MSI**7200**
MSI**7200**RFL

*With RF
Remote Control*

**DYNA-LINK
TENSION LOAD SENSORS**

User
Guide

*Quality
Industrial
Weighing
and Force
Measurement
Equipment*

MSI-7200

MSI-7200RFL

*Measurement
Systems
International*

RF Equipment Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device has been designed to operate with an antenna having a maximum gain of 0 dBd. Antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms.

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equipment isotropically radiated power (EIRP) is not more than that required for successful communication.

MSI-7200RFH remote controller features: 916.5Mhz operation frequency, RF power does not exceed 50mV/meter. Allows remote viewing of data in hazardous environments or where direct viewing of the main display is not possible.

MSI-7200RFH
Remote Controller

MSI-7200RFL
Load Sensor

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INTRODUCTION

The MSI Dyna-Link tension load Sensor represents an advancement over earlier electronic attempts to replace mechanical dynamometers. The MSI-7200 Dyna-Link series offer standard features not found on mechanical dynamometers.

Standard Features
- Rugged construction
- Long battery life up to 500 hours on two standard "C" cells
- All functions and units are clearly annunciated on the Liquid Crystal Display. Digits are 1" high for easy distant viewing
- Two user programmable Set-Points can be used for safety and warning applications or for limit weighing. An optional relay unit is available for interfacing the Dyna-Link to alarms, strobes, motors, etc.
- All commonly used internationally recognized units are available: pounds (lb), kilograms (kg), Short Tons (t), Metric tons and dekaNewtons (daN)
- Digital calibration for easy maintenance
- Available with standard and remote displays
- Memory backup for Calibration, Setup parameters, and Set-Points
- The remote display versions are available with optional RS232 output for printer or computer interfacing

Note: Specifications for MSI-7200RFL and MSI-7200RFH may be found on page 26.

UNPACKING

On receipt, be sure all parts ordered are included. A standard Dyna-Link will include the following:

Standard MSI-7200 Dyna-Link
1) 1 ea. MSI-7200 Dyna-Link assembly
2) 2 ea. "C" cell alkaline batteries
3) 2 shackles (optional)
4) Carry case (optional)

Remote Hardwired MSI-7200 Dyna-Link
1) 1 ea. MSI-7200 load cell with pendant cable (typically 25')
2) 1 ea. MSI-7200 remote hand-held indicator (single and dual display)
3) 2 ea. "C" cell alkaline batteries
4) 2 shackles (optional)

5) Carry case (optional)

Standard MSI-7200RFL Dyna-Link
1) 1 ea. MSI-7200RFL assembly with 2 ea. "C" cell alkaline batteries
2) 1 ea. MSI-7200RFH remote controller assembly with 6 ea. "AA" alkaline batteries
3) 2 ea. Shackles (optional)
4) Carry case (optional)

INSTALLATION

The Dyna-Link can be installed into a variety of applications. Its primary application is measuring tension in load monitoring and certification applications.

WARNING

> **WARNING:** Due to the lack of any swivel fittings, it is important that all torque loads are kept to a minimum. The use of properly rated fittings is imperative for safety and performance. The MSI-7200 Dyna-Link Series are sized for industry-standard shackles (Crosby or equal).

Note: The following specifications relate to the MSI-7200 Dyna-Link in its standard configuration. Many of the specifications are similar to the MSI-7200RFL and MSI-7200RFH radio controlled version of the Dyna-Link. Specifications and instructions unique to the MSI-7200 RFL and MSI-7200RFH are noted throughout this user guide.

BATTERIES

A low battery lamp will appear when the expected life is approximately 60 hours. At approximately 10 hours remaining, the lamp will start to blink. If the power is too low, the unit will automatically power down.

MSI-7200RFL low battery lamp illuminates at 20 hours and will start to blink at 5 hours. (See Power, page 31)

To Remove / Replace the Batteries
1) Remove the yellow battery cap in the load cell body.
2) Remove the batteries by tilting the load cell body slightly.
3) Replace the batteries with 2 fresh alkaline "C" cells, *positive* end first.
4) Replace the battery cap. Ensure that the yellow cap is screwed in all the way to maintain sealing.

Note: The O-ring should be lubricated with O-ring lubricant periodically.

OPERATION

The Dyna-Link operates in two modes:
1) Gross Tension mode measures the current tension on the Link.
2) Peak Tension stores the highest reading the Link has measured. The display is only updated when a higher value is measured.

DIGITAL DISPLAY

The Dyna-Link Liquid Crystal Display (LCD) is used for tension indications as well as setup and error messages. During tension measurement, the digits can indicate a maximum of four digits of tension. When the reading exceeds four digits the "x1000" annunciator and a decimal point will light indicating that the readings should be multiplied by 1000. This "auto-ranging" takes place in higher capacity Dyna-Links, 10000 lbs, kgs, or daNs and up. The LCD has annunciators for the Peak Mode, Low Battery, and Units.
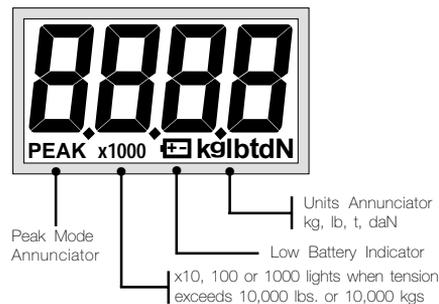
Dyna-Link Digital Display
Four 1.0" high   7 - Segment Numeric Digits

POWER SWITCH

Function:
Turns the unit On and Off.
Action:
1) Push POWER.
2) Display Check: All segments and LED's are illuminated for 1 second.
3) The LCD displays the software version number for 1 second.
Final:
The unit reads the current tension in the last set mode - Gross Tension or Peak Tension.

ZERO SWITCH

Function:

Sets the Zero reading of the Dyna-Link.

Rules for Use:

1) The Dyna-Link must be stable within 2 display counts. If the reading is not stable, the zero button will not function.
2) The Dyna-Link will accept a zero setting up to full capacity. Zero settings will subtract from the overall capacity of the Dyna-Link. For example, if you zero out 1000 lbs on a 5000 lb Dyna-Link, the overall capacity will be reduced to 4000 lbs (plus the allowed over-range amount - usually 9 divisions).

Action:

Push ZERO to zero the reading.

Final:

The digits display "0" (or 0.0, 0.00, or 0.000 depending on the resolution).

PEAK

Function:

Toggles between the Peak Tension and the Gross Tension modes.

Action:

1) Push PEAK.
2) Display annunciator "PEAK" lights indicating Peak Tension mode. The "NEW PEAK" LED flashes while new peak values are being recorded.
3) The last stored peak reading is displayed.

Final:

The LCD digits update only when a higher peak reading is obtained When a new higher reading is obtained, the "NEW PEAK" LED will flash four times.

To Clear the Peak

Action:

While in the Peak Hold Tension mode, push ZERO.

Final:

The old Peak value is cleared, the digits display the current gross tension as a new peak. The "NEW PEAK" LED flashes to indicate a new peak being stored.

To Turn Off the Peak Mode

Action:

Push PEAK. The "PEAK" annunciator will go out.

Final:

The previous peak reading is retained even in the normal reading mode and

power off modes. The last stored peak reading will be lost if the batteries are removed.

SET POINTS

The Dyna-Link is equipped with the capability of storing two Set-Points. When the tension falls above or below (depending on setting) the Set-Point value, the Dyna-Link responds by blinking an LED and by turning on a logic output. This output can be used to interface to relays, lights, alarms, etc. (Contact MSI or your dealer for more details). Typical uses for the Set-Points include overload warnings, limit checking, and check-weighing. MSI provides an optional relay interface box - AC power supply (Model 7210) for easy Set-Point interfacing. During Set-Point entry the POWER key will operate as an ENTER key, the ZERO key will operate as the DOWN selection key, the PEAK key will operate as the UP selection key and CLEAR/CANCEL is initiated by pushing the ZERO and PEAK keys at the same time. (The SETUP/CAL key in the rear panel also functions as CLEAR/CANCEL).

Hardwired Remote Units Only: The "*" key functions as the CLEAR/ CANCEL key during all Set-Point and Setup functions.

Note: Set-points are not programmable from MSI-7200RFH. Set-points must be configured at the MSI-7200RFL load sensor.

The two Set-Points are designated SP1 and SP2 (the digit 5 is used to resemble an 'S').

WARNING: Set-point communication to MSI-7200RFH may be delayed up to 2 seconds. Set-point terminations should be maintained at load sensor for safe use.

To Enable SET-POINTS
1) Turn the Dyna-Link off.
2) Hold down the PEAK key and turn the Dyna-Link on. After 1 second let up on the PEAK key.
3) The display will read "Unit". Push UP (PEAK) or DOWN (ZERO) to select Set-Point 1 ("SP1") or Set-Point 2 ("SP2").
4) Push ENTER (POWER). You are now in the Set-Point Mode entry menu.
5) The display will start to flash the current Set-Point Mode of either "HI", "LO", or "OFF". Push the UP or DOWN key to change the mode. Low (LO) will trigger an alarm if the tension falls below the entered Set-Point value. High (HI) will trigger if the tension rises above the entered Set-Point value. A third choice of "OFF" is used to disable the Set-Point.

6) Push ENTER (POWER) to set the Set-Point Mode.
7) You are now in the numeric entry portion of the Set-Point procedure. The left-most digit flashes. Push the UP (PEAK) or DOWN (ZERO) key until the first digit of the desired Set-Point value is displayed. Push ENTER (POWER). The CLEAR/CANCEL function can be used to change an entry if needed.

Note: To enter for example, 50 lbs on a 2000 lb Dyna-Link, the first two digits should be entered as zeros (0050).

8) The next digit flashes. Use the UP, DOWN, and ENTER keys to finish out the desired Set-Point value.
9) You are now back in the Set-Point Menu. Push UP or DOWN until the display reads "End" and push ENTER (POWER) to return to normal operation or use the UP/DOWN keys to select the other Set-Point for modification.

Note: Set-Points are stored permanently in EEROM memory. Values are not lost when the batteries are drained or removed.

SET-POINT Examples
Examples shown are for a 10000 lb Dyna-Link.

Example 1
> Provides a warning when overload is close, and an additional second warning when overload is reached.
> SP1 = 9000, sense HI
> SP2 = 10000, sense HI

Example 2
> For in limit indication. When both Set-Points are on, the tension is between 5000 and 5050 lbs.
> SP1 = 5000, sense HI
> SP2 = 5050, sense LO
> With the optional relay box, the outputs could be combined for a single in-limits indication.

Example 3
> For an out of limit indication. When either Set-Point is on the tension is outside the range of 2000 to 2500 lbs.
> SP1 = 2000, sense LO
> SP2 = 2500, sense HI

To Disable a SET-POINT

1) Turn the Dyna-Link off.
2) Hold down the PEAK key and turn the Dyna-Link on. After 1 second release the PEAK key.
3) The display will read "Unit". Push UP (PEAK) or DOWN (ZERO) to select the Set-Point (SP1 or SP2) to be disabled.
4) Push ENTER (POWER).
5) Use the UP/DOWN keys to select "OFF". Push ENTER (POWER).
6) You are now back in the Set-Point Menu. Select "End" and push "EN-TER" to return to normal Dyna-Link operation or select the other Set-Point for additional modification as needed. (CLEAR/CANCEL will also return the unit to normal operation).

UNIT(S)

Units can be changed from the front panel with the following procedure. Once the units menu is enabled, units are changed by scrolling through the choices with the UP (PEAK) key or DOWN (ZERO) key and pushing ENTER (POWER) when the desired unit is displayed. Available units are: lb (pounds), kg (kilograms), t (short tons), daN (dekaNewtons), and kg X1000 (equivalent to Metric tons).

To change the units
1) Turn off the power. While holding down the "PEAK" key, turn the power back on. After 1 second release the "PEAK" key.
2) The display reads "Unit" (if not push the UP or DOWN key to select the Unit mode).
3) Push ENTER (POWER). You are now in the units menu and the current units will be flashing.
4) Push UP/DOWN until the desired units are displayed, then push ENTER (POWER).
5) Now you are back in the front panel Setup Menu. To go back to normal operation, push CLEAR/CANCEL (ZERO and PEAK pushed simultaneously or "*" key on Remote units) or scroll to the "End" message and push "ENTER".

SETUP/CAL

Function:
Allows front panel entry of seldom set parameters and initiates Calibration. SETUP/CAL is invoked by pushing the key through the access hole in the back plate of the Dyna-Link (Remote units only: the SETUP/CAL key is located on the front board inside the remote hand-held housing). For most of the setup

functions the Dyna-Link's keys will work differently until SETUP/CAL is exited. The POWER key will operate as an ENTER (POWER) key, the ZERO key will operate as the DOWN Selection Key, the PEAK key will operate as the UP Selection Key and the SETUP/CAL key will be used as a CLEAR/CANCEL key. CLEAR/CANCEL can also be initiated via the front keys by pushing ZERO and PEAK at the same time.

Note: Calibration of MSI-7200RFL may only be initiated at the MSI-7200RFL load sensor. Calibration through the MSI-7200RFH is not possible.

Hardwired remote units only: The "*" key functions as the CLEAR/CANCEL key during all Set-Point and Setup functions.

General setup procedure
1a) Standard Dyna-Links and MSI-7200RFL
Remove the seal screw in the back of the Dyna-Link. Push the SETUP/CAL switch found inside the hole. A long thin insulated screwdriver or wood "Q-tip" stick is a good tool for this purpose. The Dyna-Link will display "Unit".
1b) Hardwired Remote Dyna-Links
Turn the power off. Remove the batteries from the Dyna-Link. Remove the four hex head screws holding the faceplate to the yellow handle enclosure. Carefully lift out the electronics/faceplate assembly. After ensuring that the electronics package is not shorting against the case or any other metallic surface, replace the batteries and turn the power back on. Push the SETUP/CAL switch (SW4) located on the lower board and proceed as below. When the setup parameters you desire are entered, reassemble the unit with the batteries out.
2) Options are viewed by repeated pushes of the UP or DOWN keys.
3) To change a parameter or initiate Calibration, push the ENTER (POWER) key. Selections are stored with the ENTER (POWER) key.
4) Selecting CLEAR/CANCEL in most cases will cancel the current operation (and not save any changes to that function). It is also used to clear digits or values during numeric entry. CLEAR/CANCEL can be used to exit Setup altogether and return to normal operation.
5) In general, when the display is flashing, you are being prompted to use the ENTER (POWER) key to finish an operation, or to use the UP or DOWN key to select a different option.

CLEAR/CANCEL

CLEAR/CANCEL is initiated by pushing both the ZERO key and the PEAK key simultaneously (Remote units can use the "*" key as a Clear/Cancel key). Alternately push the SETUP/CAL key through the hole in the rear panel.

END

To exit from the Setup Menu push CLEAR/CANCEL or scroll to the "End" message and push ENTER (POWER).

CALIBRATION UNIT(S)

Calibration units can be changed by scrolling through the choices with the UP (PEAK) key or DOWN (ZERO) key and pushing ENTER (POWER) when the desired unit is displayed. Available units are: lb (pounds), kg (kilograms), t (short tons), daN (dekaNewtons), and kg X1000 (equivalent to Metric tons).

To change the calibration units
1) Push "SETUP/CAL" (See "General Setup Procedure").
2) The display reads "Unit" (if not, push the UP or DOWN key to select the Unit mode).
3) Push ENTER (POWER). You are now in the units menu and the current units will be flashing.
4) Push UP/DOWN until the desired units are displayed, then push ENTER (POWER).
5) Now you are back in the Setup Menu. To go back to normal operation, push CLEAR/CANCEL (ZERO and PEAK pushed simultaneously or rear panel SETUP/CAL). Push the UP/DOWN keys to select other setup functions, or scroll UP/DOWN to END and press ENTER.

Note: Calibration of MSI-7200RFL may only be initiated at the MSI-7200RFL load sensor. Calibration through the MSI-7200RFH is not possible.

CALIBRATION

To calibrate a Dyna-Link, the user is required to have an accurate test weight system of adequate capacity.

To calibrate
1) Enable the Setup/Cal mode (See "General Setup Procedure").

2) Ensure the proper units that you wish to calibrate in are selected (See "Calibration Units").
3) Push UP/DOWN until the display reads "CAL".
4) Push ENTER (POWER). You are now in the CAL menu.
5) The display will flash "ZEro" for 2 seconds as a prompt to unload the Dyna-Link for zeroing. (The number "2" is used to resemble a "Z")
6) The display will blink while showing the current zero value. When the zero reading is stable, push "ZERO".
7) The display will flash "LOAd" as a prompt to load the Dyna-Link with the calibration weight. A weight of at least 20% of capacity is required.

Note: A test weight of 50% or more of capacity is recommended for increased accuracy.

8) The capacity of the Dyna-Link will be displayed next as a default setting for the calibration weight.
9) The left-most digit will flash. Push the UP/DOWN keys until the first digit matches the applied calibration weight first digit value. Push ENTER (POWER). At any time during the value entry, the CLEAR/ CANCEL function can be used to correct entries.

Note: For example, to enter 500 kg on a 1000 kg Dyna-Link, enter the first digit as a zero (0500).

10) The next digit will now flash. Using the UP/DOWN keys and the ENTER (POWER) key finish out the value entry. Before the last digit is entered make sure that the calibration weight has stabilized, as this can affect calibration accuracy. If there is not enough tension on the Dyna-Link, the Error Message "CErr" will show for 1 second and you must start over again with step 5. Again, you must have at least 20% of capacity as a calibration weight.
11) If calibration was successful, you will be returned to the SETUP menu ready to change another parameter if desired. If finished push CLEAR/ CANCEL to return to normal operation.

Note: After a standard calibration a new RCAL value should be stored. (See "To Store the RCAL Value").

Note: Calibration of MSI-7200RFL may only be initiated at the MSI-7200RFL load sensor. Calibration through the MSI-7200RFH is not possible.

RCAL (OPTIONAL)

RCAL is a useful indicator of Dyna-Links accuracy. If the RCAL value has not changed, the Dyna-Link accuracy is assured. A variation of a few counts is insignificant, but large variations between displayed and stored RCAL values can indicate a problem.

Hardwired Remote Unit RCAL
For users of the Remote Dyna-Link, the RCAL function is not automatic. The RCAL switch is on the small PCB found in the load sensor. This switch is accessed through the back panel of the load sensor by removing the seal screw and depressing the switch inside the hole. A long thin, insulated screwdriver or wood "Q-tip" stick is a good tool for this purpose.

To View an RCAL Value (Standard Dyna-Link and MSI-7200RFL)
The following procedure should only be followed after a calibration:
1) Unload the Dyna-Link. Minimal weights left on the unit are acceptable. Wait for the digital readout to stabilize.
2) Push POWER to turn off the Dyna-Link. While holding the ZERO key down, push the POWER key. The ZERO key needs to be held down only about 1 second after the unit powers up. Release the ZERO key.
3) After the Power up sequence the display will show "RCAL" for one second then will flash the currently detected RCAL value.
4) Push ENTER (POWER). The value will be stored and normal Dyna-Link operation will continue.

Note: The only time the RCAL value can be stored is directly after calibration.

To Store a New RCAL Value (Hardwired Remote Dyna-Link)
The following procedure should only be followed after a calibration:
1) Unload the Dyna-Link. Minimal weights left on the unit are acceptable. Wait for the digital readout to stabilize.
2) Push POWER to turn off the unit. While holding the ZERO key down, push the POWER key. The ZERO key needs to be held down only about 1 second after the unit powers up. Release the ZERO key.
3) After the Power up sequence, and the display is at zero, the display will show "RCAL" for one second then flash the current zero value.
4) Hold down the RCAL switch (in Load Sensor) until the value displayed stabilizes. Push ENTER (POWER). (It may take two people to accomplish this if the load sensor is not adjacent to the remote unit). The value will be stored and normal Dyna-Link operation will continue when the RCAL switch is released.

Note: The only time the RCAL value can be stored is directly after calibration.

TO CALIBRATE USING RCAL

The following procedure is used in situations where Calibration weights are not available. Full accuracy of the system is not assured but will typically be no worse than twice the standard accuracy.

Hardwired Remote 1 Users: Remove the electronics assembly from the hand-held enclosure before starting this procedure (See "General Setup Procedure" for removal).

1) Push POWER to turn off the Dyna-Link. While holding the ZERO key down, push the POWER key. The ZERO key should be held at least one second after the unit powers up. Release the ZERO key.
2) After the Power-up sequence the display will show "RCAL" for one second then will blink the currently detected RCAL value.
3) Make a note of the value and compare it to the value stored in memory (which will appear in step 12).

Hardwired Remote 1 Units Only: The RCAL switch in the Load Sensor must be pushed to observe the RCAL value.

4) Push ENTER (POWER) to exit this mode and continue normal Dyna-Link operation.
5) Without turning the power off, push the SELECT/CAL key (See "General setup procedure").
6) Ensure the proper units that you wish to calibrate in are selected (See "Units" above).
7) Push UP/DOWN until the display reads "CAL".
8) Push ENTER (POWER). You are now in the CAL menu.
9) The display will flash "ZEro" for two seconds as a prompt to unload the Dyna-Link for zeroing. (The number "2" is used to resemble a "Z")
10) The display will blink while showing the current zero value. When the zero reading is stable, push "ZERO".
11) The display will flash "LOAd". The RCAL will substitute for calibration weights at this point.
12) The stored RCAL value will now be displayed. If the value matches the previously noted value, there is no need to recalibrate. Push CLEAR/CANCEL to exit RCAL. If the numbers do not match, go to step 13.
13) The far left digit will flash. Push the UP/DOWN keys until the first digit matches the noted RCAL first digit value. Push ENTER (POWER). At any time during the value entry, the CLEAR/CANCEL function can be used to correct entries.

14) The next digit will now flash. Using the UP/DOWN keys and the ENTER (POWER) key finish out the value entry.

Hardwired Remote 1 Units Only: Before pushing the final ENTER key, the RCAL switch in the Load Sensor must be depressed for at least ten seconds before the last ENTER key is pressed and must be held down while the ENTER key is being pressed.

15) If Calibration was successful you will be returned to the SETUP menu ready to change another parameter if desired. If finished, push CLEAR/ CANCEL to return to normal operation.

FINE CALIBRATION

Fine calibration is for minor adjustments to the calibration and is usually not necessary for accurate Dyna-Link calibration. It is especially useful with hydraulic calibration fixtures for fine adjustments. For fine calibration, the Dyna-Link should be zeroed before starting this procedure.

To Fine Calibrate
1) Push SETUP/CAL (unless you are already in the Setup Menu).
2) Push UP/DOWN until the display reads "FCAL".
3) Push ENTER (POWER). You are now in the FCAL menu.
4) Apply a calibration weight of at least 50% of capacity.
5) The display will read the current gross weight if it is over 50% of capacity otherwise it will read "—" and cannot be adjusted.
6) Use the DOWN (ZERO) key to cause the displayed weight to move down slightly. Use the UP (PEAK) key to cause the reading to move up. Each push of these two keys causes the calibration to shift by 1/4 displayed count. When the reading is acceptable (or you want to exit) push ENTER (POWER).
7) Now you are back in the Setup Menu. Push CLEAR/CANCEL to return to normal operation. (See "To Store a New RCAL").

AUTOMATIC POWER OFF ("AOFF")

The Automatic Power Off feature, when enabled, prolongs the battery life of the Dyna-Link by turning the power off after ten minutes of non-use. Any time a key is pressed, or the detected tension is in motion (tension changing by more than two display counts), the ten minute limit is reset. Therefore, the Dyna-Link will stay on indefinitely if the tension is changing or any key is pressed at least once every ten minutes. The default factory setting is the Power Off

enabled mode. When disabled, the unit will stay on; only the power key will turn it off. It is recommended in systems where the Set-Points are used for safety warnings, that the Automatic Power Off feature is disabled.

Note: AOFF will only engage on MSI-7200RFH when it is in transmission range of the MSI-7200RFL

To Enable or Disable Automatic Power Off
1) Push SETUP/CAL.
2) Push the UP (PEAK) or DOWN (ZERO) key to scroll to the menu function "AUTO".
3) Push ENTER (POWER). You are now in the Auto Off menu and the current selection will be flashing (either "On" or "OFF").
4a) To disable Automatic Power Off (unit will always stay on), use the UP (PEAK) key to scroll to "OFF".
4b) To enable Automatic Power Off (unit will turn off automatically after ten minutes of non-use), use the UP (PEAK) key to scroll to "On".
5) Push ENTER (POWER). Now you are back in the Setup Menu. Push CLEAR/CANCEL to return to normal operation.

AUTOMATIC ZERO TRACKING ("AZT")

To Enable or Disable Automatic Zero Tracking   (Software versions X-10 and above only)
1) Push SETUP/CAL.
2) Push the UP (PEAK) or DOWN (ZERO) key to scroll to the menu function "AZT" (displayed as "A2t").
3) Push ENTER (POWER). You are now in the Auto Off menu and the current selection will be flashing (either "On" or "OFF").
4a) To disable AZT, use the UP (PEAK) key to scroll to "OFF".
4b) To enable AZT , use the UP (PEAK) key to scroll to "ON".
5) Push ENTER (POWER). Now you are back in the Setup Menu. Push CLEAR/CANCEL to return to normal operation.

ERROR CODES

The Dyna-Link has internal error checking that can result in the display of an error code.

Err Unit is in overload. Reduce the tension on the Dyna-Link immediately.
Err1 A key is stuck. Make sure the front panel keys are not being depressed. If Err1 persists, check the internal keys.

Err2   The EEROM is not functioning. Unit must be serviced.

Flashing value with minus sign

This will occur when negative readings exceed the display (usually results from a large tension value being zeroed out and then removed).

- - - MSI-7200RFH is out of transmission range of MSI-7200RFL.

RS232 (EIA232D) SERIAL OUTPUT

(Option: Hardwired Remote Units and MSI-7200RFH)

The Dyna-Link with remote control can be ordered with an RS-232 serial output option. This output is used to drive printers or interface to computers for tension recording and data logging.

To Print the Current Reading

Push the "*" key. The reading on the display will print out in the form: #######spUUUsp**** where:

- "#" = displayed tension (with a minus sign if needed),
- sp = a space,
- UUU = units (lbs, kgs, mtn [metric tons], ton [short tons], daN [dekaNewtons]),
- sp = a space,
- and **** = "PEAK" if the Link is in the Peak mode or 4 spaces. The transmission is terminated by a "Line Feed".

The total transmitted line is always 16 characters in length not including the LF.

Print Key Setup

1) Turn the Dyna-Link off.
2) Hold down the "*" key and turn the Dyna-Link Remote on. After one second release the "*" key.
3) You are now in the RS232 setup menu. The first menu choice is "bAud". Scroll through the RS232 menu choices with the UP (PEAK) or DOWN (ZERO) keys. There are seven selections available: "bAud" for baud rate control, "StoP" for stop bits, "dAtA" for data bits, "PAr" for parity control, "C0nt" for continuous print once per second, and "UStd" (unsteady) for print in motion. The seventh selection is "End" for exiting. The use of these selections is detailed below.

To Change the Baud Rate

1) Select "bAud" with the UP key.
2) Push ENTER (POWER).
3) Using the UP or DOWN keys select the correct baud rate for your system. The Dyna-Link supports 300, 600, 1200, 2400, 4800, 9600, and

19.2k baud rates.

4) When the appropriate baud rate appears on the display, push ENTER (POWER).
5) You are now back in the RS-232 setup menu. Select "End" to return to normal operation or select another setup function.

To Change the Stop Bits

1) Select "StoP" with the UP key.
2) Push ENTER (POWER).
3) Using the UP or DOWN keys select "1bit" or "2bit" as required.
4) When the appropriate number of stop bits appear on the display, push ENTER (POWER).
5) You are now back in the RS-232 setup menu. Select "End" to return to normal Dyna-Link operation or select another setup function.

To Change the Data Bits

1) Select "dAtA" with the UP key.
2) Push ENTER (POWER).
3) Using the UP or DOWN keys select "8bit" or "7bit" as required.
4) When the appropriate number of data bits appear on the display, push ENTER (POWER).
5) You are now back in the RS-232 setup menu. Select "End" to return to normal Link operation or select another setup function.

To Change the Parity Mode

1) Select "PAr" with the UP key.
2) Push ENTER (POWER).
3) Using the UP or DOWN keys select "nonE" (no Parity), "EvEn" (Even Parity), or "Odd" (Odd Parity).
4) When the appropriate Parity mode appears on the display, push ENTER (POWER).
5) You are now back in the RS232 setup menu. Select "End" to return to normal operation or select another setup function.

To Change the Continuous Print Mode

1) Select "C0nt" with the UP key.
2) Push ENTER (POWER).
3) Using the UP or DOWN keys select "ON" or "OFF".
4) When the appropriate mode appears on the display, push ENTER (POWER).
5) You are now back in the RS232 setup menu. Select "End" to return to normal operation or select another setup function.

To Change the Print in Motion Mode
1) Select "UStd" (unsteady) with the UP key.
2) Push ENTER (POWER).
3) Using the UP or DOWN keys select "ON" or "OFF". The ON mode allows you to print while the tension reading is in motion.
4) When the appropriate mode appears on the display, push ENTER (POWER).
5) You are now back in the RS-232 setup menu. Select "End" to return to normal operation or select another setup function.

To Exit from the RS-232 Menu
1) Select "End" with the UP key.
2) Push ENTER (POWER). The Dyna-Link will return to normal operation.

Alternate Method:
While in the Setup Menu push CLEAR/CANCEL (* key).
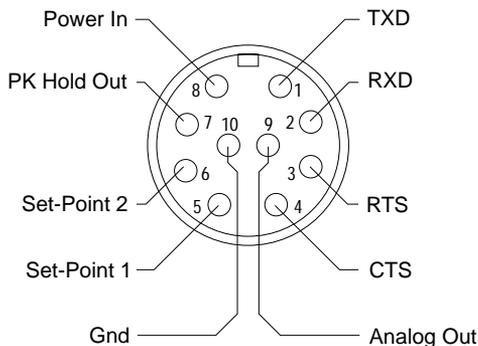
RS-232 and Setpoints Cable Connector
Remote Option Only
(Male, solder cup view)

ANALOG OUTPUT (OPTION - NOT AVAILABLE ON MSI-7200RFL)

The Dyna-Link and Dyna-Link Remote can be equipped with an Analog Output Option. This output is intended to drive chart recorders. It is important that the low input of the chart recorder is not connected to earth ground as this will cause large weight reading errors. A differential input is preferred, a floating ground low will usually suffice. The analog output is connected to pin 10 (low) and pin 9 (high) of the option connector.

Analog Output Specifications
Output Level:
> 0-2 Vdc nominal which equals 0 to full Link capacity. Actual span is uncalibrated and has an initial tolerance of ±10%.

Linearity: 0.2%
Output Impedance: 10kΩ± 1%

MSI-7200 DYNA-LINK SPECIFICATIONS (See Page 26 for MSI-7200RFL and MSI-7200RFH)

Accuracy:	0.1% of rated capacity - 0.5% on capacities over 50 tons
Display:	Four digit 1 in (25mm)
Functions:	Power, Zero, Peak, 2 Set-Points
Annunciators:	
LCD:	Low Battery, Peak
LED:	Set-Points 1 & 2, New Peak
Units Displayed:	
	lb (Pounds), lb X1000, kg (kilograms), kg X 1000 (Metric tons), t (short tons), daN (dekaNewtons)
Power:	2 Standard alkaline "C" cells
Operating Time:	
	Minimum 500 hours continuous use. (Ten minute auto shutdown with non-use)
Operating Temperature:	
	-4° to 140°F, (-20° to +60°C).
Enclosure:	Corrosion resistant and environmentally sealed
Overload:	200% safe, 500% ultimate in pure tension (no torsional load). Indicator overranges at capacity plus 9d (can vary in some Dyna-Link configurations).

FRONT VIEW   **SIDE VIEW**
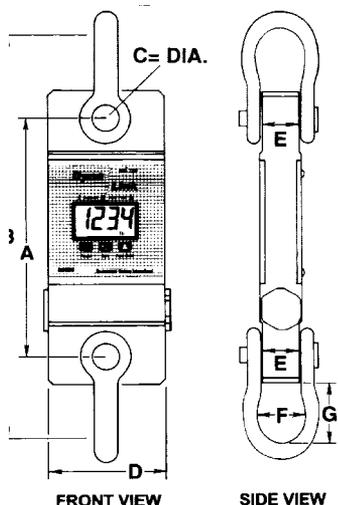
CAPACITY	RESOLUTION	A	B	C	D	E	F	G	APROX SHIP WT.	OPTIONAL SHACKLE #(CL
500 lbs	0.5 lb	9.25 in	14.77	0.75	4.50	0.99	1.69	1.87	5 lb	G-2130
250 kg	0.2 kg	235 mm	375	19	114	25	43	48	2.3 kg	3-1/4 T
1,000 lb	1 lb	9.25 in	14.77	0.75	4.5	0.99	1.69	1.87	5 lb	G-2130
500 kg	0.5 kg	235 mm	375	19	114	25	43	48	2.3 kg	3-1/4 T
2,000 lb	2 lb	9.25 in	14.77	0.75	4.5	0.99	1.69	1.87	5 lb	G-2130
1,000 kg	1 kg	235 mm	375	19	114	25	43	48	2.3 kg	3-1/4 T
5,000 lb	5 lb	9.50 in	15.02	0.75	4.5	0.99	1.69	2	7 lb	G-2130
2,500 kg	2 kg	241 mm	382	19	114	25	43	51	3.2 kg	3-1/4 T
10,000 lb	10 lb	9.50 in	17.12	1	4.5	1.35	2.28	2.68	15 lb	G-2130
5,000 kg	5 kg	241 mm	435	25	114	34	58	68	6.8 kg	6-1/2 T
25,000 lb	20 lb	10.13 in	23.26	1.63	4.8	2.24	3.88	4.81	30 lb	G-2130
12,500 kg	10 kg	257 mm	591	41	122	57	99	122	13.6 kg	17 T
50,000 lb	50 lb	10.88 in	26.88	2	5.43	2.74	5	6	50 lb	G-2130
25,000 kg	20 kg	276 mm	683	51	138	70	127	152	22.7 kg	25 T
100,000 lb	100 lb	12.50 in	30.25	2.25	6.86	3.1	5.75	6.37	85 lb	G-2140
50,000 kg	50 kg	318 mm	768	57	174	79	146	162	38.6 kg	55 T
160,000 lb	200 lb	13.50 in	37.25	2.75	7.5	3.88	7.25	8.88	150 lb	G-2140
80,000 kg	100 kg	343 mm	946	70	190	99	184	225	68 kg	85 T
220,000 lb	200 lb	14.00 in	43.25	3.25	7.5	4.74	788	11.36	185 lb	G-2140
110,000 kg	100 kg	356 mm	1099	83	190	120	200	288	84 kg	120 T
350,000 lb	500 lb	16.00 in	49.25	4.25	9	5.24	10	12.13	285 lb	G-2140
175,000 kg	200 kg	406 mm	1250	108	229	133	254	308	130 kg	175 T
400,000 lb	500 lb	17.50 in	53.25	4.75	9.5	6.96	11	12.88	450 lb	G-2140
200,000 kg	200 kg	445 mm	1353	121	241	177	279	327	204 kg	200 T
500,000 lb	500 lb	19.00 in	64	5	10	8.2	13	17	575 lb	G-2140
250,000 kg	200 kg	483 mm	1626	127	254	208	330	432	260 kg	250 T

OPTIONS & ACCESSORIES (See Page 26 for available options on MSI-7200RFL and MSI-7200RFH)

- Top and bottom shackles (Crosby-Laughlin or equal)
- Portable carrying case
- Hard-wired remote control (single display, in remote)
- Hard-wired remote control, dual display (displays in load cell and in remote)
- Remote output relay box for interfacing to set-points.
- Analog output: nominally 0-2 volt equals zero load to full capacity
- RS232 output (conforms to EIA232-D). Available with remote control only
- Dual load sensor input and summing
- Quick disconnect for remote control options

SERVICE INITIALIZATION PROCEDURE

WARNING: This procedure is intended only for the use of MSI authorized repair facilities only. The improper setting of capacity can cause a safety hazard. Capacity is dictated by the MSI rated capacity of the Link load sensor. The meter electronics must not be set for a higher capacity than the Dyna-Link is rated for.

Function

When a load sensor or the electronics are in need of replacement, initialization of the system is required. After the unit is "Cleared" a calibration must be performed. Do not perform this procedure unless you are prepared to do a full cali-
bration with adequate test weights.

Uncalibrated Display

When the Dyna-Link is not calibrated, the display will flash the LEDs and blink the message "CAL." This will stop when the Dyna-Link unit is in setup, and when calibration has been successful.

Initialization Procedure

Standard Dyna-Links and MSI-7200RFL:

1) Remove the four seal screws holding on the back of the Dyna-Link.
2) Turn the unit on.
3) Short the pins of JP3 with a screwdriver or similar implement. JP3 is located next to the large PLCC socket.
4) The display will begin to blink the message "CLr?". Within five seconds, press the zero key. (After that time, the procedure will be cancelled).
5) The display will read "d0nE" and will go to the uncalibrated mode.
6) Calibrate according to the manual section "Initial Calibration."

Hardwired Remote Dyna-Links:

1) Turn the power off. Remove the batteries from the Dyna-Link. Remove the four hex head screws holding the faceplate to the yellow handle enclosure. Carefully lift out the electronics/faceplate assembly. After ensuring that the electronics package is not shorting against the case or any other metallic surface, replace the batteries.
2) Turn the unit on.
3) Short the pins of JP1 with a screwdriver or similar implement. JP1 is located in the corner of the LCD board next to JP3.
4) The display will begin to blink the message "CLr?". Within five seconds, press the zero key. (After that time, the procedure will be cancelled).
5) The display will read "d0nE" and will go to the uncalibrated mode.
6) Calibrate according to the manual section "Initial Calibration."

INITIAL CAL

WARNING: This procedure is intended only for the use of MSI authorized repair facilities only. The improper setting of capacity can cause a safety hazard. Capacity is dictated by the MSI rated capacity of the Link load sensor. The meter electronics must not be set for a higher capacity than the Dyna-Link is rated for.

Initial calibration differs from the standard calibration procedure. The zero pot in the Dyna-Link must first be adjusted and then in the Cal procedure the capacity of the Dyna-Link is entered.

Zero Pot Adjustment

This procedure must be preceded by initializing the Dyna-Link. Follow the "Initialization Procedure".

Note: The zero pot is found inside the unit (Load Sensor) on all versions and sizes of the Dyna-Link family.

1) Turn off the power. Unload the Dyna-Link (leaving shackles and interface fittings connected is OK). Remove the 4 screws retaining the back cover of the Dyna-Link.
2) Turn on the power. After the turn-on sequence, the display will read the initial zero value in raw A/D counts.
3) Locate the only potentiometer on the PCB (R41 on standard and dual display Dyna-Links, R55 on Remote only Dyna-Links).
4) With a small screwdriver adjust the pot setting for a reading of 125-200 counts on the display. If you are unable to set the reading to 125-200, ensure that the Dyna-Link is totally unloaded and try again.
5) Turn off the power. Close up the Dyna-Link with the four seal screws ensuring that adequate torque is used to seal the gasket.

Capacity Setting and Calibration

1) Enable the Setup/Cal mode (See "General Setup Procedure" if you are unfamiliar with Dyna-Link setup menu and key operations).
2) Ensure the proper units that you wish to calibrate are selected (See "Calibration Units").
3) Push UP/DOWN until the display reads "CAL".
4) Push ENTER (POWER). You are now in the CAL menu.
5) The display will flash "CAP" as a signal that the next value to be shown is the capacity. Use the UP/DOWN keys to enter the capacity of the Dyna-Link. When the proper capacity is displayed, push ENTER (POWER).

> **WARNING**
>
> **WARNING:** Do not set the indicator capacity higher than the load sensor rated capacity, as a safety hazard will result!

6) The display will flash "ZEro" for two seconds as a prompt to unload the Dyna-Link for zeroing. (The number "2" is used to approximate a "Z")
7) The display will blink while showing the current zero value. When the zero reading is stable, push "ZERO".
8) The display will flash "LOAd" as a prompt to load the Dyna-Link with

the calibration weight. A weight of at least 20% of capacity is required.

Note: A test weight of 50% or more of capacity is recommended for increased accuracy.

9) The capacity of the Dyna-Link will be displayed next as a default setting for the calibration weight.
10) The left-most digit will flash. Push the UP/DOWN keys until the first digit matches the applied calibration weight first digit value. Push ENTER (POWER). At any time during the value entry, the CLEAR/ CANCEL function can be used to correct entries.

Note: For example, to enter 500 kg on a 1000 kg Dyna-Link, enter the first digit as a zero (0500).

11) The next digit will now flash. Using the UP/DOWN keys and the ENTER (POWER) key finish out the value entry. Before the last digit is entered make sure that the calibration weight has stabilized, as this can affect calibration accuracy. If there is not enough tension on the unit, the Error Message "CErr" will show for one second and you must start over again with step 6. Again, you must have at least 20% of capacity as a calibration weight.
12) If Calibration was successful, you will be returned to the SETUP menu ready to change another parameter if desired. If finished, push CLEAR/ CANCEL to return to normal operation.

MSI-7200 DYNA-LINK RFL AND RFH SPECIFICATIONS

MSI-7200 RFL DYNA-LINK

MSI-7200 RFH RF REMOTE CONTROLLER

WEIGHT:1.16 lb./.53 kg
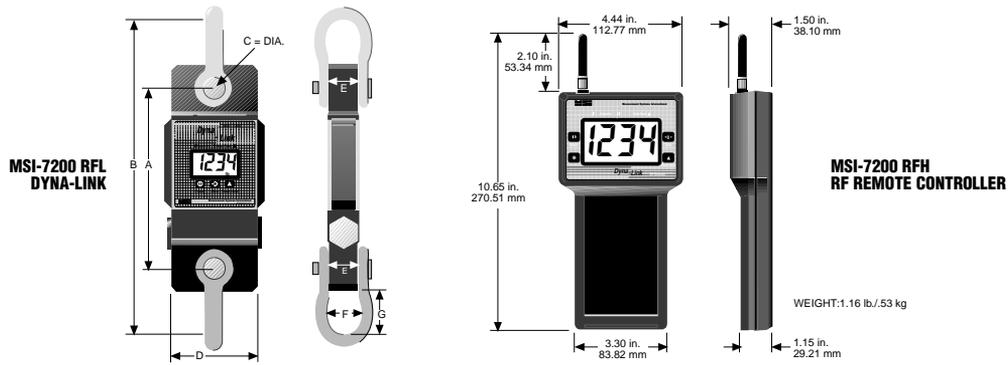
DIMENSIONS AND SPECIFICATIONS

CAPACITY	RESOLUTION	A	B	C	D	E	F	G	APPROX. SHIP WT.	SHACKLE #(Crosby)
500 lb	0.5 lb	9.25 in	14.77	0.75	4.50	0.99	1.69	1.87	6 lb	G-2130
250 kg	0.2 kg	235 mm	375	19	114	25	43	48	2.8 kg	3-1/4 T
1,000 lb	1 lb	9.25 in	14.77	0.75	4.50	0.99	1.69	1.87	6 lb	G-2130
500 kg	0.5 kg	235 mm	375	19	114	25	43	48	2.8 kg	3-1/4 T
2,000 lb	2 lb	9.25 in	14.77	0.75	4.50	0.99	1.69	1.87	6 lb	G-2130
1,000 kg	1 kg	235 mm	375	19	144	25	43	48	2.8 kg	3-1/4 T
5,000 lb	5 lb	9.50 in	15.02	0.75	4.50	0.99	1.69	2.00	7 lb	G-2130
2,500 kg	2 kg	241 mm	382	19	114	25	43	51	3.2 kg	3-1/4 T
10,000 lb	10 lb	9.50 in	17.12	1.00	5.75	1.35	2.28	2.68	8 lb	G-2130
5,000 kg	5 kg	241 mm	435	25	146	34	58	68	3.7 kg	6-1/2 T
25,000 lb	20 lb	10.13 in	23.26	1.63	4.80	2.24	3.88	4.81	30 lb	G-2130
12,500 kg	10 kg	257 mm	591	41	122	57	99	122	13.6 kg	17 T
50,000 lb	50 lb	10.88 in	26.88	2.00	5.43	2.74	5.00	6.00	50 lb	G-2130
25,000 kg	20 kg	276 mm	683	51	138	70	127	152	22.7 kg	25 T
100,000 lb	100 lb	12.50 in	30.25	2.25	6.86	3.10	5.75	6.37	85 lb	G-2140
50,000 kg	50 kg	318 mm	768	57	174	79	146	162	38.6 kg	55 T
160,000 lb	200 lb	13.50 in	37.25	2.75	7.50	3.88	7.25	8.88	150 lb	G-2140
80,000 kg	100 kg	343 mm	946	70	190	99	184	225	68 kg	85 T
220,000 lb	200 lb	14.00 in	43.25	3.25	7.50	4.74	7.88	11.36	185 lb	G-214
110,000 kg	100 kg	356 mm	1099	83	190	120	200	288	84 kg	120T
350,000 lb	500 lb	16.00 in	49.25	4.25	9.00	5.24	10.00	12.13	285 lb	G-2140
175,000 kg	200 kg	406 mm	1250	108	229	133	254	308	130 kg	175 T
400,000 lb	500 lb	17.50 in	53.25	4.75	9.50	6.96	11.00	12.88	450 lb	G-2140
200,000 kg	200 kg	445 mm	1353	121	241	177	279	327	204 kg	200 T
500,000 lb	500 lb	19.00 in	64.00	5.00	10.00	8.20	13.00	17.00	575 lb	G-2140
250,000 kg	200 kg	483 mm	1626	127	254	208	330	432	260 kg	250 T

OPTIONS AND ACCESSORIES
• Top and Bottom Shackles
• Portable Carry Case
• Audible Set Point Alarm (Remot Controller)
• RS232 Output (Remote Controller)

ADDRESSING THE MSI-7200RFL AND MSI-7200RFH RADIO BOARDS

The radio addresses are configured by switch SW1. The location of SW1 is shown in figure 1.

Setting the address in a MSI-7200RFL is accomplished with switch positions 1, 2 and 3 of switch SW1. The address for its corresponding MSI-7200RFH remote controller is accomplished with positions 4, 5 and 6.

Setting the address of the MSI-7200RFH is set with switch positions (1, 2 and 3) of switch SW1. The address of its corresponding MSI-7200RFL is set with switch positions (4, 5 and 6) of switch SW1.

For example, to set an MSI-7200RFL at address 2 and its corresponding MSI-7200RFH remote controller at address 3. SW1 on the MSI-7200RFL will be set accordingly (1-off, 2-on, 3-on, 4-on, 5-off, 6-on, 7-off, 8-on). The MSI-7200RFH remote controller's switch SW1 will be set accordingly (1-on, 2-off, 3-on, 4-off, 5-on, 6-on, 7-on, 8-on), as shown in figure 2. Only one radio per address may operate in the same 150ft radius at the same time. There can be a total of 4 pairs of radios working in the same area.
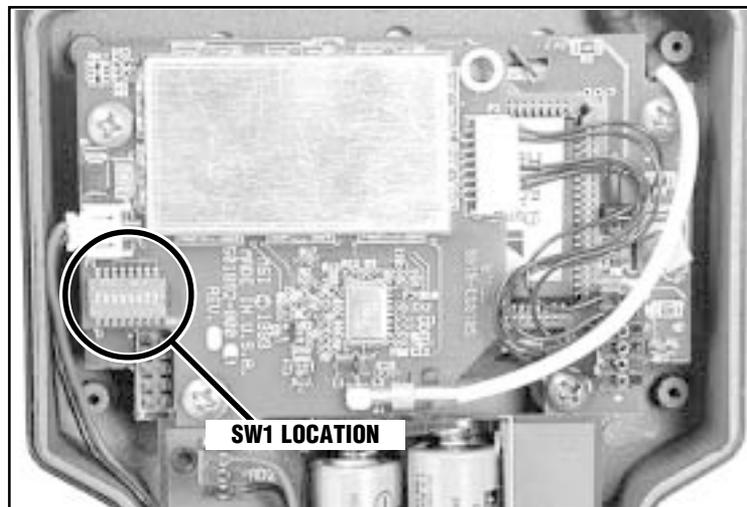
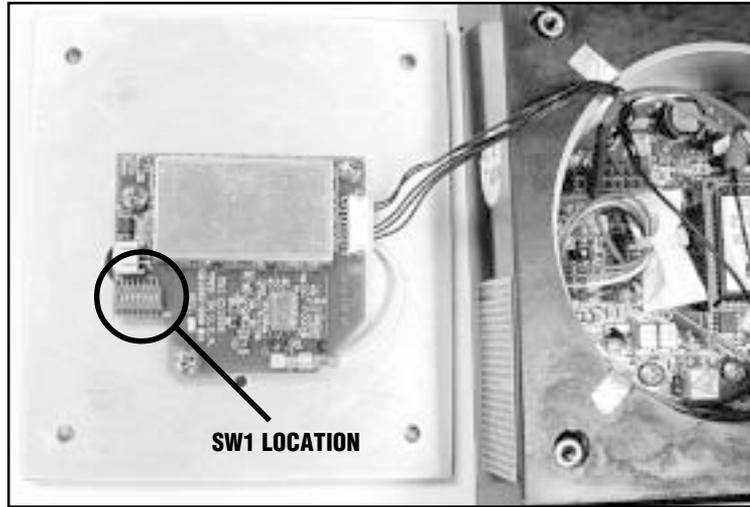

SW1 LOCATION

Figure 1. SW1 Location (MSI-7200RFH)

Figure 2. SW1 Location (MSI-7200RFL)

Switch position 7 on SW1 is factory set OFF on the MSI-7200RFL and ON for the MSI-7200RFH remote controller. This configuration setting should be maintained for reliable radio link between MSI-7200RFL and its selected remote controller.

Switch position 8 on SW1 is factor set ON and should remain in this position.
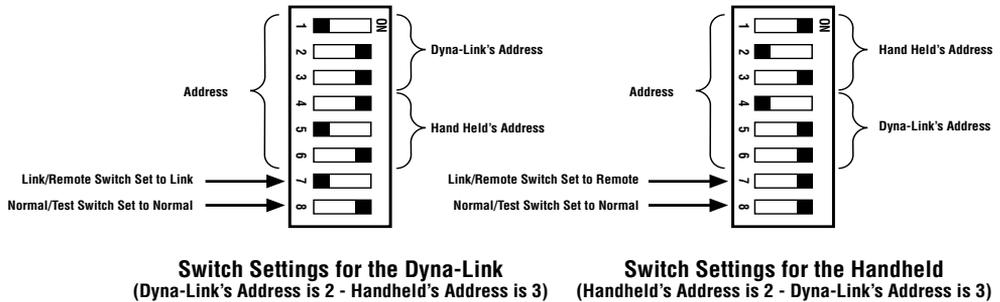

Switch Settings for the Dyna-Link
(Dyna-Link's Address is 2 - Handheld's Address is 3)

Switch Settings for the Handheld
(Handheld's Address is 2 - Dyna-Link's Address is 3)

Figure 3. Example of Switch Settings

SETTING THE ADDRESSES

Open the back of the MSI-7200RFL. Look on the back panel and find switch SW1. Look at table 1, find the address that you wish to use for the MSI-7200RFL (across the top of the table). Look at the column below the number of the address that you have chosen. The switch settings are in the top portion of the table. Set SW1 positions 1 through 3 accordingly. Now find that address that you wish to use for the corresponding RF remote (MSI-7200RFH) across the lower portion of the table. Look at the column below the number. Set SW1 positions 4 through 8 accordingly.

Set the MSI-7200RFL aside, and open the MSI-7200RFH. Look inside and find switch SW1. Look at table 2, find the address that you wish to use for the MSI-7200RFH (across the top of the table). Look at the column below the number of the address that you have chosen. The switch settings are in the top portion of the table. Set SW1 positions 1 through 3 accordingly. Now find that address that you wish to use for the corresponding RF Dyna-Link (MSI-7200RFL) across the lower portion of the table. Look at the column below the number. Set SW1 positions 4 through 8 accordingly. Observe that settings of SW1 positions 1 through 3 of the Dyna-Link (MSI-7200RFL) match the settings of SW1 positions 4 through 8 of the remote (MSI-7200RFH). Observe that settings of SW1 positions 4 through 8 of the Dyna-Link (MSI-7200RFL) match the settings of SW1 positions 1 through 3 of the remote (MSI-7200RFH). Make sure that SW1 position 7 is OFF for the Dyna-Link (MSI-7200RFL) and that SW1 position 7 is ON for the remote (MSI-7200RFH). Make sure that SW1 position 8 is on for both the Dyna-Link (MSI-7200RFL) and the remote (MSI-7200RFH). The Dyna-Link and remote pair are now ready to communicate.

TO SET ADDRESSES ON THE 7200RFL

MSI-7200RFL address =	1	2	3	4	5	6	7	8
Set Switch SW1-1 to	ON	OFF	ON	OFF	ON	OFF	ON	OFF
Set Switch SW1-2 to	ON	ON	OFF	OFF	ON	ON	OFF	OFF
Set Switch SW1-3 to	ON	ON	ON	ON	OFF	OFF	OFF	OFF

MSI-7200RFH address =	1	2	3	4	5	6	7	8
Set Switch SW1-4 to	ON	OFF	ON	OFF	ON	OFF	ON	OFF
Set Switch SW1-5 to	ON	ON	OFF	OFF	ON	ON	OFF	OFF
Set Switch SW1-6 to	ON	ON	ON	ON	OFF	OFF	OFF	OFF
Set Switch SW1-7 to	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Set Switch SW1-8 to	ON	ON	ON	ON	ON	ON	ON	ON

Table 1. Setting the Addresses on the MSI-7200RFL

TO SET ADDRESSES ON THE 7200RFH

MSI-7200RFH address =	1	2	3	4	5	6	7	8
Set Switch SW1-1 to	ON	OFF	ON	OFF	ON	OFF	ON	OFF
Set Switch SW1-2 to	ON	ON	OFF	OFF	ON	ON	OFF	OFF
Set Switch SW1-3 to	ON	ON	ON	ON	OFF	OFF	OFF	OFF

MSI-7200RFL address =	1	2	3	4	5	6	7	8
Set Switch SW1-4 to	ON	OFF	ON	OFF	ON	OFF	ON	OFF
Set Switch SW1-5 to	ON	ON	OFF	OFF	ON	ON	OFF	OFF
Set Switch SW1-6 to	ON	ON	ON	ON	OFF	OFF	OFF	OFF
Set Switch SW1-7 to	ON	ON	ON	ON	ON	ON	ON	ON
Set Switch SW1-8 to	ON	ON	ON	ON	ON	ON	ON	ON

Table 2. Setting the Addresses on the MSI-7200RFL

LOW BATTERY INDICATON - MSI-7200RFL AND MSI-7200RFH

There is a low battery indication in both the MSI-7200RFL and the MSI-7200RFH remote controller. When the low battery indication appears only on the remote controller the batteries in the remote controller need only be replaced. If the low battery indication appears on both the MSI-7200RFL and the remote controller, the batteries in either unit may need to be replaced. First, replace the batteries in the MSI-7200RFL. If the low battery indication disappears on both the load sensor and the remote controller no further action is required. If the low battery indication remains on in the remote controller, then its batteries must also be replaced.

CALIBRATION

The MSI-7200RFL can not be calibrated by the MSI-7200RFH remote controller. Calibration and set up of the MSI-7200RFL must be done directly on the load sensor assembly.

POWER

The MSI-7200RFL is powered by two each "C" batteries, which provide approximately 150 hours of continuous use. The MSI-7200RFH remote controller is powered by six each "AA" batteries, which provide approximately 150 hours of continuous use.

The MSI-7200RFL has two power down modes, the OFF mode and the STANDBY mode. When the power is turned OFF at the MSI-7200RFL, the unit is in its lowest power usage mode. When the MSI-7200RFL is in the OFF mode, it can only be turned ON at its own power button.

In the STANDBY mode the MSI-7200RFL may be tuned ON and OFF from the MSI-7200RFH remote controller. Although, when in STANDBY mode the MSI-7200RFL is not completely OFF and will draw minimal power from the batteries while listening for power ON commands from the remote controller. The batteries in the MSI-7200RFL will store for approximately 450 hours in the STANDBY mode.

When MSI-7200RFL power is turned OFF at the remote controller it will initiate the STANDBY mode. To turn the MSI-7200RFL completely OFF, power it ON at its own power button, and then power it OFF with its own power button.

Note: For long periods of storage, it is recommended that the batteries be removed from both devices.

RANGE

The Dyna-Link RF remote typically has a range of up to 100 feet, but orientation of the link and the environment that the unit is used in may affect the range.
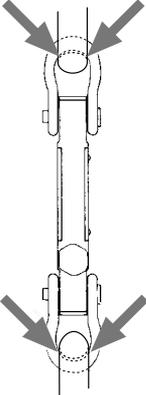
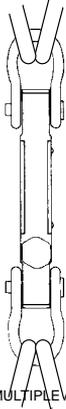## PROPER LOADING PROCEDURES

DO

USE HARDWARE THAT CREATES SINGLE POINT ATTACHMENTS AND ALLOWS THE MEASUREMENT DEVICE FREEDOM OF ALIGNMENT.
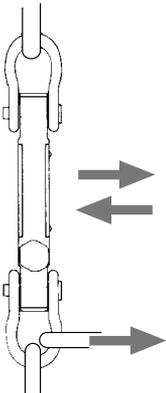
DO NOT

DO NOT INTERFACE HARDWARE (SHACKLES, HOOKS ETC.) THAT ARE OVERSIZED AND RESTRICT SINGLE POINT LOADING AND SELF-ALIGNMENT WHICH CAN RESULT IN OFF-AXIS LOADING.
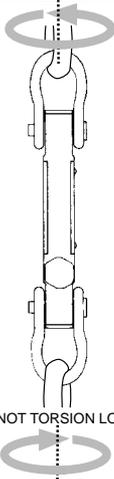
DO NOT

DO NOT USE MULTIPLE ATTACHMENTS.

DO NOT

1. DO NOT PUSH OR PULL ON LOADED MEASUREMENT DEVICE.
2. DO NOT PULL LATERALLY ON HOOK WITH MEASUREMENT DEVICE LOADED.

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DO NOT

DO NOT TORSION LOAD.

THE MSI LIMITED WARRANTY

MEASUREMENT SYSTEMS INTERNATIONAL, INC., WARRANTS load sensing elements and meters against defects in workmanship and materials for a period of one year from date of purchase and warrants electrical cables and batteries against the same defects for a period of ninety (90) days from date of purchase.

Any device which proves defective during the warranty period will be replaced or repaired at no charge; provided that the defective device is returned to the Company freight pre-paid.

In no event shall the Company be liable for the cost of any repairs or alterations made by others except those repairs or alterations made with its specific written consent, nor shall the Company be liable for any damages or delays whether caused by defective workmanship, materials or otherwise.

The Company shall not be liable for any personal injury or property damage resulting from the handling, possession or use of the equipment by the customer.

The warranty set forth herein is exclusive and is expressly in lieu of all other warranties, express or implied, including without limitation any implied warranties of merchantability or fitness or of any other obligations or liability on the part of the Company.

The liability of the Company under this warranty is limited solely to repairing or replacing its products during the warranty periods; and the final judgement and disposition of all claims will be made by Measurement Systems International, Inc.

Measurement Systems International