Operator Instructions for WTS 1200

Introduction

This instruction manual refers to the Interface Inc. range of WTS Load Cells. Before installing or operating any Interface WTS Load Cell, this and any reference documents should be read and understood.

These instructions must be retained and incorporated in the technical documentation for the machine or partly completed machinery into which the WTS Load Cell is installed.

Technical Spec

PARAMETERS		MODEL			
		1210	1210	1220	1232
		CAPACITY			
Measuring Range	U.S. (lbf)	300, 500 1K, 2K	5K, 10K	25K, 50K	100K
	Metric (kN)	1.5, 2.5, 5, 10	25, 50	100, 250	450
ACCURACY – (MAX ERROR)					
Static Error Band – %FS		±0.04	±0.04	±0.04	±0.06
Nonlinearity – %FS		±0.04	±0.04	±0.04	±0.05
Hysteresis – %FS		±0.03	±0.04	±0.05	±0.06
Nonrepeatability – %RO		±0.01	±0.01	±0.01	±0.01
Creep, in 20 min – %		±0.025	±0.025	±0.025	±0.025
Side Load Sensitivity – %		±0.25	±0.25	±0.25	±0.25
Eccentric Load Sensitivity – % / in		±0.25	±0.25	±0.25	±0.25
TEMPERATURE					
Compensated Range	°F	+15 to +115	+15 to +115	+15 to +115	+15 to +115
	°C	-10 to +45	-10 to +45	-10 to +45	-10 to +45
Operating Range *	°F	* Please reference Transceiver **Operating Temperature Range**			
	°C				
Effect on Zero – %RO MAX	°F	±0.0008	±0.0008	±0.0008	±0.0008
	°C	±0.0015	±0.0015	±0.0015	±0.0015
Effect on Output – %RO / °F MAX	°F	±0.0008	±0.0008	±0.0008	±0.0008
	°C	±0.0015	±0.0015	±0.0015	±0.0015
ELECTRICAL					
Rated Output – mV/V (Nominal)		2.0	4.0	4.0	4.0
Excitation Voltage – VDC MAX		20	20	20	20
Bridge Resistance – Ohm (Nominal)		350	350	350	350
Zero Balance – %RO		±1.0	±1.0	±1.0	±1.0
Insulation Resistance – Megohm		5000	5000	5000	5000
MECHANICAL					
Safe Overload – %CAP		±150	±150	±150	±150
Deflection @ RO	in	0.001	0.002	0.002	0.003
	mm	0.03	0.05	0.05	0.08
Optional Base – P/N (Metric)		B101 (M)	B102 (M)	B103 (M)	B112 (M)
Natural Frequency – kHz		3.9, 5.0, 6.9, 9.8	6.6, 9.4	6.5, 7.0	5.8
Weight	lbs	1.5	3.3	9.5	26
	kg	0.7	1.5	4.3	11.8
Calibration		Tension & Compression			
Material		Aluminum	Alloy Steel		

Transceiver Spec

MEASUREMENT SPECIFICATIONS		
Strain Gauge Excitation System		4-wire
Strain Gauge Excitation – VDC		3
Strain Gauge Resistance (min) – Ω		85
Strain Gauge Sensitivity (max) – mV/V		±4.5
Offset Temperature Stability (max) – ppm/°C		4
Gain Temperature Stability (max) – ppm/°C		5
Nonlinearity Before Linearization (max) – ppm of FR		25
Internal Resolution/Bits		16,000,000 / 24
Noise Free Resolution at 1 Sample Per Second		400,000 / 18.75
Transmission Rates – ms to day		From 5 to 1
BATTERY LIFE		
Battery		2 x AAA Alkaline
Battery Life – hrs		300 typically
RADIO		
Radio Type		License exempt transceiver
Radio Frequency – GHz		2.4
Transmit Power – mW		10
Range	m	Up to 610
	ft	Up to 2,000
ENVIRONMENTAL		
Operating Temperature Range	°C	-20 to 55
	°F	-4 to 131
Storage Temperature Range (no batteries)	°C	-40 to 85
	°F	-40 to 185
Maximum Humidity – %		95 non-condensing
IP Rating (WTS-AM-1 & WTS-AM-1-D)		IP67/Nema4
Telemetry Housing		Polyamide resin
Material		Heat Treated Steel or Stainless Steel

Electromagnetic Compatibility (EMC)

The electromagnetic compatibility of the load cell device can only be assessed in conjunction with the entire installation, including its control systems. The machine builder who installs this partly completed machinery into a machine is responsible for compliance with the EMC directive.

Model Number

- 1200XXX-XXX-X (X's are placeholders, model number, capacity, etc...)

Supplier/Service

Interface Inc.
7401 East Butherus Drive
Scottsdale, AZ 85260

Tel: (480)948-555
Fax: (480)948-1924
email: contact@interfaceforce.com

Installation and Operation

To ensure safe and trouble free installation of the load cell measuring device, the WTS Load Cell must be properly transported and stored, professionally installed and commissioned.

Unpacking

Before removing the WTS Load Cell, inspect the packaging for signs of damage and immediately inform the supplier if any damage is found. Unpack the WTS Load Cell carefully, ensure that calibration and instruction information is not inadvertently discarded.

Checks Prior to Installation

- If the WTS Load Cell is fitted with a telemetry module, check that the 2 off AAA batteries are correctly installed, that the two RED clips on the telemetry housing are closed and that the battery cover is secure.

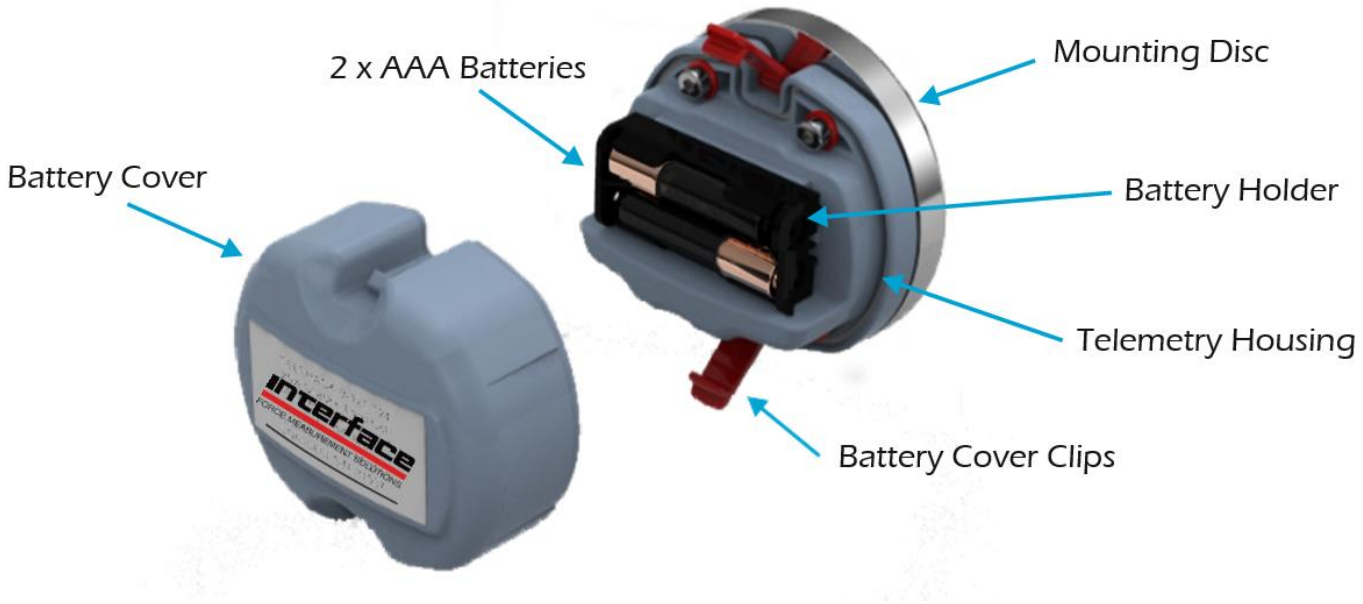

FIGURE 1

Installation

Load Cells which are not mounted in accordance with the manufacturer's recommendations may not perform to manufacturer's specifications. It is always worthwhile to check:

- Mounting surfaces for cleanliness, flatness, and alignment
- Torque of all mounting hardware
- Load cell orientation: "Dead" end on mechanical reference or load forcing source, "live" end connected to the load to be measured. (Dead end is the end closest mechanically to the cable exit ,connector, or wireless device)

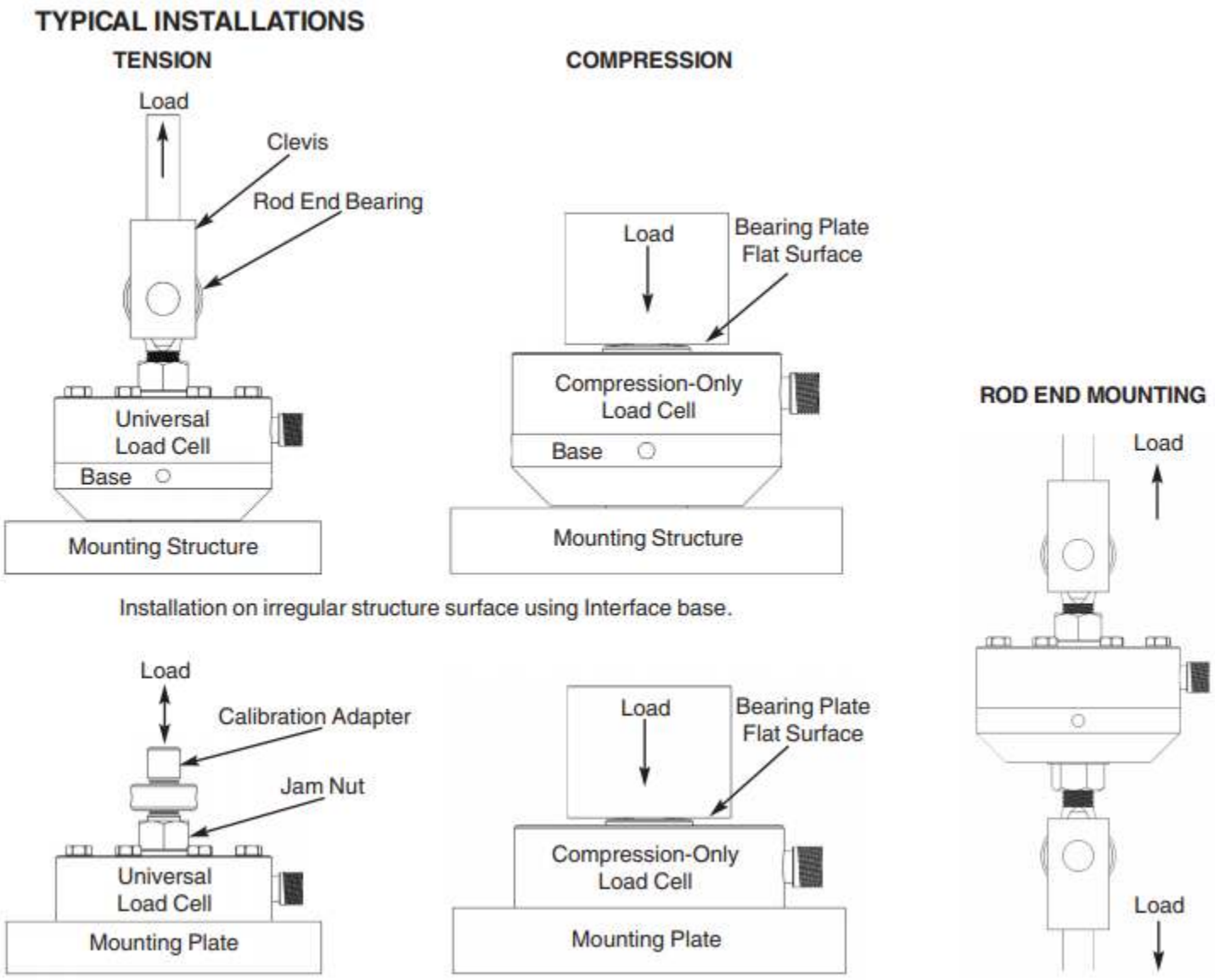

FIGURE 2

Proper hardware (thread sizes, jam nuts, swivels, etc) as required to connect the load to the load cell. A fundamental requirement is that there be one, and only one load path! This load path must be through the load axis of the load cell. This may sound elementary, however it is a commonly overlooked problem.

https://www.interfaceforce.com/product-category/wireless-telemetry-system/
https://www.interfaceforce.com/support/technical-library/

WTS Load Cell Output

The electrical output of the WTS Load Cell should only be connected to instrumentation with a high enough input impedance, preferably 1Mohm or greater, in order to prevent loading effects on the output sensitivity of the WTS Load Cell. Interface offers a wide range of digital and analog instruments ensuring compatibility.
When setting up your WTS Load Cell, the following points should be acknowledged:

- The zero load output given on the calibration certificate is the output of the WTS Load Cell with no load applied. This includes the removal of the load caused by any lifting accessories.

- The load on an installed WTS Load Cell will comprise of the load of your assembly (including sheaves blocks, shackles, ropes, hooks, slings etc.) and the active load (load lifted). Therefore, the output with no active load will be greater than the zero output indicated on the calibration certificate.

Checks after Installation

With the WTS Load Cell installed, check the displayed output matches the polarity requirements as this may indicate either a fault, or that a compressive force is being applied to the WTS Load Cell. See Figure 2 details of correct loading.

When applying a load to the WTS Load Cell the output should increase in the polarity requirement. Use the calibration certificate for reference, to compare the output observed at certain loads.

Calibration

All Interface WTS Load Cells are calibrated in traceable test machines, configured to best simulate normal loading conditions.

We endeavor to match the loading conditions that would be experienced in service, but it is not possible to totally simulate the on-site structure for every WTS Load Cell manufactured. For this reason, and optimum system accuracy, calibration in the final assembly is recommended. On-site calibration should be performed in accordance with the manual for the instrument to which the WTS Load Cell is connected to.

Warnings/Hazards

WTS Load Cells can be stressed devices, and commonly have safety factors of atleast three times the rated capacity under static conditions. Fatigue applications and environmental factors can contribute to reducing this margin. The user should determine the effect of any substance to the exposed WTS Load Cell materials. Where a corrosive environment is present, WTS Load Cells can often be manufactured from corrosion resistant materials, or alternatively, isolation barriers can be employed between the corrosive environment and the WTS Load Cell.

The following points should be followed to avoid potentially hazardous situations:

- Do not weld near to installed WTS Load Cells. Leakage currents may destroy the WTS Load Cell circuits.
- WTS Load Cells are sealed units and must not be dismantled. Damaged WTS Load Cells should be returned to Interface for any repairs and re-calibration.
- The accuracy of the system is dependent upon the correct installation of the WTS Load Cell.
- WTS Load Cells must not be subjected to shock loads, such as using a hammer to force an assembly together (fitting clevis pins into the mounting holes).
- The WTS Load Cell must never be placed in a potentially explosive environment, unless the product is suitably certified (ATEX or IECEx).

Inspection and Repair

Repair

Only Interface personnel are authorised to carry out a repair or service to their products. All repairs or services will be carried out in the premises of Interface. The unit is not serviceable outside of Interface premises.

Inspection

All Interface WTS Load Cells should be subject to periodic inspection, which should include, but is not exclusive to the

following checks:

- Completion of the checks after installation.
- Check output at zero load (shift in zero offset). Verify against calibration certificate.
- Inspect to see if the WTS Load Cell has been damaged/worn or chemically attacked (from a corrosive environment or lubricants etc.).
- After any serious operating incident, repeat first four checks above.
- For WTS Load Cells fitted with a telemetry module, check that the batteries are correctly installed. The battery holder shows pictorially the correct orientation.
- For WTS Load Cells fitted with a telemetry module, check for any signs of water ingress to the battery compartment and for any battery corrosion.
- In the unlikely event of this device failing, fit new batteries (if applicable) and re-test. Only when this has been done should you report the fault. When reporting the fault, give a full description of the problem and the type of application the device is being used for.

WTS Load Cell Specification

Interface WTS Load Cells have datasheets which can be found at the following website address:

https://www.interfaceforce.com/product-category/wireless-telemetry-system/

WTS Load Cell Output Options

The WTS Load Cell can be fitted with a variety of built in (in-cell) signal conditioning pcbs, to offer either analog, voltage, current signals or RS485 digital signals (in various protocols). When a wireless signal is required, the WTS Load Cell can be fitted with a WTS-BS-1 Telemetry Module.

Telemetry

The WTS product range uses high performance two-way radio communication. Each WTS Load Cell fitted with the telemetry module requires either a WTS-BS-1-HA handheld device, digital/analog interface or a base station and PC to communicate with.

Warranty

All Telemetry products from Interface Inc., ('Interface') are warranted against defective material and workmanship for a period of (1) two years from the date of dispatch. If the 'Interface' product you purchase appears to have a defect in material or workmanship or fails during normal use within the period, please contact your Distributor, who will assist you in resolving the problem. If it is necessary to return the product to 'Interface' please include a note stating name, company, address, phone number and a detailed description of the problem. Also, please indicate if it is a warranty repair. The sender is responsible for shipping charges, freight insurance and proper packaging to prevent breakage in transit. 'Interface' warranty does not apply to defects resulting from action of the buyer such as mishandling, improper interfacing, operation outside of design limits, improper repair or unauthorized modification. No other warranties are expressed or implied. 'Interface' specifically disclaims any implied warranties of merchantability or fitness for a specific purpose. The remedies outlined above are the buyer's only remedies. 'Interface' will not be liable for direct, indirect, special, incidental or consequential damages whether based on the contract, tort or other legal theory. Any corrective maintenance required after the warranty period should be performed by 'Interface' approved personnel only.

Revision History		
Author	**Revision**	**Release Date**
PB	A	09/12/2018