables the Auto Zero if off.



**Note:** The amount of weight zeroed off is cumulative. The Auto Zero command will not run if the current gross weight plus any previously zeroed amount exceeds the zero tolerance value.

### 5.2.5 Auto Zero Tolerance

When Auto Zero Tolerance is entered and Auto Zero Tracking is enabled, any weight within the entered tolerance of zero and not in motion causes the display to read zero automatically.

The amount of weight zeroed off is cumulative. The auto zero command does not run if the current gross weight plus any previously zeroed amount exceeds the zero tolerance or if the scale is in motion.

### 5.2.6 Number of Averages

Number of Averages sets the number of weight readings used to compute the displayed weight. The average is a sliding average so that a new average reading is available for display at every reading. Setting a very high Number of Averages AND a high WAVERSAVER setting may slow system performance.

### 5.2.7 Span Weight

Span Weight is a calibration high reference point derived from an actual measured weight. Do not confuse Span Weight with the Scale Capacity. If you place a 100 pound weight on the scale, the Span Weight would be 100 pounds.

### 5.2.8 Ref Weight

Ref Weight is a calibration low or C2 Cal reference point derived from an actual measured weight, normally zero.

### 5.2.9 Gravity Correction

Objects weigh about 0.5% less at the equator than they weigh at each pole because the force of gravity is less at the equator than at the poles. An object weighing 100 pounds at the North Pole on a spring scale, for example, weighs 99.65 pounds at the equator. Depending on the latitude of your location, your scales measure in between.

Table 5-1 shows the gravitation correction factor for a few cities around the world.



**Note:** Make sure the scale system is clean and ready to receive product. This step establishes the gross zero reference. You must perform a C2 calibration after setting the Gravity Correction; otherwise, the correction factor will not work.

In general, if your location is between the 45th parallel and the equator, gravity correction is greater than 1.0. For example, you add 1.0006 for an error that is .06% because gravity is

less at these latitudes. For locations between the 45th parallel and the North or South Pole, your correction factor is less than 1.0 (for example, .9994 for an error that is -.06%).

Gravity Correction compensates for an object weighing less at the equator than at the North or South Pole. This allows you to enter the correction factory for your location and apply it to your C2 calibration. This is not used for the hard calibration.

**Table 5-1. Gravitation Correction Factor for Selected Cities**

City	Gravity Acceleration	City	Gravity Acceleration	City	Gravity Acceleration
Amsterdam	0.999369	Istanbul	1.000406	Paris	0.999048
Athens	1.000684	Havana	1.001872	Rio de Janeiro	1.001884
Auckland, NZ	1.000782	Helsinki	1.001405	Rome	1.000326
Bangkok	1.002392	Kuwait	1.001405	San Francisco	1.000702
Brussels	0.999503	Lisbon	1.000615	Singapore	1.00269
Buenos Aires	1.001004	London	0.999445	Stockholm	0.99877
Calcutta	1.00191	Los Angeles	1.001028	Sydney	1.00104
Cape Town	1.00104	Madrid	1.000461	Taipei	1.001741
Chicago	0.99922	Manilla	1.000461	Tokyo	1.000886
Copenhagen	0.999075	Mexico City	1.002102	Vancouver, BC	0.999653
Nicosia	1.00093	New York	1.000433	Washington, DC	1.000601
Jakarta	1.002631	Oslo	0.998726	Wellington, NZ	0.999399
Frankfurt	0.999579	Ottawa	1.000007	Zurich	0.999821

### 5.2.10 Tare Weight

Tare weight is the amount of weight tared off with the last tare command or the amount you entered. The tare weight equals the difference between the net and gross weight readings.

### 5.2.11 WAVESAVER®

There are six selectable levels. 0 provides no vibration immunity with the fastest response time, while 5 provides the most vibration immunity with the slowest response time. Default setting is 3.

Table 5-2. WAVESAVER® Levels

Immunity	Setting
Off	0
7.5 Hz	1
3.5 Hz	2
1.0 Hz	3 (default)
0.50 Hz	4
0.25 Hz	5



**WARNING: BINDING ON A SCALE/VESSEL OR LOAD CELL CAN DENY THE LOAD CELL FREE VERTICAL MOVEMENT AND PREVENT THE INSTRUMENT FROM RETURNING TO THE ORIGINAL ZERO REFERENCE POINT.**



**ATTENTION: LIEU SUR UNE ÉCHELLE / UN BATEAU OU UNE CELLULE DE CHARGE PEUT ENDOMMAGER LE MOUVEMENT VERTICAL LIBRE DE LA CHARGE DE CHARGE ET ÉVITER L'INSTRUMENT DE RETOURNER AU POINT DE RÉFÉRENCE ZERO ORIGINAL.**

## 5.3 Calibrating the Scale

### 5.3.1 C2® Calibration

1. Navigate to the C2 menu.
2. Make sure the number of load cells in the Num Devices menu corresponds to the actual number of C2 devices installed. If the number varies, check that each load cell/point cable connection is fastened securely and that each load cell/point cable is not broken. Only Hardy Process Solutions load sensors are capable of C2 (or eCal) calibration.
3. In the **Ref Weight** text field, enter the reference weight for your application. An empty scale will use a 0.00 reference weight setting.
4. Enter the **Gravity Correction Factor** (see the table above), and then enter the Correction Factor number you selected from the table in the **Gravity Correction** field that best corresponds to your location.
5. Click the **Do C2 Calibration** button. Wait for the results to appear.
6. If the calibration succeeds, **Cal completed OK** appears and the gross weight will read your reference value. If the Calibration fails, make sure C2 load cells are being used and are connected properly. If the system uses one or more non-C2 load cells, calibrate using a traditional calibration (Hard Cal) process. For more information, see Chapter 6 for troubleshooting suggestions.
7. Click the **Back** button in your web browser or on the front panel display to return to the main Calibration menus.

### 5.3.2 Hard Calibration

Hard calibration is the calibration method that uses test weights. We recommend that the span total 80 to 100% of the scale live load capacity and the weights be distributed uniformly on/in the scale. Put a load (weight) on the scale or vessel. For a full load test, you can put 80% to 100% of the expected weight you will see in your process on the scale or vessel.

1. Navigate to the HARD CAL menu.
2. Make sure the weight reading changes on the display changes in the proper direction. For example, if the display reads 100 pounds when a 20-pound load is placed on the vessel or scale, the display should read 120 or other greater value over 100.
  - If the display reads 80 pounds after a 20-pound load is placed on the vessel or scale, the reading is going in the wrong direction and indicates some problem with the system. See Chapter 6 for corrective action.
  - If the display changes in the proper direction, remove the weight, and then calibrate the HI 6200.

## 6 TROUBLESHOOTING

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**Topics:**

- ^ *Troubleshooting Table (page 65)*
- ^ *Weighing System Test (page 66)*
- ^ *Electrical Check Procedures (page 66)*

In the unlikely event of a problem with the HI 6200, use the information in this chapter to identify and resolve the problem.



## 6.1 Troubleshooting Table

Table 6-1 lists possible problems that can occur with the HI 6200, their cause, and their resolution.

**Table 6-1. Troubleshooting Table**

Name/Code #	Definition	Action
Command Success command Status 0	Command passed	None
Command fail Command Status 1	Command Failed. Applies to pass/fail commands like C2 Search	Command specific. Reevaluate the command and conditions.
ADC Convert error Command status error 2 Statusword bit 0	Load Cell input out of range (i.e., voltage not 0-15 mV and flashing red LED will display).  Can result from overloaded or mismatched load cell. In this state weight readings do not respond to changes.  May also be caused with a wiring issue like broken/loose wire or mis-wired (reversed)	Check the voltage levels to the module from each load cell. +5 V for excitation and sense lines and 0-15 mV on signal lines. If voltage is bad, disconnect each one at the summing box to find a problem load cell.
Statusword, bit 1 AC Convert Failure	Output from the A/D converter to processor is bad. The module shows a solid red LED.	Contact Tech Support or request an RMA# to return module for evaluation/repair
Statusword bit 2 Status Motion Command status error 4	The rate of scale weight change over 1 second exceeds the motion tolerance setting. If the setting is too low, motion may be indicated when no changes occur.	If the weight is changing, stabilize it. If not, increase the motion tolerance setting until the motion bit goes off with static weight.
Statusword bit 3 EEPROM write error	Module cannot write (save settings) to non-volatile memory. EEPROM is probably bad.	Contact Tech Support or request an RMA# to return module for evaluation/repair
Statusword bit 4 Status Center Zero	Indicates the gross weight is reading at the calibration zero point.	None
Statusword bit 6 In Progress Command Status 0xFF	Command is in progress.	None
Statusword bit 7 not found Command Status 0x80	The parameter ID is invalid	Correct the parameter ID
Command Status 5 No C2	When trying to perform a C2 calibration, the module cannot read the data from the load cells.	Check the wiring to ensure proper connections and orientation. Find the problem load cell by disconnecting them at the summing box.
Command Status 6 C2 Capacities not equal	C2 load cells have unequal capacities due to using mismatched load cells or faulty C2 programming.	Verify each load cell is correct per the spec sheet delivered with the cell.

Name/Code #	Definition	Action
Command Status 7 C2 clones	C2 load cell has a non-Hardy C2 load cell.	Verify the use of Hardy load cells.
Command Status 8 Hard Cal Fail Counts	Too few A/D counts between zero and span points during hard calibration. Input must change by a minimum amount between the cal low and cal high points.	Add weight to the scale and see if readings increase. Check voltages as in ADC Convert Error.
Command Status 0x0B (11 dec)	Value is set too high.	Verify the value is within the tolerance for the parameter being written to. Verify the parameter ID is the correct ID for the parameter you wish to write to.
Command Status 0x0C (12 dec)	Value is set too low.	Verify the value is within the tolerance for the parameter being written to. Verify the parameter ID is the correct ID for the parameter to which you want to write.
Command Status 0x0D (13dec)	Value is not allowed.	Check for proper Parameter ID and value entered. Ensure it is not a read-only Parameter,

## 6.2 Weighing System Test

The Weighing System test diagnoses drifting or unstable weight-reading problems. For full utilization, this test requires the HI 6020IT or the HI 6010IT Series Junction Box.

The Weighing System Test achieves this by:

- Disconnecting the load sensors and engaging a reference internal to the junction box to determine whether the cable between the instrument and the Junction Box is causing the problem.
- Reading the weight of each load sensor to see whether the load sensor is causing the problem.
- Reading the weight seen by each individual load sensor, and then making appropriate cornering, leveling, and load-sharing adjustments to the weighing system.

## 6.3 Electrical Check Procedures

### 6.3.1 Load Sensor/Point Input/Output Measurements

The HI 6200 supplies up to 5 VDC excitation to as many as eight 350-Ohm load cells/points per channel. The expected output from each load cell/point depends on the mV/V rating of the load cell/point and the weight.

For example, a 2mV/V load sensor responds with a maximum of 10 mVDC at the load sensor's full weight capacity, which includes the weight of the vessel and the weight of the product as measured by the load cell/point. Consequently, if the load sensor's weight capacity is rated at 1000 pounds, the load sensor will be 10 mVDC at 1000 pounds, 7.5 mVDC at 750 pounds, 5 mVDC at 500 pounds and so on.

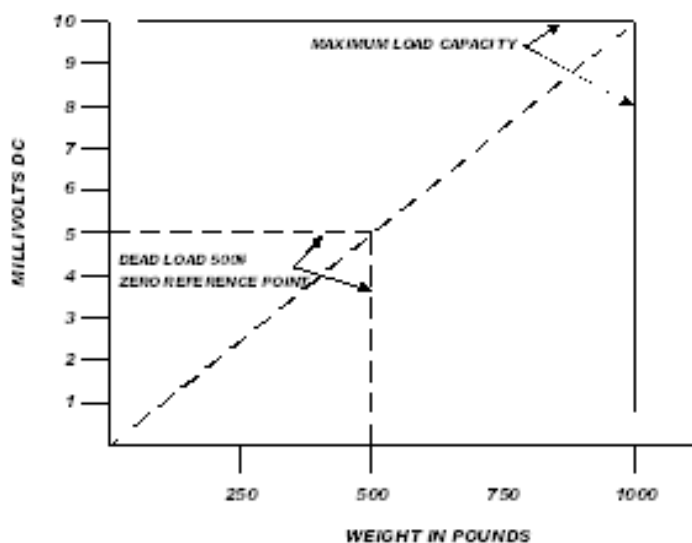
A zero reference point will vary from system to system, depending on the "Dead Load" of the vessel. "Dead Load" is the weight of the vessel and appurtenances only, with no product loaded. In our example, we will assume the dead load to be 500 pounds.



**Note:** The operating range for the scale in this example is 5-10 mVDC, with a 500 pound weight range. After zeroing the instrument, the 0 reading refers to the zero reference point and not absolute 0 mVDC or absolute 0 weight.



**Note:** Load sensor measurements are checked with a digital voltmeter at the load cell connector on the front of the module or by using INTEGRATED TECHNICIAN with a Hardy IT Junction Box. The scale calibration must be completed to enable IT to work properly.



### 6.3.2 Load Check

Place a load (weight) on the scale or vessel, and check that the weight reading on the input table changes in the proper direction.

For example, if the display reads 100 pounds and a 20-pound weight is placed on the vessel or scale, the display should read 120 or some value over 100. With the display reading 100

pounds, if a 20-pound load is placed on the vessel or scale and the reading is 80 pounds, the reading is going in the wrong direction and indicates a problem with the system.

If the display reads improperly or shows no change, something is wrong with the setup. If the display changes weight in the proper direction, remove the weight and proceed to calibrate the instrument. Refer to Table 6.1 for help determining the cause of the poor weight reading.

## 7 HARDY INSTALLATION AND COMMISSIONING

Hardy delivers on its reputation as a quality manufacturer of weighing equipment. Hardy solutions are EASY to install, integrate, commission, diagnose and maintain. Our customers find that this simplicity delivers the lowest total cost of ownership.

To ensure the best performance of Hardy products, we recommend that you add Hardy Installation to your product purchase. Great products without a quality installation risk long-term performance and availability, and Hardy has a broad network of trained service agents to perform, inspect, and commission new installations.

Hardy offers preferred rates for new installations and we guarantee that the installation will be done correctly the first time. Plus, with the use of the Hardy Toolbox features like C2<sup>®</sup> Electronic calibration, Hardy Technicians spend less time onsite than the competition, saving you cost and downtime.

For a fast and easy installation quote, please contact one our service specialists at 800-821-5831 option 4, or email us at [hardysupport@hardysolutions.com](mailto:hardysupport@hardysolutions.com).

### 7.1 Emergency Service and Support

Even with the highest quality equipment, failures can happen without warning. The question isn't "if" this will happen, but how prepared you are to rectify the situation "when" the unexpected happens.

Hardy Field Service Technicians are located nationwide to ensure the fastest response to your unplanned downtime, and our emergency after-hours mailbox is checked constantly to prevent customers experiencing a downtime event from having to wait until morning.

For rapid turnaround service, contact one our service specialists at: 800-821-5831 option 4.



Figure 7-1. Hardy Support Locations Throughout the United States

## APPENDIX A - SPECIFICATIONS

### A.1 General Specifications

Specification	Description
Channels:	1
Conversion rate:	100 updates per second
Resolution internal:	1:8,388,608
Input:	Up to eight (8) 350 ohm Full Wheatstone Bridge, Strain Gauge Load Sensors/Cells (5 volt excitation) on one scale (using two junction boxes with a TB-10 connector)
Non-linearity:	0.001% of full scale
WAVERSAVER:	User-selectable: <ul style="list-style-type: none"> <li>• Off</li> <li>• 7.50 Hz</li> <li>• 3.50 Hz</li> <li>• 1.00 Hz (default)</li> <li>• 0.50 Hz</li> <li>• 0.25 Hz</li> </ul>
Averages:	1-255 user selectable in single increments
Electrical ratings:	EIP & ANA: 24 VDC Class 2 Input Power Supply, 2.5 W Nominal PROFINET: 24 VDC Class 2 Input Power Supply, 3.5 W Nominal
Output:	5 VDC, 120mA
Cable lengths:	250 feet maximum of C2 authorized cable (maximum of 8 load sensors) with IT Junction box(s)
Load cell excitation:	5 VDC
Isolation from digital section:	1000 VDC minimum
C2 <sup>®</sup> calibration output:	Isolation from digital section 1000 VDC minimum
Temperature drift:	Less than 0.0004% of full scale per degree C for Cal- LO and Cal-HI reference points

## A.2 Environmental Requirements

Requirement	Description
Operating temperature range:	-10°C to 60°C (-4°F to 140°F) EIP & ANA -10°C to 50°C (-4°F to 122°F) PROFINET
Maximum operating ambient:	55°C (131°F) EIP & ANA; 50°C (122°F) PROFINET
Storage temperature range:	-40°C to 85°C (-40°F to 185°F)
Humidity range:	0-90% (non-condensing)
Approvals:	UL, CUL Ordinary Location CE Class I, Division 2 Groups A, B, C and D, Temp Code T5 (see note) OVDA Level III (EIP Versions) PROFINET CC-A (Conformance Class A) with one port RoHS - REACH

### Note: Regarding Use in Hazardous Locations

SUITABLE FOR USE IN Class I, Division 2, Groups A, B, C and D; Hazardous Locations OR NONHAZARDOUS LOCATIONS ONLY.

THIS EQUIPMENT IS AN OPEN-TYPE DEVICE AND IS TO BE INSTALLED IN AN ENCLOSURE SUITABLE FOR THE ENVIRONMENT AND ACCESSIBLE ONLY WITH USE OF A TOOL.

- WARNING - EXPLOSION HAZARD - DO NOT DISCONNECT EQUIPMENT WHILE THE CIRCUIT IS LIVE OR UNLESS THE AREA IS KNOWN TO BE FREE OF IGNITABLE CONCENTRATIONS.



## APPENDIX B - LIST OF PARAMETER IDS

### B.1 Read/Write Parameters

Parameter	Hex Value
Units	0x2881
Waversaver	0x2081
NumAverages	0x2082
ZeroTolerance	0x2886
AutoZeroTolerance	0x6302
AutoZeroState	0x6301
MotionTolerance	0x2887
SpanWeight	0x4182
RefWeight	0x4101
GradSize	0x2883
Decimal Point	0x2882
Scale Capacity	0x2888
Sensitivity	0x4081
Gravity Correction	0x4102
Tare Weight	0x6183
Cal Year	0x4202
Cal Month	0x4203
Cal Day	0x4204
Multi-Point Calibration: Number of Cal Points	0x4183
Point 1	0x4184
Point 2	0x4185
Point 3	0x4186
Point 4	0x4187
Point 5	0x4188

### B.2 Diagnostic Write Parameters

Parameter	Hex Value
IT_NUMSENSORS JBOX 1	0x498D
IT_NUMSENSORS JBOX 2	0x498E

### B.3 IT Test Diagnostic Parameters

Parameter	Hex Value
IT WEIGHT CHANNEL 0	0x4990
IT WEIGHT CHANNEL 1	0x4991
IT WEIGHT CHANNEL 2	0x4992
IT WEIGHT CHANNEL 3	0x4993
IT WEIGHT CHANNEL 4	0x4994
IT WEIGHT CHANNEL 5	0x4995
IT WEIGHT CHANNEL 6	0x4996
IT WEIGHT CHANNEL 7	0x4997
IT MV/V CHANNEL 0	0x49A0
IT MV/V CHANNEL 1	0x49A1
IT MV/V CHANNEL 2	0x49A2
IT MV/V CHANNEL 3	0x49A3
IT MV/V REF 1	0x49A8
IT MV/V CHANNEL 4	0x49A4
IT MV/V CHANNEL 5	0x49A5
IT MV/V CHANNEL 6	0x49A6
IT MV/V CHANNEL 7	0x49A7
IT MV/V REF 2	0x49A9
IT RAW VARIATION CHANNEL 0	0x49B0
IT RAW VARIATION CHANNEL 1	0x49B1
IT RAW VARIATION CHANNEL 2	0x49B2
IT RAW VARIATION CHANNEL 3	0x49B3
IT RAW VARIATION REF 1	0x49B8
IT RAW VARIATION CHANNEL 4	0x49B4
IT RAW VARIATION CHANNEL 5	0x49B5
IT RAW VARIATION CHANNEL 6	0x49B6
IT RAW VARIATION CHANNEL 7	0x49B7
IT RAW VARIATION REF 2	0x49B9
IT WEVERSAVER VARIATION CHANNEL 0	0x49C0
IT WEVERSAVER VARIATION CHANNEL 1	0x49C1
IT WEVERSAVER VARIATION CHANNEL 2	0x49C2
IT WEVERSAVER VARIATION CHANNEL 3	0x49C3

**APPENDIX B - List of Parameter IDs**

<b>Parameter</b>	<b>Hex Value</b>
IT WAVERSAVER VARIATION REF 1	0x49C8
IT WAVERSAVER VARIATION CHANNEL 4	0x49C4
IT WAVERSAVER VARIATION CHANNEL 5	0x49C5
IT WAVERSAVER VARIATION CHANNEL 6	0x49C6
IT WAVERSAVER VARIATION CHANNEL 7	0x49C7
IT WAVERSAVER VARIATION REF 2	0x49C9
IT RAW VARIATION RESULT CHANNEL 0	0x49D0
IT RAW VARIATION RESULT CHANNEL 1	0x49D1
IT RAW VARIATION RESULT CHANNEL 2	0x49D2
IT RAW VARIATION RESULT CHANNEL 3	0x49D3
IT RAW VARIATION RESULT REF 1	0x49D8
IT RAW VARIATION RESULT CHANNEL 4	0x49D4
IT RAW VARIATION RESULT CHANNEL 5	0x49D5
IT RAW VARIATION RESULT CHANNEL 6	0x49D6
IT RAW VARIATION RESULT CHANNEL 7	0x49D7
IT RAW VARIATION RESULT REF 2	0x49D9
IT WAVERSAVER VARIATION RESULT CHANNEL 0	0x49E0
IT WAVERSAVER VARIATION RESULT CHANNEL 1	0x49E1
IT WAVERSAVER VARIATION RESULT CHANNEL 2	0x49E2
IT WAVERSAVER VARIATION RESULT CHANNEL 3	0x49E3
IT WAVERSAVER VARIATION RESULT REF 1	0x49E8
IT WAVERSAVER VARIATION RESULT CHANNEL 4	0x49E4
IT WAVERSAVER VARIATION RESULT CHANNEL 5	0x49E5
IT WAVERSAVER VARIATION RESULT CHANNEL 6	0x49E6
IT WAVERSAVER VARIATION RESULT CHANNEL 7	0x49E7
IT WAVERSAVER VARIATION RESULT REF 2	0x49E9
IT RTZ CHANNEL 0	0x49F0
IT RTZ CHANNEL 1	0x49F1
IT RTZ CHANNEL 2	0x49F2
IT RTZ CHANNEL 3	0x49F3
IT RTZ CHANNEL 4	0x49F4
IT RTZ CHANNEL 5	0x49F5
IT RTZ CHANNEL 6	0x49F6

Parameter	Hex Value
IT RTZ CHANNEL 7	0x49F7
IT RTZ COMBINED	0x498C

## B.4 Stability Test Parameters

Parameter	Hex Value
STABILITY RAW MEAN	0x4901
STABILITY WAVERSAVER MEAN	0x4903
STABILITY RAW VARIATION	0x4902
STABILITY WAVERSAVER VARIATION	0x4904
STABILITY RAW VARIATION RESULT	0x4905
STABILITY WAVERSAVER VARIATION RESULT	0x4906

## B.5 Read-Only Parameters

Parameter	Hex Value
GrossWeight	0x6081
NetWeight	0x6082
ADC_Counts	0x4907
ADC_CountsRaw	0x4908
CalLowCounts	0x4085
CalHighCounts	0x4087
ZeroCounts	0x2889
CalZeroCounts	0x4084
Cal Type	0x4001
NUMBER C2 SENSORS	0x4103
NUMBER IT J-BOXES	0x4881
FirmwareRevision	0x7985

## APPENDIX C - FREQUENTLY ASKED QUESTIONS

---

**Q1** What is the HI 6200 default IP address?

**A** The default IP address is 192.168.0.100.

---

**Q2** What are common filter settings to use?

**A** Settings are application dependent; however, 1.0hz and 10 averages are common settings.

---

**Q3** Where can I find my weight readings in the PLC?

**A** The gross and net weight is displayed in the PLC input table.

[-] EIP_6200:I	{...}		_0102
[-] EIP_6200:I.ConnectionFaulted	0	Decimal	BOOL
[+] EIP_6200:I.Command_Echo	0	Decimal	INT
[+] EIP_6200:I.Command_Status	0	Decimal	INT
[+] EIP_6200:I.Parameter_Value	0	Decimal	DINT
[+] EIP_6200:I.Parameter_ID	0	Decimal	INT
[+] EIP_6200:I.Instrument_Status	0	Decimal	INT
[-] EIP_6200:I.Net_Weight	0.0	Float	REAL
[-] EIP_6200:I.Gross_Weight	72.553	Float	REAL

---

**Q4** How do I perform C2 calibration with a PLC?

**A** C2 calibration is commanded with the hexadecimal value 0x66 in the PLC output table.

<input type="checkbox"/> EIP_6200:O	{...}		_010
<input checked="" type="checkbox"/> EIP_6200:O.Command	▼ 16#0066	Hex	INT
<input checked="" type="checkbox"/> EIP_6200:O Aux Command Information	0	Decimal	INT

**Q5** How do I perform an IT test?

**A** You perform IT tests using the webserver or with the hexadecimal value 0x80 in the PLC output table followed by a READ PARAM command to read individual parameter IDs.

**Q6** What do “0x” and “16#” mean?

**A** 0x and 16# are used interchangeably to signify a hexadecimal value.

**Q7** Can I change my parameters through the “C” configuration tags?

**A** Yes, but changes only take effect when the config table is enabled and the connection is cycled.

## A

Admin menu, 64  
Auto zero tolerance, 60  
Auto zero tracking, 59

## C

C2® electronic calibration, 12  
Calibration  
    setup procedures, 59  
Climatization, 17  
Commands for PLC, 46  
Configuration  
    minimum procedures, 24  
    restoring from last-known good parameters, 35  
    saving last-known good parameters, 33  
Conventions in this document, 8

## D

Diagnostic write parameters, 73  
Document conventions, 8

## E

EDS\_AOP file  
    configuration, 40  
EIP, 37  
    I/O tables, 52  
Electrical check procedures, 66  
Electrical interference, 18  
Emergency service and support, 69  
Environmental requirements, 72

## F

Features, 12  
Frequently asked questions, 77

## G

General specifications, 71  
Gravity correction, 60

## H

Handling precautions, 17  
Hardy  
    field service, 14  
    installation and commissioning, 69  
Hardy support Locations, 70  
HI 6200  
    climatization, 17  
    features, 12  
    handling precautions, 17  
    initial setup, 24  
    installation, 13  
    models, 11  
    mounting, 19  
    overview, 10  
    power on, 22  
    unpacking, 16  
    wiring, 21  
HI 6200 setup  
    EIP, 37  
    embedded webserver, 29  
    touch screen, 27

## I

I/O tables for MODBUS, 52  
Initial setup, 24  
    EIP, 37  
    embedded webserver, 29  
    touch screen, 27  
installation and commissioning, 69  
Installing the HI 6200, 13

INTEGRATED TECHNICIAN, 12

Interference, 18

**L**

Last-known good parameters

restoring, 35

saving, 33

Load check, 67

Load sensor/point input/output measurement, 66

Locations of Hardy support, 70

**M**

Menus

admin, 64

Minimum configuration procedures, 24

Modbus

configuring, 41

Modbus TCP, 40

MODBUS TCP

I/O tables, 52

Models, 11

Motion tolerance, 59

Mounting the HI 6200, 19

**N**

Number of averages, 60

**O**

Overview, 10

**P**

Parameters

diagnostic write, 73

read/write, 73

read-only, 76

stability test, 76

test diagnostic, 74

PLC commands, 46

Power on, 22

Pre-calibration, 58

Pre-installation planning, 14

**R**

Read/write parameters, 73

Read-only parameters, 76

Ref weight, 60

Related documents, 6

Restoring from last-known good parameters, 35

**S**

Saving last-known good parameters, 33

Scale parameter setting methods, 26

Setting scale parameters, 26

Sources of electrical interference, 18

Span weight, 60

Stability test parameters, 76

Support Locations, 70

**T**

Tare weight, 61

Test diagnostic parameters, 74

Touch screen, 27

Troubleshooting table, 65

**U**

Unit of measure, 59

Unpacking, 16

**W**

WAVESAVER, 12, 62

Webserver, 29

Weighing System Test, 66

Wiring the HI 6200, 21

**Z**

Zero tolerance, 59





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