

ED~~X~~treme Dynamometer and Crane Scale



Optional Communicator



User Instructions

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1 General Information and Warnings

1.1 About this Manual

This manual is divided into chapters by the chapter number and the large text at the top of a page. Subsections are labeled as shown by the 1 and 1.1 headings shown above. The names of the chapter and the next subsection level appear at the top of alternating pages of the manual to remind you of where you are in the manual. The manual name and page numbers appear at the bottom of the pages.

1.1.1 Text Conventions

Key names are shown in **bold** and reflect the case of the key being described. This applies to hard keys and onscreen or soft keys.

Displayed messages appear in ***bold italic*** type and reflect the case of the displayed message.

1.1.2 Special Messages

Examples of special messages you will see in this manual are defined below. The signal words have specific meanings to alert you to additional information or the relative level of hazard.



WARNING!

This is a Warning symbol.

Warnings mean that failure to follow specific practices and procedures may have major consequences such as injury or death.



CAUTION!

This is a Caution symbol.

Cautions give information about procedures that, if not observed, could result in damage to equipment or corruption to and loss of data.



NOTE: This is a Note symbol. Notes give additional and important information, hints and tips that help you to use your product.

1.2 Safe Operation



WARNING: *If you overload this dynamometer you could suffer severe injuries or death. The total load on the dynamometer should NEVER exceed the rated capacity.*



WARNING: *Do not use the dynamometer if there is any significant damage or deformation visible.*

Keep all the following in mind as you use the EDX dynamometer.

The system capacity is equal to the rating of the dynamometers. The shackle rating should not be used to determine lift capacity of the system.

The shackles are rated in metric tons. Thus the 12-ton shackles are rated to 26,450 lbf and are suitable for use on the 25,000 lbf dynamometer.

Any zeroed deadload must be considered as part of the ultimate load.

Although this instrument has a substantial overload protection rating, the instrument should not be used above the rated capacity. Doing so can significantly impact fatigue life of the instrument and cause premature and abrupt failure. If a higher capacity reading is needed, Dillon insists that a larger instrument be used.

Safety is always a concern in overhead lifting and tensioning applications. To limit your liability always insist upon factory supplied shackles and pins and factory tested and certified safe optional equipment. All DILLON products are designed to meet the published Safe Working Load (SWL) and Ultimate Safety Factor (USF) standards of the United States Military.

Do not grind, stamp, drill or deform the metal on the dynamometer body in any way. Protect the instrument from impact in use and storage.

Any significant damage or deformation to the loading element is cause for evaluation by Dillon, particularly in the element side members to the right and left of the display.

Relieve all torsional and off axis loads.



CAUTION: *Remove batteries from instrument when using the external EDX PSU power supply.*

Apply load in the center of the shackle bow with this instrument.

Off center loading results in substandard performance.

Instrument requires time to stabilize when changing temperatures.

Use only the hardware supplied with this instrument. If no hardware was supplied, insure that the mating pin and shackle bow is equivalent to the hardware used at calibration. Otherwise substandard performance or failure can result.

Dillon recommends only using qualified rigging hardware and cannot be responsible for unapproved hardware.

This instrument is not designed for the following:

- Applications that see rapid, dramatic temperature swings or thermal shock. Wide variation in readings can occur.
- Environments with high electromagnetic fields such as cranes employing electromagnets to lift metal. These induce trace voltages that are picked up within the load cell lead wiring and appear as inaccurate loads.
- Intrinsically safe environments. This unit has not been Factory Mutual tested.

1.2.1 Safe Handling of Equipment with Batteries



CAUTION: *Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.*

ATTENTION: *Il y a danger d'explosion s'il y a remplacement incorrect de la batterie, remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.*

1.3 Routine Maintenance



IMPORTANT: *This equipment must be routinely checked for proper operation and calibration. Application and usage will determine the frequency of calibration required for safe operation.*

1.4 Cleaning the Machine



Table 1.1 Cleaning DOs and DON'Ts

DO	DO NOT
Wipe down the outside of standard products with a clean cloth, moistened with water and a small amount of mild detergent	Attempt to clean the inside of the machine
Spray the cloth when using a proprietary cleaning fluid	Use harsh abrasives, solvents, scouring cleaners or alkaline cleaning solutions
	Spray any liquid directly on to the display windows

1.5 Training

Do not attempt to operate or complete any procedure on a machine unless you have received the appropriate training or read the instruction books.

To avoid the risk of RSI (Repetitive Strain Injury), place the machine on a surface which is ergonomically satisfactory to the user. Take frequent breaks during prolonged usage.

1.6 Sharp Objects

Do not use sharp objects such as screwdrivers or long fingernails to operate the keys.

1.7 FCC and EMC Declarations of Compliance

1.7.1 Modifications

The FCC states that any changes or modifications to this device that are not expressly approved by Dillon may void the user's authority to operate the equipment.

1.7.2 Radio Safety

The radiated output power of this device is far below the FCC radio frequency exposure limits. Nevertheless, the device shall be used in such manner that the potential for human contact during normal operation is minimized.

In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 3 inch (7.5 cm) during normal operation. The antenna is located internal to the Communicator.

1.7.3 Radio Communications Reliability

Radio systems are vulnerable to interference, resulting in delays between the dynamometer scale and remote. In some instances of interference, the display shown on the remote may be several seconds old. This can result in a hazardous situation when the system is used as the reference for acceptable loads in cases such as proof loading and monitoring of binding or overload. In these applications where timely updates are critical, a communication cable should be used to physically connect the EDXtreme and Communicator remote (see setup of wired communications). Alternately, the EDXtreme display can be observed directly.



WARNING: *Low power radio systems should not be used in applications where timely updates of readings are required for safety purposes.*

United States

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canada

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

European Countries

WARNING: This is a Class A product. In a domestic environment, this product may cause radio interference in which the user may be required to take adequate measures.

Agency Identification Numbers	
US/FCC	CAN/IC
OUR-XBEEPRO	4214A-XBEEPRO

1.8 Declaration of Conformity (EDX and Communicator II)

DILLON

Dillon is part of Avery Weigh-Tronix
Foundry Lane, Smethwick, West Midlands, B66 2LP, England



Declaration of Conformity
Verklaring van Overeenstemming
Déclaration de Conformité

Konformitätserklärung
Dichiarazione di conformità
Declaración de Conformidad

Manufacturer Type EDx, EDjr Serial No. 25T EDx Serial No. Communicator II Serial No.	Avery Weigh-Tronix Dillon EDx, EDjr Communicator II DEDRxxxxxx DEDR2700977 Onwards DCOM005000 Onwards
The machinery fulfils all the relevant provisions of the Machinery Directive 2006/42/EC ¹	
The equipment additionally corresponds to the requirements of the following EC directives:	
EMC Directive	2004/108/EC
Low Voltage Directive	2006/95/EC
The applicable harmonised standards are:	
EN61000-6-1:2007 EN 60950-1 : 2006 +A12:2011	EN 61000-6-3 : 2007 +A1:2011
Note ¹ : A copy of the Technical File for this equipment is available from M.S. Williams at the address below.	
ITW Ltd trading as Avery Weigh-Tronix Foundry Lane, Smethwick, West Midlands, B66 2LP, England Reg. Office: Admiral House, St Leonards Road, Berkshire SL4 3BL, England Registered in England No. 00559693	

Hersteller Typ EDx, EDjr Seriennummer 25T EDx Seriennummer Communicator II Seriennummer	Avery Weigh-Tronix Dillon EDx, EDjr Communicator II DEDRxxxxxx Ab DEDR2700977 Ab DCOM005000
Diese Maschine erfüllt die entsprechenden Bestimmungen der Maschinenrichtlinie 2006/42/EG ¹	
Darüber hinaus entspricht das Gerät den Anforderungen der folgenden EG-Richtlinien:	
EMV-Richtlinie	2004/108/EG
Niederspannungs Richtlinie	2006/95/EG
Die angewendeten harmonisierten Normen sind:	
EN61000-6-1:2007 EN 60950-1 : 2006 +A12:2011	EN 61000-6-3 : 2007 +A1:2011
Anmerkung ¹ : Eine Kopie der technischen Unterlagen für dieses Gerät kann von M.S. Williams bei der unten stehenden Adresse angefordert werden.	
ITW Ltd trading as Avery Weigh-Tronix Foundry Lane, Smethwick, West Midlands, B66 2LP, England Reg. Office: Admiral House, St Leonards Road, Berkshire SL4 3BL, England Registered in England No. 00559693	

Produttore Modello EDx, EDjr N. di serie 25T EDx N. di serie Communicator II N. di serie	Avery Weigh-Tronix Dillon EDx, EDjr Communicator II DEDRxxxxxx A partire da DEDR2700977 A partire da DCOM005000
L'apparecchio rispetta tutte le disposizioni rilevanti della Direttiva Macchine 2006/42/CE ¹	
Inoltre, l'apparecchio è conforme a tutti i requisiti delle seguenti direttive CE:	
Normativa EMC Normativa per la bassa tensione	2004/108/CE 2006/95/CE
Le norme standard armonizzate e nazionali applicate sono:	
EN61000-6-1:2007 EN 60950-1 : 2006 +A12:2011	EN 61000-6-3 : 2007 +A1:2011
Nota ¹ : Una copia della scheda tecnica di questo apparecchio è disponibile presso M.S. Williams, all'indirizzo seguente.	
ITW Ltd trading as Avery Weigh-Tronix Foundry Lane, Smethwick, West Midlands, B66 2LP, England Sede legale: Admiral House, St Leonards Road, Berkshire SL4 3BL, England N. iscrizione al registro delle imprese inglese: 00559693	

Fabricante Tipo EDx, EDjr Número de serie 25T EDx Número de serie Communicator II Número de serie	Avery Weigh-Tronix Dillon EDx, EDjr Communicator II DEDR2401391 A partir de DEDR2700977 A partir de DCOM005000
La máquina cumple con todas las disposiciones pertinentes de la Directiva 2006/42/CE relativa a las máquinas ¹	
Además, el equipo satisface los requisitos de las siguientes directivas CE:	
Directiva CME Directiva de baja tensión	2004/108/CE 2006/95/CE
Las normas armonizadas en vigor son:	
EN61000-6-1:2007 EN 60950-1 : 2006 +A12:2011	EN 61000-6-3 : 2007 +A1:2011
Nota ¹ : Puede solicitarse a M.S. Williams una copia del expediente técnico correspondiente a este equipo en la dirección que se indica.	
ITW Ltd trading as Avery Weigh-Tronix Foundry Lane, Smethwick, West Midlands, B66 2LP, Inglaterra. Reg. Office: Admiral House, St Leonards Road, Berkshire SL4 3BL, Inglaterra. Registrado en Inglaterra bajo el n.º: 00559693	

Signature/Name Handtekening/Naam Signature/Nom Unterschrift/Name Firma/Nome Firma/Nombre	 K. Detert Global Head of R & D	Authorised signatory for Avery Weigh-Tronix Namens van Avery Weigh-Tronix Signataire autorisé d'Avery Weigh-Tronix Unterschriftsberechtigter für Avery Weigh-Tronix Firmatario autorizzato per Avery Weigh-Tronix Firmante autorizado para Avery Weigh-Tronix	Date Datum Date Datum Data Fecha
		27 May 2015	

76501-214 Iss5

1.9 Declaration of Conformity (EDX PSU)

DILLON

Dillon is part of Avery Weigh-Tronix
Foundry Lane, Smethwick, West Midlands, B66 2LP, England



Declaration of Conformity
Verklaring van Overeenstemming
Déclaration de Conformité

Konformitätserklärung
Dichiarazione di conformità
Declaración de Conformidad

Manufacturer	Avery Weigh-Tronix
Type	Dillon EDx PSU
corresponds to the requirements of the following EC directives:	
EMC Directive	2004/108/EC
Low Voltage Directive	2006/95/EC
The applicable harmonised standards are:	
EN61000-6-1:2007 EN 60950-1 : 2006 +A1:2009	EN61000-6-4:2007
ITW Ltd trading as Avery Weigh-Tronix Foundry Lane, Smethwick, West Midlands, B66 2LP, England Reg. Office: Admiral House, St Leonards Road, Berkshire SL4 3BL, England Registered in England No. 00559693	


Fabrikant	Avery Weigh-Tronix
Type	Dillon EDx PSU
is in overeenstemming met de voorschriften van de volgende EG richtlijnen:	
EMC Richtlijn	2004/108/EG
Laagspanningsrichtlijn	2006/95/EG
Toegepaste geharmoniseerde normen:	
EN61000-6-1:2007 EN 60950-1 : 2006 +A1:2009	EN61000-6-4:2007
ITW Ltd trading as Avery Weigh-Tronix Foundry Lane, Smethwick, West Midlands B66 2LP, England Reg. Kantoor: Admiral House, St Leonards Road, Berkshire SL4 3BL, Engeland Geregistreerd in Engeland nr: 00559693	

Fabricant	Avery Weigh-Tronix
Type	Dillon EDx PSU
correspond aux exigences des directives CE suivantes :	
Directive CEM	2004/108/CE
Directive Basse Tension	2006/95/CE
Les normes harmonisées applicables sont :	
EN61000-6-1:2007 EN 60950-1 : 2006 +A1:2009	EN61000-6-4:2007
ITW Ltd trading as Avery Weigh-Tronix Foundry Lane, Smethwick, West Midlands, B66 2LP, Angleterre Siège social : Admiral House, St Leonards Road, Berkshire SL4 3BL, Angleterre Enregistré en Angleterre sous le numéro : 00559693	

Hersteller	Avery Weigh-Tronix
Typ	Dillon EDx PSU
entspricht den Anforderungen folgender EG-Richtlinien:	
EMV-Richtlinie	2004/108/EG
Niederspannungs Richtlinie	2006/95/EG
Die angewendeten harmonisierten Normen sind:	
EN61000-6-1:2007 EN 60950-1 : 2006 +A1:2009	EN61000-6-4:2007
ITW Ltd trading as Avery Weigh-Tronix Foundry Lane, Smethwick, West Midlands, B66 2LP, England Reg. Office: Admiral House, St Leonards Road, Berkshire SL4 3BL, England Registered in England No. 00559693	

Produttore	Avery Weigh-Tronix
Modello	Dillon EDx PSU
è conforme alle caratteristiche previste dalle seguenti direttive CE:	
Normativa EMC	2004/108/CE
Normativa per la bassa tensione	2006/95/CE
Le norme standard armonizzate e nazionali applicate sono:	
EN61000-6-1:2007 EN 60950-1 : 2006 +A1:2009	EN61000-6-4:2007
ITW Ltd trading as Avery Weigh-Tronix Foundry Lane, Smethwick, West Midlands, B66 2LP, England Sede legale: Admiral House, St Leonards Road, Berkshire SL4 3BL, England N. iscrizione al registro delle imprese inglese: 00559693	

Fabricante	Avery Weigh-Tronix
Tipo	Dillon EDx PSU
conforme a las exigencias de las siguientes directivas CE:	
Directiva CME	2004/108/CE
Directiva de baja tensión	2006/95/CE
Las normas armonizadas en vigor son:	
EN61000-6-1:2007 EN 60950-1 : 2006 +A1:2009	EN61000-6-4:2007
ITW Ltd trading as Avery Weigh-Tronix Foundry Lane, Smethwick, West Midlands, B66 2LP, Inglaterra. Reg. Office: Admiral House, St Leonards Road, Berkshire SL4 3BL, Inglaterra. Registrado en Inglaterra bajo el n.º: 00559693	

Signature/Name Handtekening/Naam Signature/Nom Unterschrift/Name Firma/Nombre Firma/Nombre	 K. Detert Global Head of R & D	Authorised signatory for Avery Weigh-Tronix Namens van Avery Weigh-Tronix Signataire autorisé d'Avery Weigh-Tronix Unterschriftsberechtigter für Avery Weigh-Tronix Firmatario autorizzato per Avery Weigh-Tronix Firmante autorizado para Avery Weigh-Tronix	Date Datum Date Datum Data Fecha
		1 April 2014	

76501-389 Issue 1

2 Introduction



WARNING: *If you overload this dynamometer you could suffer severe injuries or death. The total load on the dynamometer should NEVER exceed the rated capacity.*

The EDXtreme™ (EDX) electronic dynamometer from Dillon is a force measurement load sensor and digital readout in one instrument. The EDX can be used to measure tension or weight. It can operate stand-alone or be coupled with a remote Dillon Communicator, via radio communication or direct wire connection, for improved convenience, functionality and safety.

This manual covers the setup and operation of the EDX and optional Communicator. General information is covered in the right column of each page with major sections separated by the black bar shown above. Subheads appear in the left column along with any special notes, cautions or warnings.

This manual covers the following:

- EDX & Communicator Description
- EDX Setup, Configuration and Operation
- Communicator Setup
- General Information on the EDX
- Troubleshooting

Be sure to read the safety precautions found in *Safe Operation* on [page 4](#).

2.1 EDX Front Panel

The EDX comes in several weight capacities. All have the same front panel, shown in [Figure 2.1](#).



Figure 2.1 EDXtreme Front Panel

2.1.1 EDX Keys

There are four “hard” keys and four “soft” keys. The hard keys are permanently labeled and the soft keys are just below the display. The soft key functions change and the key label appears above each key on the display. Sometimes the individual soft keys are referred to as the F1, F2, F3 and F4 keys as numbered from left to right.



On/Off key Use this key to turn the unit on and off.



ZERO key Use this key to zero the force indicated on the display.



ESC key Use this key to escape from portions of the menu structure and return to previous choices or displays.



Arrow key Use this key to access any available soft keys not currently viewed.

2.2 EDXtreme Connector

The connector on the EDXtreme is recessed for protection. It is used to connect the instrument to a Communicator remote display/controller, printer, PC or external power supply. See your Dillon distributor for details.



Figure 2.2 EDXtreme Connector

2.2.1 External Power Supply Connection (EDX 4-Pin)

Plug the 4-pin end of the power supply cable into the EDXtreme 4-pin connector located on the back of the unit. Plug the power supply adapter into an AC power outlet. Refer to [Figure 2.4](#) for a photo of the external power supply.



Figure 2.3 External Power Supply Connection (EDXtreme)



Figure 2.4 External Power Supply (EDX PSU)

2.3 Communicator Front Panel

Figure 2.5 shows the Dillon Communicator. This is a battery powered (or AC adapter powered), radio-linked (or wired) remote display and control unit.

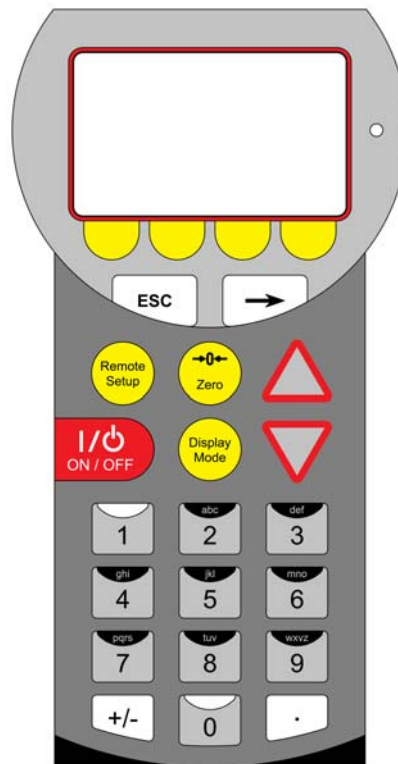










Figure 2.5 Dillon Communicator

2.3.1 Communicator Keys

The Communicator has the same keys as the EDX but also some extra ones. They are all explained below:

	On/Off key	Use this key to turn the unit on and off.
	ZERO key	Use this key to zero the force indicated on the EDX and Communicator displays.
	ESC key	Use this key to escape from portions of the menu structure and return to previous choices or displays.
	Arrow key	Use this key to access any available soft keys not currently viewed.
	Up and Down key	Use these arrow keys to move through menu choices, when applicable. Also scrolls through any active links.
	Remote Setup key	Use this key to access the Setup menu.
	Display Mode key	Use this key to cycle between Communicator display modes. They are EDX specific force value, EDX specific peak value, multiple display of force values and multiple display of peak values.
	Keypad keys	Use these keys to enter numeric characters. Use for address assignments and other miscellaneous data entry.

2.4 Communicator Connectors

The Communicator has 2 connectors. CELL is for wireline communications with an EDXtreme. COM1 is for serial communications or an external power supply.



Figure 2.6 CELL and COM1 Connectors

2.4.1 External Power Supply Connection (Communicator 4-Pin)

Plug the 4-pin end of the power supply cable into the COM1 4-pin connector located on the top of the unit. Plug the power supply adapter into an AC power outlet. Refer to [Figure 2.4](#) for a photo of the external power supply.



Figure 2.7 External Power Supply Connection (Communicator)

2.5 Power On and Annunciators

When the EDX powers up you will see a display similar to the example shown on the left in [Figure 2.8](#).

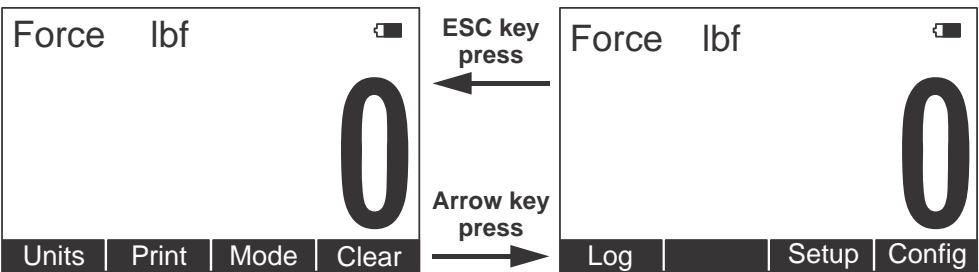





Figure 2.8 Initial Displays



Depending on permission settings and/or revision of firmware, various soft keys may be in a different location or not visible.

The display sample above shows several symbols you may see on your display but usually not all at the same time.

- Force** Indicates that the display is showing live force measurement at the moment. Will show Peak when viewing Peak Mode.
- lbf** Current unit of measure is lbf in this example. May also be kgf, N, or up to 2 other custom units.
- ~** Motion symbol. This appears when the force is in motion. This symbol disappears when motion ceases.
-  Battery annunciator. This shows approximate remaining battery life.
-  Capture of a new peak value. This annunciator will remain lit for a few seconds.

Press the **Arrow** key, , to move between the two displays shown in [Figure 2.8](#).



lbf and kgf are units of force, not weight. See [Config--Units on page 39](#) for more information.

2.6 Soft Keys

Below the display are four yellow keys called 'soft keys'. Each has a different function.

Units	Cycle through the configured and available units of measure.
Print	Send data to an attached printer, remote display or computer.
Mode	Cycle between the configured and enabled display modes.
Clear	Clear Peak Weight
Log	Configure and view data logging settings.
Setup	Enter Setup Menu. See page 25 .
Config	Enter Configuration menu. See page 33 .

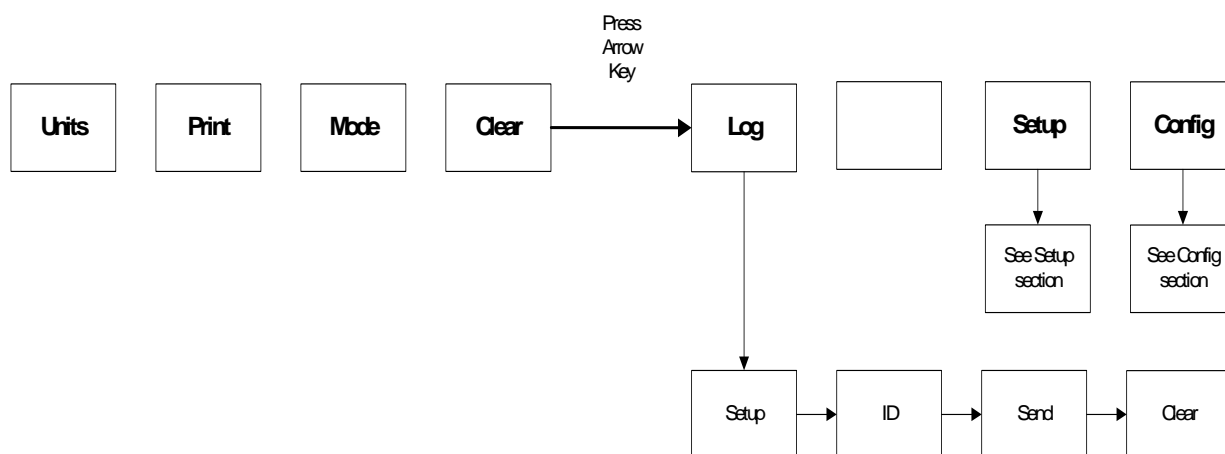


Figure 2.9 Soft Key Menu

3 EDX Operation

The EDXtreme uses a menu system to perform specific functions or make changes to the configuration. Refer to [Figure 3.1](#) for the user menu diagram.

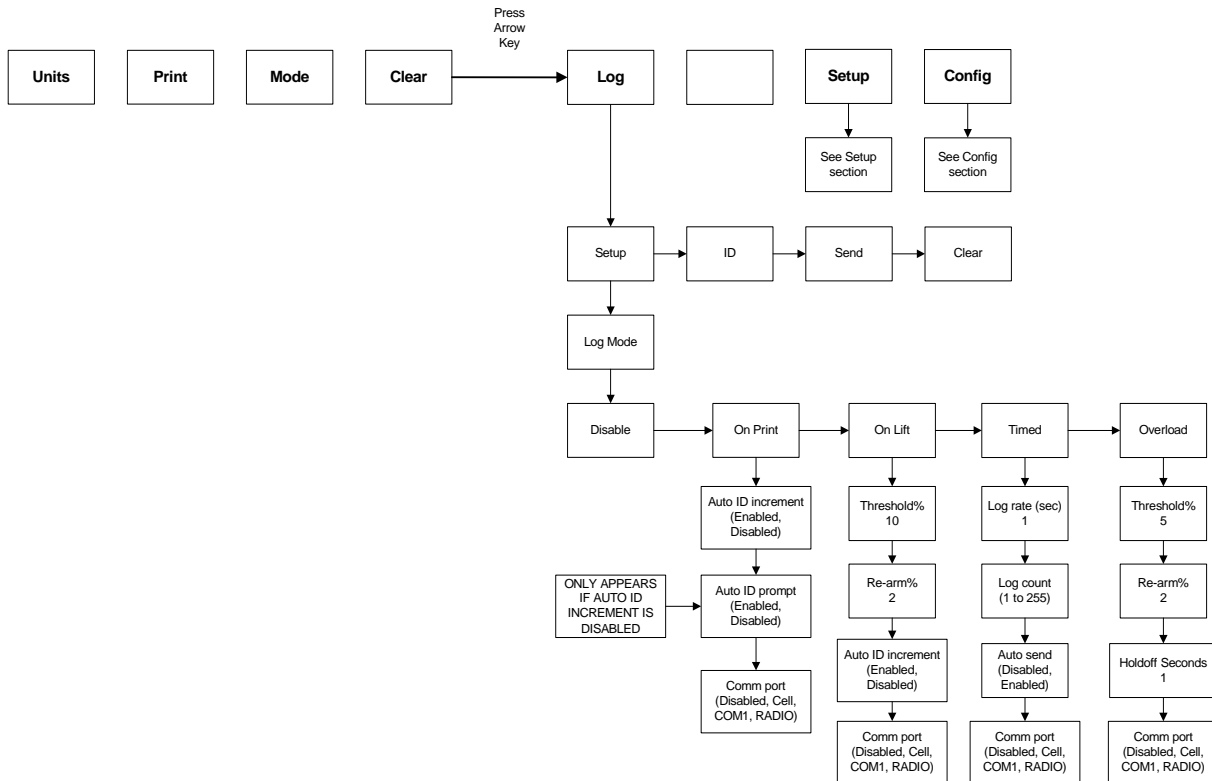


Figure 3.1 User Menu

Units	Press the Units key to choose one of the following units; lbf, kgf, N.
Print	Press the Print key to send to a peripheral device such as a printer, remote display or computer. (Also used to start and stop when using “Timed” under Log.
Mode	Press the Mode key to select between force, peak or force/peak modes.
Clear	Press the Clear key to clear the Peak weight.
Log	Press the Log key to configure and view data logging settings. See section 3.4 .
Setup	Press the Setup key to access the Setup menu and configure logging function.
Config	Press the Config key to access the Configuration menu.

3.1 Display Modes

The EDX has several display modes accessible by pressing the **Mode** soft key. See [Figure 3.2](#).

The first display mode when you power up is the live force measurement mode.

Press the **Mode** soft key and the display changes to peak measurement mode. This mode shows the peak force applied to the EDX since the last peak clearing action. Delete the peak reading by pressing the **Clear** soft key.



Power up display modes may be configured. See Config>Mode section.

Press the **Mode** soft key again and the display shows live force and peak readings simultaneously.

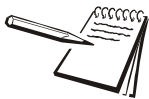
Press the **Mode** soft key again and the display returns to the force measurement mode.

3.2 Force Measurement

Follow these steps to perform a gross force measurement.

1. Turn on the unit with the **On/Off** key.
2. Remove any weight from the EDX.
3. Zero the EDX by pressing the **ZERO** key.
4. Apply the force to the EDX and read the gross force on the display.

You can change the units of measure of the display by pressing the **Units** soft key. See the note below. Zero reference is maintained after the instrument is powered off and will be recalled with the next power-on. Zero reference may be lost if battery power is removed.



Unit of measure can be changed only if multiple units are enabled in the Configuration menu.

3.2.1 Force Measurement Rezero and Net Force Display

Rezeroing allows the weight or load of fixturing to be invisible to the measurement. The zeroed load must always be considered as part of the maximum capacity.

1. Turn on the unit with the **On/Off** key.
2. Remove any weight from the EDX.
3. Zero the EDX by pressing the **ZERO** key.
4. Apply the tare force to the EDX and press the **ZERO** key.
5. Apply the force to the EDX and read the net force on the display.

Steps 2 and 3 are not required if the weight of the fixturing is not needed. This should be maintained, however, to know cumulative loads.

3.3 Displaying Peak Force

The EDX will store the peak force applied until that reading is cleared. To display the peak force applied to an EDX, from the force measurement mode, press the **Mode** soft key. The display changes to display menu #2 shown in Figure 3.2 which is the peak display mode. The peak force is displayed. You can clear this by pressing the Clear soft key.

Peak reading is maintained after the instrument is powered off and will be recalled with the next power-on. Peak reading may be lost if battery power is removed.

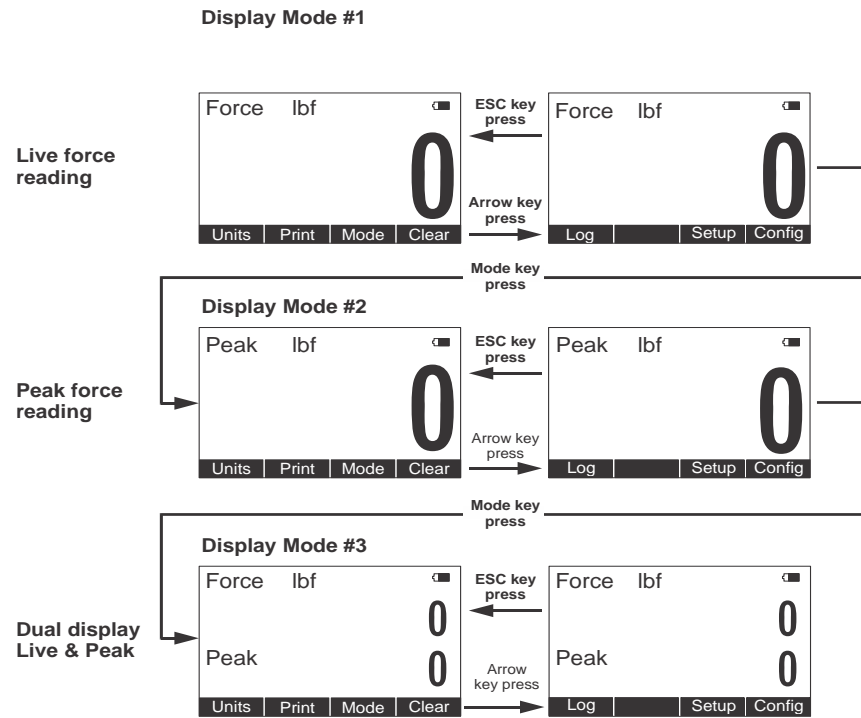


Figure 3.2 Display Mode Menu

Press the **Mode** soft key repeatedly until the desired display mode is reached.

3.4 Log Mode

Log mode is used to log/record force and peak data. This can be done on each lift, during a timed duration, during an overload or on Print key operation.

Press the appropriate soft key shown in Figure 3.1 to accomplish the functions listed on the following pages.

Setup Setup allows the user to configure how the EDXtreme stores data internally. This stored data can be downloaded via the 4 pin Lemo (CELL port on the EDX) to a PC via a keyboard wedge or other device.

Log Mode:

Disable: Turns the log feature off.

On Print: Used when the operator wants to do a lift and store of the force and peak.

Auto ID Increment: Enable/Disable

This will increment the ID by 1 every time the "PRINT" key is pressed and store it with each force and peak.

Auto ID Prompt: Enable/Disable (will only appear if Auto ID Increment is Disabled)

If "Enabled", the operator will be prompted to key in an ID before storing that ID with the force and peak.

Comm Port:

This allows you to choose where to export the "ON PRINT" logged data.

- a. EDX = Cell
- b. COMM = Com1
- c. RADIO = Future development
- d. Disabled = to turn off

On Lift: Used when the operator wants the load to be automatically stored, once the load becomes stable. Note: additional filtering may be required, as the load must be steady before the load will be recorded. Maximum Records = 255

Threshold %: (based on capacity)

This is the load above where the unit will record the stable load.

Re-arm: (based on capacity)

This is the load the force must drop below before the "ON LIFT" will reset (re-arm) and store another load.

Auto ID Increment: Enable/Disable

This will increment the ID by 1 every time the "PRINT" key is pressed and store it with each force and peak.

Comm Port:

This allows you to choose where to export the "ON PRINT" logged data.

- a. EDX = Cell
- b. COMM = Com1
- c. RADIO = Future development
- d. Disabled = to turn off

Timed: This is used when the operator wants to record a live load/pull and store it internally. Can store up to 255 force readings.

Log Rate:

The speed at which the logging of force will be recorded. Based on seconds (Example 5 sec = Unit will record the force once every 5 seconds)

Log Count:

This is how many logs the operator wants to record. Range is 0 to 255 recorded readings.

Auto Send:

Can export the readings live if enabled.

Comm Port:

This allows you to choose where to export the "ON PRINT" logged data.

- a. EDX = Cell
- b. COMM = Com1
- c. RADIO = Future development
- d. Disabled = to turn off

Overload: This is used when an operator or supervisor wants to know if their equipment is being overloaded. This will be a percentage based on capacity and will be below 100% of the EDX. (This not the same as the 120% overload that the EDX records based on capacity.)
Maximum Records = 255

Threshold %: (based on capacity)

This the percentage above where the unit will record the peak load.

Re-arm %: (based on capacity)

This is the load percentage the force must drop below before the "OVERLOAD" will reset (re-arm) and store another load.

Holdoff Seconds:

Once the unit has recorded this overload, how much time will pass before this unit will re-arm and allow to record the overload again.

Comm Port:

This allows you to choose where to export the "ON PRINT" logged data.

- a. EDX = Cell
- b. COMM = Com1
- c. RADIO = Future development
- d. Disabled = to turn off

ID An operator can key in either a User ID number or a Lift ID assigned to a particular product. This is a numeric number only and can be any number from 1 to 65,000. (if you want to turn the ID off, key in 0).

Send This will export/send the Log information out the configured port.

Clear This will clear any data in the Log mode. Clearing "On Lift", "Timed" and "Overload" stored data.



Note: All Log Modes will record Date and Time along with it's force and peak reading.

4 EDX Setup

To begin using the EDX, it is recommended that you set it up to suit your specific needs and equipment.

Access the SETUP menu from the display screen by using the soft keys. Press the **Arrow** key to move to the next display screen. Press the **Setup** soft key (refer to [Figure 3.2](#)). See *Common Configurations on page 56* to view some common configurations.

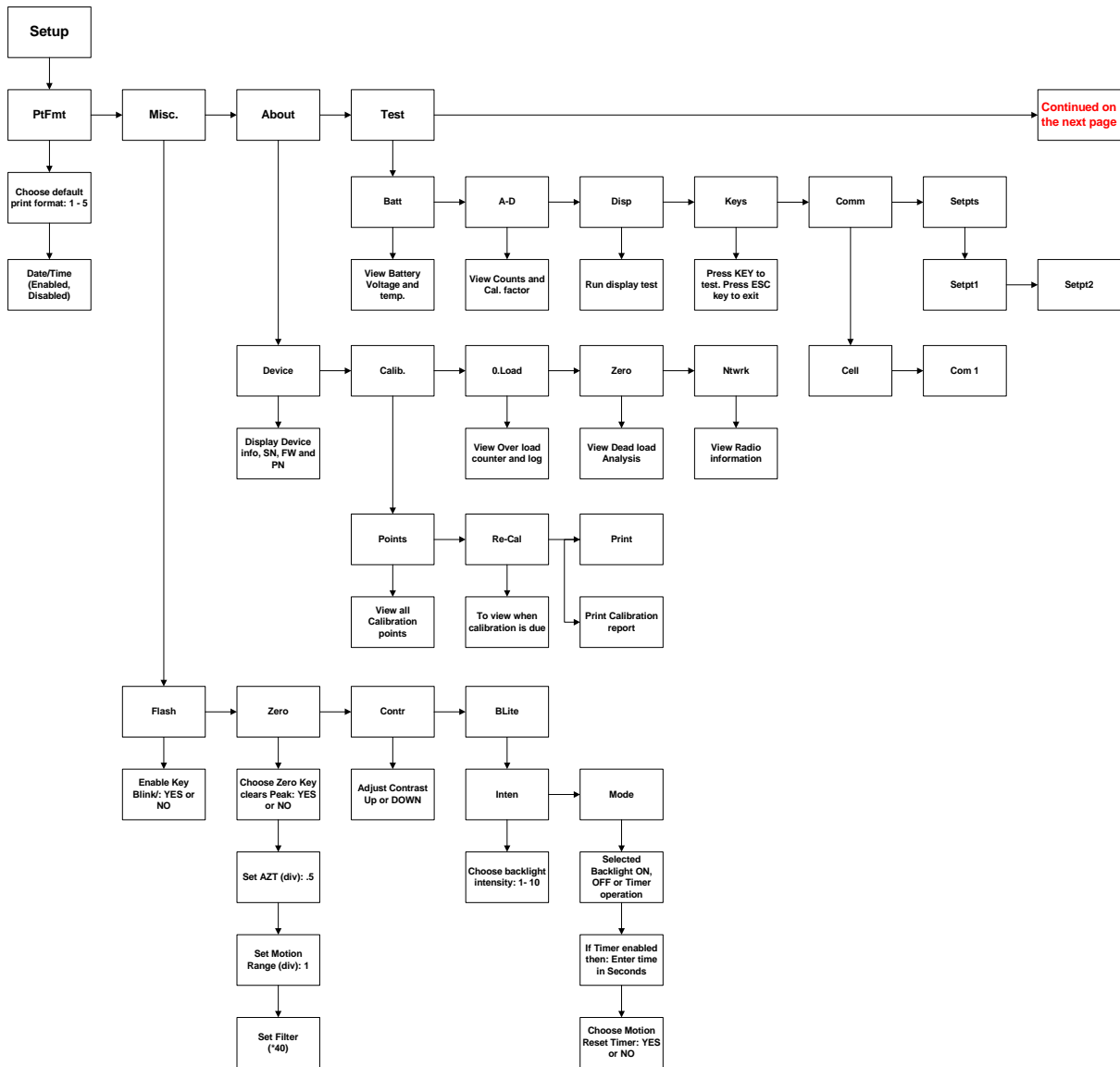
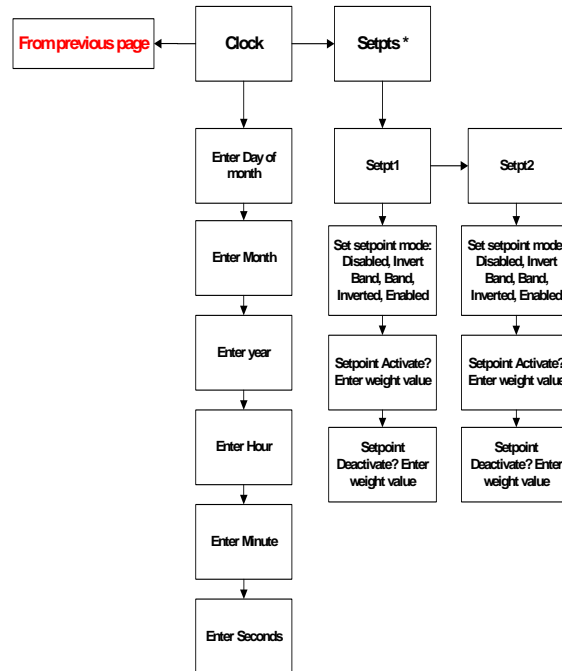


Figure 4.1 Operator Setup Menu for the EDXtreme



See [Figure 4.1](#) for communicator setup and corresponding flow diagram.



* The Setpoints parameter is a future feature

Figure 4.2 ED Xtreme Operator Setup Menu Continued

4.1 Setup Menu

Press the appropriate soft key shown in Figure 4.1 to accomplish the functions listed on the following pages.

4.1.1 Setup--Ptfmt

Press the **Ptfmt** soft key to select the print format that will be sent to a peripheral printer when you press the **Print** soft key. Choose from the formats below. Data sent is shown below. The default is format #1.

Format #1 Current displayed value (peak or live force) plus unit of measure

11/19/13 (if enabled)

12:46:00 (if enabled)

104.5 lbf (live force example)

302.5 lbf (peak force example)

104.5 lbf (dual mode example)

302.5 lbf

Format #2 Live force value plus unit of measure on 1st line
Peak force and unit of measure on 2nd line

11/19/13 (if enabled)

12:46:00 (if enabled)

104.5 lbf

302.5 lbf

Format #3 Live force value plus unit of measure on 1st line
Peak force and unit of measure on 2nd line

Descriptive prefixes on each line

11/19/13 (if enabled)

12:46:00 (if enabled)

Force 104.5 lbf

Peak 302.5 lbf

Format #4 Fixed position output. Works well with RS-232 utilities, such as WedgeLink, for parsing into a spreadsheet such as Microsoft Excel. (comma separated)

Excel	A	B	C	D
1	104.5	lbf	Date	Time
2	302.5	lbf	Date	Time

Fixed characters.

Position	Description
1-8	Live force number
10-16	Displayed unit of measure (up to 7 characters)
18-25	Peak force number
27-33	Displayed unit of measure (up to 7 characters)
9,17,26	Commas
34	Carriage return

Example 1

<sp><sp><sp>104.5,<sp><sp><sp><sp>lbf, <sp><sp><sp>302.5,<sp><sp><sp><sp>lbf<CR>

Example 2 (custom unit)

<sp>140000.,<sp><sp><sp><sp><sp>kg,<sp>165450., ,<sp><sp><sp><sp><sp>kg<CR>

This would yield (shown in courier):

```
111111111122222222223333333333444444444455555555
123456789012345678901234567890123456789012345678901234567
104.5,    lbf,    302.5,    lbf, <CR>
140000.,  kg, 165450.,    kg, <CR>
```

Format #5

Live force, unit of measure, peak force, unit of measure. All tab separated.

11/19/13 (if enabled)

12:46:00 (if enabled)

104.5<tab>lbf<CR> (if presently displaying live readings)

302.5<tab>lbf<CR> (if presently displaying peak readings)

104.5<tab>lbf<tab>302.5<tab>lbf<CR> (if presently displaying dual mode)

Date/Time

If enabled, date and time will print for the selected print format. If disabled, date and time will not be printed in the selected print format.

4.1.2 Setup--Misc

Press the **Misc** key to access the following soft key set (refer to [Figure 4.1](#)):

Flash

Press this soft key to enable or disable the “display flash” feedback. If enabled, the press of a key causes the display to momentarily flash to give you a visual feedback that the key was activated.

Zero

Choose Zero Key Clears Peak (Yes/No): If YES is picked, then Clear will clear the peak value.

Set AZT (Div): .5- Automatic Zero Tracking: Set this value for the number of divisions off of zero for the display to return to zero.

Set Motion Range (Div): 1- Number of divisions that load has to change for the display to update/refresh.

Set Filter- Number of prior samples averaged to determine the displayed value.

Contr

Press this key to adjust the contrast of the LCD display. Press the **Up** soft key to lighten the contrast. Press the **Down** soft key to darken the contrast.

There is a keypad shortcut for increasing and decreasing contrast. While in normal display mode press **Arrow** key and **F2** simultaneously to increase contrast. Press **Arrow** key and **F1** simultaneously to decrease contrast.



Sometimes the individual soft keys are referred to as the F1, F2, F3 and F4 keys as numbered from left to right.

Blite

Press this key to adjust the backlight brightness and sleep timer functions.

Inten- Backlight intensity can be set to a value of 1 - 10. Default backlight value is 5.

Press **Arrow** key and **F4** simultaneously to increase intensity.

Press **Arrow** key and **F3** simultaneously to decrease intensity

Mode- Select Backlight to operate as always On, always Off or the backlight can operate from a configurable Timer.

If set to Timer, the operator will be asked to enter the Time in Seconds, after motion stops that the backlight will shut off.

The next selection will allow the user to configure if motion resets timer. Choose Yes or No to have motion reset the Timer which turns off the backlight.



Use of the backlight will affect battery life.

4.1.3 Setup--About

The next soft key is the About. The About menu shows an assortment of information about your Dillon instrument. This can be handy for maintaining calibration, troubleshooting or determining if the firmware can be upgraded. Press this and access the following soft key set (refer to [Figure 4.1](#)):

Device Press this to see software revision and dynamometer information.



Dillon suggests that calibration data be recorded and saved.

Calib This soft key access the following soft key set:

Points- Press this key to display the calibration loading points. This is useful information that can be keyed in manually in the event instrument memory is ever accidentally overwritten or corrupted.

Re-Cal- Will show next re-calibration date and contact detail.

Print- Press this key to transmit all the calibration information available to a serial printer or computer.

O.Load Lists the number of overloads that have occurred since the last calibration.

On Time- Actual hours when unit is on.

Zero Lists the current zero point compared to the calibration zero point. If the zero point has moved significantly, this may indicate a serious overload has occurred and the instrument should be returned for service.

Ntwrk Lists radio information; the enabled channel and identifier.

4.1.4 Setup--Test

The Test functions can help service technicians diagnose your Dillon instrument by showing information on key internal functions. Typically these menus will have significance only to trained technicians. You may look at these menus without technical guidance, but the information may have little meaning, or an error may be reported that may not exist.

Press this key to access the items described below (refer to Figure 4.1):

- Batt** Press this key to perform a battery test. This shows the battery level in A-D counts and approximate voltage. Voltage is not calibrated.
- A-D** Press this key to test the A-D section of the EDX. You need to apply force to change the counts and test the unit. The A-D is the electronics portion that converts analog load cell signal to digital numbers.
- Disp.** Press this key to perform a display test. Stop the test by pressing the ESC key.
- Keys** Press this key to perform key tests. Any key pressed will be reflected in the display. Press ESC to end the test.
- Comm** The serial test is an internally conducted diagnostic which requires a jumper across transmit and receive. This requires a jumper. Press the following soft key:
- CELL-** Press this key to test the wired cell in a loopback test
- COM1-** Press this key to test COM1 connection..



To perform a COMM test, the unit **must be configured to use RS-232 communications**.

Setpts This is a future feature!

This test menu allows testing of the enabled and configured set points.

Setpt1- This checks set point #1 operation

Setpt2- This checks set point #2 operation.



Make sure all lock-out & tag-out procedures are followed before testing setpoint operations.

4.1.5 Clock

Enter the present date and time in the following order: Day of Month, Month, Year, Hour, Minute, Second.

Use the **Num** keys to enter the first number and the **Adv** key to move to the next number. Press **Enter** when the desired number is entered.

4.1.6 Setpts

Future Feature!

5 EDX Configuration

The configuration menu is a group of settings that may be password protected if desired to prevent operators from making significant system changes. It is used to configure the following:

- radio network
- resolution
- communication ports
- power up display mode
- units of measure
- power management
- password management
- system default reset

To access the configuration menu, press the Config soft key shown in Figure 5.1.

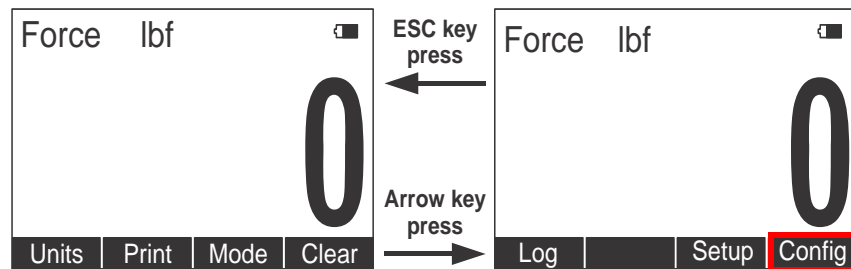


Figure 5.1 Accessing Config soft key and menu

The display prompts for a password. See Figure 5.2.

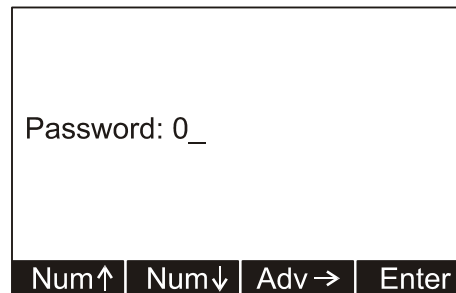


Figure 5.2 Password screen

Use the **Num** keys to enter the first character of the password and the **Adv** key to move to the next character. When you are done press the **Enter** key and the soft keys shown in Figure 5.3 become available.



The default password is "0". If the password has been changed and forgotten, contact your Dillon distributor for assistance.

5.1 EDX Configuration Menu



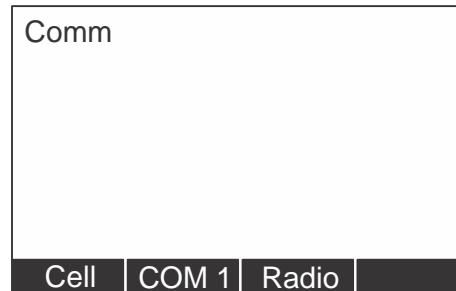
Figure 5.3 Configuration Menu

5.1.1 Config--Setup

The first soft key is **Setup**. Press this and you access the setup menu shown in Figure 4.1. All its features are covered in that section of the manual.

5.1.2 EDX Config--Comm

Press the **Comm** key to enable or disable wired cell, Com1, and radio communication.



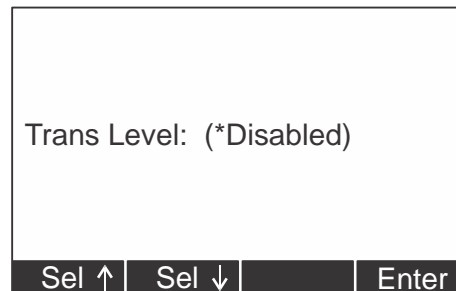
To configure wired cell or serial port:



RS-232 activity consumes more battery power.

1. Press **Cell** or **COM 1**.

The following display appears.



2. Select a transmission level using the **Sel** keys to enable as RS-232 or disable. Choices are; Disabled (default), RS232. Press **Enter** to accept the setting. See note below.

The following display appears:

Baud: (*57600)		
Sel ↑	Sel ↓	Enter



*The * indicates which option is currently selected.*

3. Select a baud rate using the **Sel** keys to scroll through the choices. Choices are 1200, 2400, 4800, 9600 (default), 19200, 38400, 57600, and 115200. Press **Enter** to accept the setting.

The following display appears:

Parity: (*None)		
Sel ↑	Sel ↓	Enter

4. Select a parity value using the **Sel** keys to scroll through your choices. Choices are none (default), odd and even. Press **Enter** to accept the setting.

The following display appears:

Databits: (*8)		
Sel ↑	Sel ↓	Enter



Default Serial Communications

Baud Rate = 9600
Parity = None
Databits = 8
Stop bits = 1

There is no option for handshakes. All settings should be None.

5. Select a databit value using the **Sel** keys to toggle between the two choices; 7 or 8 (default). Press **Enter** to accept the setting.

The following display appears.

Mode: (Continuous)		
Sel ↑	Sel ↓	Enter

6. Select a mode of communication you want using the **Sel** keys to scroll through these choices; **Continuous**, **Poll**, **Remote** and **Print Key Only**. Press **Enter** to accept the setting.

If you choose **Continuous**, you will be prompted to select a print format for the transmission and a rate at which you want to send the transmission.

If you choose **Poll** you will be prompted to enter a poll character. Enter the ASCII value of the poll character.

Choose **Remote** for wireline communications to the Communicator.

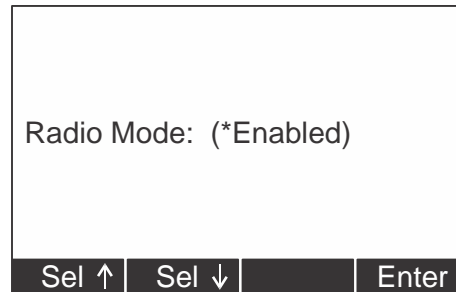
Choose **Print Key Only** to print only when the **Print** key is pressed.

7. Press **ESC** to return to the first soft key set of the Configuration menu.

To configure radio:

1. Press **Radio**.

The following display appears.



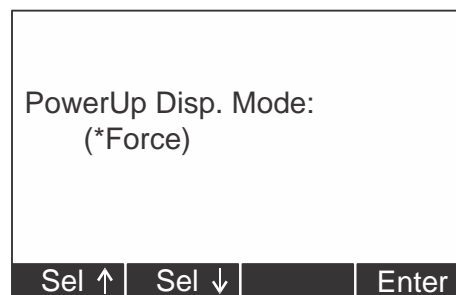
2. Use the **Sel** keys to enable or disable the radio mode. If enabled, press the **Enter** key to proceed.
3. You are asked to enter a Network ID#. This is a unique number (1-255) so the Communicator only speaks to one instrument at a time without “cross-talking.” Use the available soft keys to enter a number (1-255), then press **Enter** to accept.
4. Key in the network name. This will be to identify each EDXtreme when displayed on the handheld communicator.
5. Press **Enter** to return to the first soft key set of the Configuration menu.

5.1.3 Config--Mode

The next menu key is the **Mode** key. Use this key to choose what display mode is active upon powerup.

1. Press the **Mode** key.

The following is displayed:



2. Select a display mode value using the **Sel** key to scroll through the choices. Choices are Force(default), Peak, Dual, and Last. Press **Enter** to accept the displayed setting.
 - **FORCE** - Live force will be displayed
 - **PEAK** - Peak force will be displayed
 - **DUAL** - Live and Peak forces will be displayed
 - **LAST** - The last displayed mode of operation will be displayed.
3. The display returns to the first soft key set of the Configuration menu.

5.1.4 Config--Units

The next soft key is **Units**. Use this item to set the units of measure you want available when you use the Units key in the normal operating mode. This can also assign custom units.

Custom units are typically used for any of three purposes:

1. To display a unit of measure not found in the standard options, such as ton, tonne, dyne, or KIP.
2. To apply a multiplier when multipart line systems or other static line arrangements are used. For example, if a 4-part line is used, the dynamometer at the dead end can display approximate total weight by using a multiplier of 4.

It is critical that the operator understands the relationship between the dynamometer and custom unit. For example, assume a custom unit of kg is entered where $1 \text{ kg} = 5 \text{ kgf}$ (as seen at the dynamometer). The operator could become confused, think that a 1000 kg display means that there is still 4000 kg of capacity remaining.

3. To compensate for local gravitational differences. There are variances in gravity throughout the world. If used as a scale, variances due to gravitational differences can be handled by having the instrument calibrated on-site with certified dead weights or by using the custom units. Simply divide the gravitational constant at your location by 9.80665 m/ss (or 32.1741 ft/s^2) and use this as the multiplier entry. A less accurate alternative: If the constant is not known, lift a weight of known mass close to the capacity of the instrument. In enhanced resolution mode, observe the reading. Divide the actual by the observed reading and use this as the multiplier entry.

5.1.5 Config--Power

The next soft key is the **Power** key. Use this to set power management features.



Be aware that 1kHz - High Speed mode will consume more battery power.

1. Press the **Power** key.

The following is displayed:

Peak Capture Rate: (*100Hz - Normal)			
Sel ↑	Sel ↓		Enter

2. Select a Peak Capture Rate using the **Sel** key to scroll through the choices. Choices are 100Hz - Normal (default), 1kHz - High Speed, and 10Hz - Battery Saver. Press **Enter** to accept the displayed setting.

3. Enable Auto-Shutdown screen will be displayed.

Auto-Shutdown powers off the instrument automatically. The instrument can be programmed for a fixed operating time or programmed to shut down after a period of inactivity

Enable Auto-Shutdown? (Yes)			
No	Yes		



Powering the instrument off regularly allows the batteries to partially recover and maximizes energy extractions from the batteries.

4. Select **Yes** or **No** and the following screen will be displayed..

Shutdown Timer (min): 10_			
Num↑	Num↓	Adv→	Enter

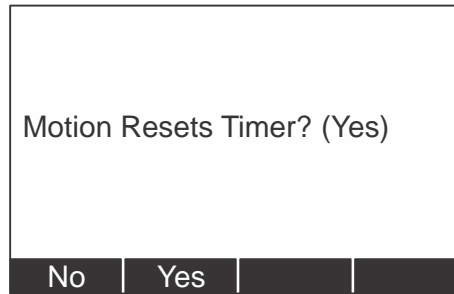
Timer reflects the period required to pass before Auto-Shutdown activates.

5. Use the **Num** keys to enter the first number and the **Adv** key to move to the next number of the timer value. Press **Enter** when the desired timer value is entered.



Key presses reset the timer. Characters received through the serial port also reset the timer.

The following screen is displayed:



6. Select **Yes** if you only want the instrument to automatically shut down when there is inactivity. Select **No** if you want the instrument to power down after the timer counts down, regardless of any activity.

5.1.6 Config--ChPwd

The next soft key is **ChPwd**. Use this to change the password used to access the configuration menu.

IMPORTANT: Changing the password denies access to this menu without entry of the new password. Contact your Dillon distributor if you lose your password.

5.1.7 Config--Reset

The last soft key in this set is the **Reset** soft key. Use this to reset the system to its factory default settings.

This concludes the Configuration menu section.

5.1.8 Config--Reso

Reso stands for resolution. Resolution is the value by which the EDX displays increments. Press this key to set the unit to standard (1000 divisions) resolution or enhanced (5000 divisions) resolution. For example: 10,000 lbf would count by

10 lbf (10,000 lbf/1000 divisions = 10 lbf) in standard resolution

2 lbf (10,000 lbf/5000 divisions = 2 lbf) in enhanced resolution

Standard resolution may have 1000 or 1250 divisions. Enhanced resolution may have 4000 or 5000 divisions. This follows normal display increment practice of changing by 1, 2, 5 or a multiple or submultiple of those numbers (e.g. 10, 20, 50, .1, .2, .5, etc.)



6 Communicator Operation

The Dillon Communicator is a remote display and control module designed to work with the EDXtreme. It can be connected by wire or can communicate by radio if both the Communicator and EDXtreme are equipped with optional radio boards.

The Communicator may simultaneously view and control 15 dynamometers at one time. Each is monitored individually by assigning unique numeric identifiers (1-15) to each (addresses).

Several Communicators may operate in the same airspace if they are on different channels.



Use the **UP**, , and **DOWN**, , arrow keys on the Communicator to scroll through the displays of all active EDXs and a total screen.

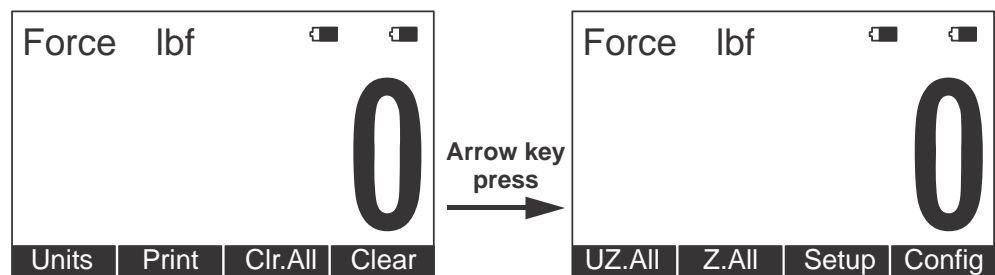
For best performance always have different network identifiers (1-15) for EDXtremes within the same network and use different channels for systems operating anywhere close to one another.

Since most functions are identical, you should refer to the EDXtreme section for comprehensive explanation and the Communicator's section will highlight differences that exist.

The Communicator is designed to be similar in layout and function to an EDXtreme to make operation easy and intuitive. The main screen appears as it does on the EDXtreme except that the Mode soft key has been blanked. This has an actual hard key on the remote.

6.1 Powerup Display

An example of a Communicator's powerup display is shown below:



The annunciators shown above appear on the Communicator display. They show battery level for the Communicator (right side pair) and the active EDXtreme (left side pair).

There are three soft keys on the first display and four on the second display. The soft key functions are described below:

Units	Changes the displayed unit of measure. Each press advances the display through this sequence; lbf, kgf, N, custom 1, custom 2.
Print	Outputs serial data to peripheral devices attached to COM 1.
Clr.All	Clears the peaks on all EDXs currently in communication with the remote.
Clear	Clears the current peak value of the active EDX.
UZ.All	Resets all EDXs to calibration zero reference point.
Z.All	Zeros all EDXs currently in communication with the remote.
Setup	Accesses the Setup menu shown in Figure 6.1.
Config	Accesses the Config menu shown in Figure 6.3.

6.2 Communicator Setup Menu

The Communicator Setup menu can be accessed using the softkey or the Remote Setup hardkey. Press the right **Arrow** key to access the **Setup** menu softkey.

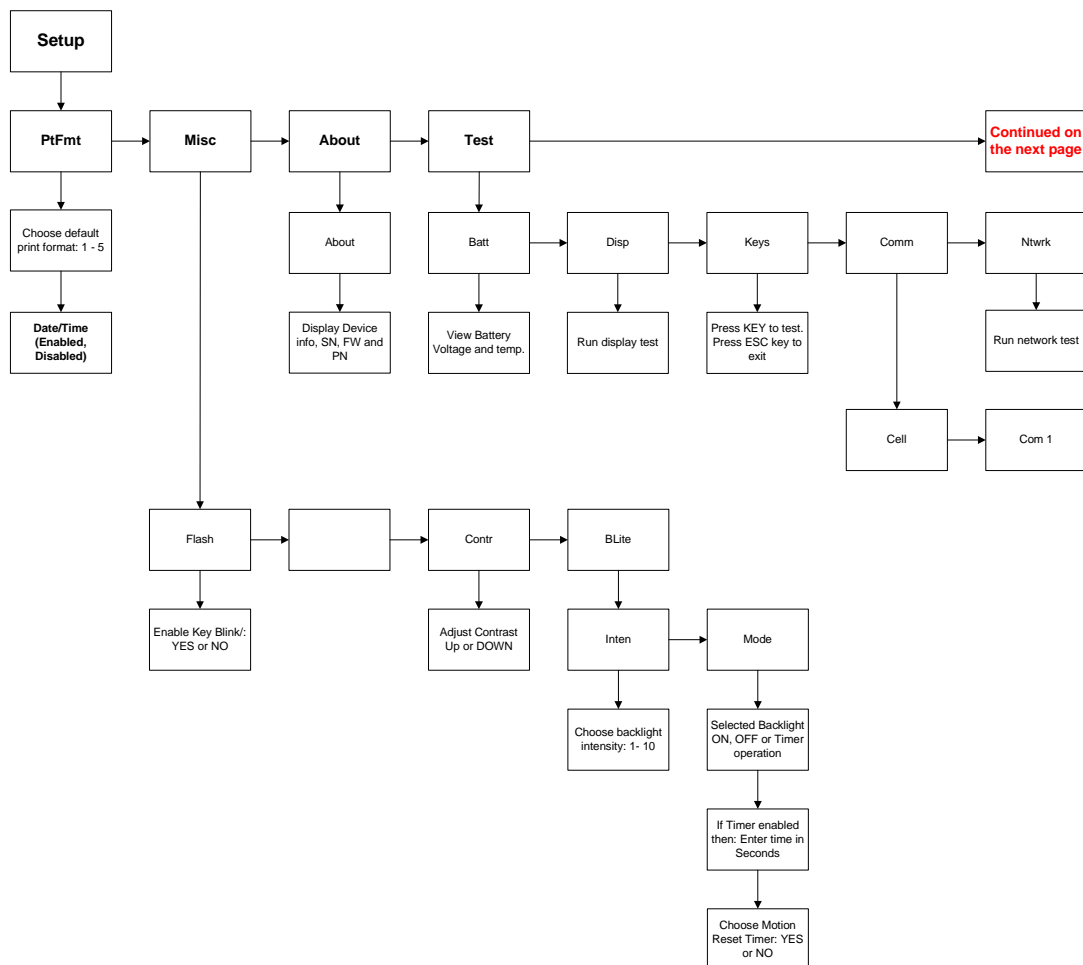


Figure 6.1 Communicator Setup Menu

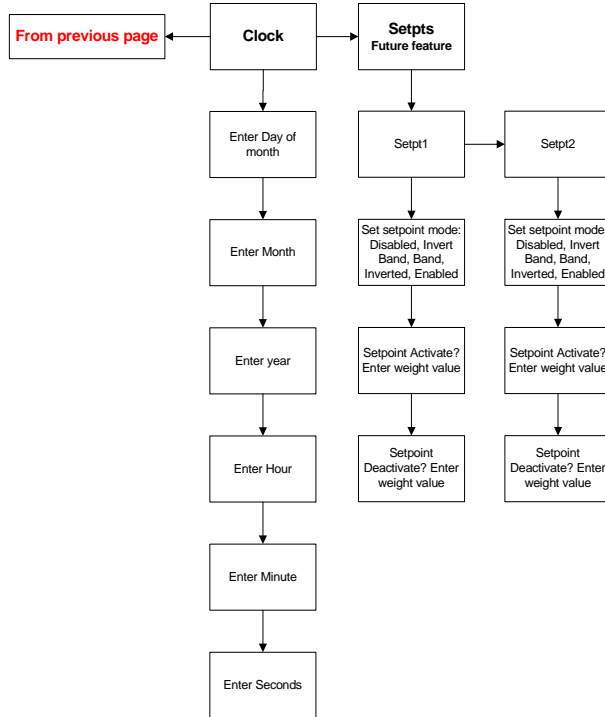


Figure 6.2 Communicator Setup Menu Continued

Ptfmt Select from print formats 1-7. See *Communicator Print Formats* on page 48.

Date/Time If enabled, date and time will print for the selected print format. If disabled, date and time will not be printed in the selected print format.

Misc Lets you setup the following items:

Flash Use this to enable the visual confirmation of keystrokes. Display will flash on keystrokes if enabled.

Contr Use this to adjust the contrast of the Communicator display. Follow onscreen prompts for directions.



Contrast shortcut

There is a keypad shortcut for increasing and decreasing contrast. While in normal display mode press **Arrow** key and **F2** simultaneously to increase contrast. Press **Arrow** key and **F1** simultaneously to decrease contrast.

Blite Use this to adjust the intensity and mode of the optional backlight. Intensity adjusts the brightness of the backlight. Using Mode you can set the backlight to OFF, ON, or TIMER. If you select TIMER, the backlight will shut off after a configurable period of time (in seconds), without a keystroke. You are also given the option of choosing if motion will reset the backlight timer to start counting again.



Backlight intensity shortcut

Press **Arrow** key and **F4** simultaneously to increase intensity. Press **Arrow** key and **F3** simultaneously to decrease intensity.

About Press this soft key to see the following information:

- Communicator Serial Number
- Firmware part number
- Revision level of software

Press **ESC** repeatedly to return to normal operation. If you have made changes you will be prompted to save the changes. Press the **Yes** soft key to save the changes and return to normal operation. Press the **No** soft key to disregard any changes made and return to normal operation. Press the **Cancel** soft key to return to the Setup menu screen.

Test Lets you test the following items:

- Batt** Press this to check the battery condition. Display shows voltage condition of the batteries.
- Disp** Press this to perform a display test. Press any key to stop the test.
- Keys** Press this key to test individual key function. Press **ESC** to stop the test.
- Comm** Press this key to perform LOOP/NOLOOP tests on CELL. Press **ESC** to return to **Test** soft key display. CELL must be enabled and configured to RS232 in Config menu to test.

This completes the Setup menu description.

6.3 Communicator Config Menu

The configuration menu, shown in Figure 6.3, allows you to set the items described below. Press the right **Arrow** key to access the **Config** menu softkey. Press the **Config** soft key to enter the menu. Accept the user password displayed (default is 0) or your password if it has been customized. Press the **Enter** soft key to accept the password and access the menu.

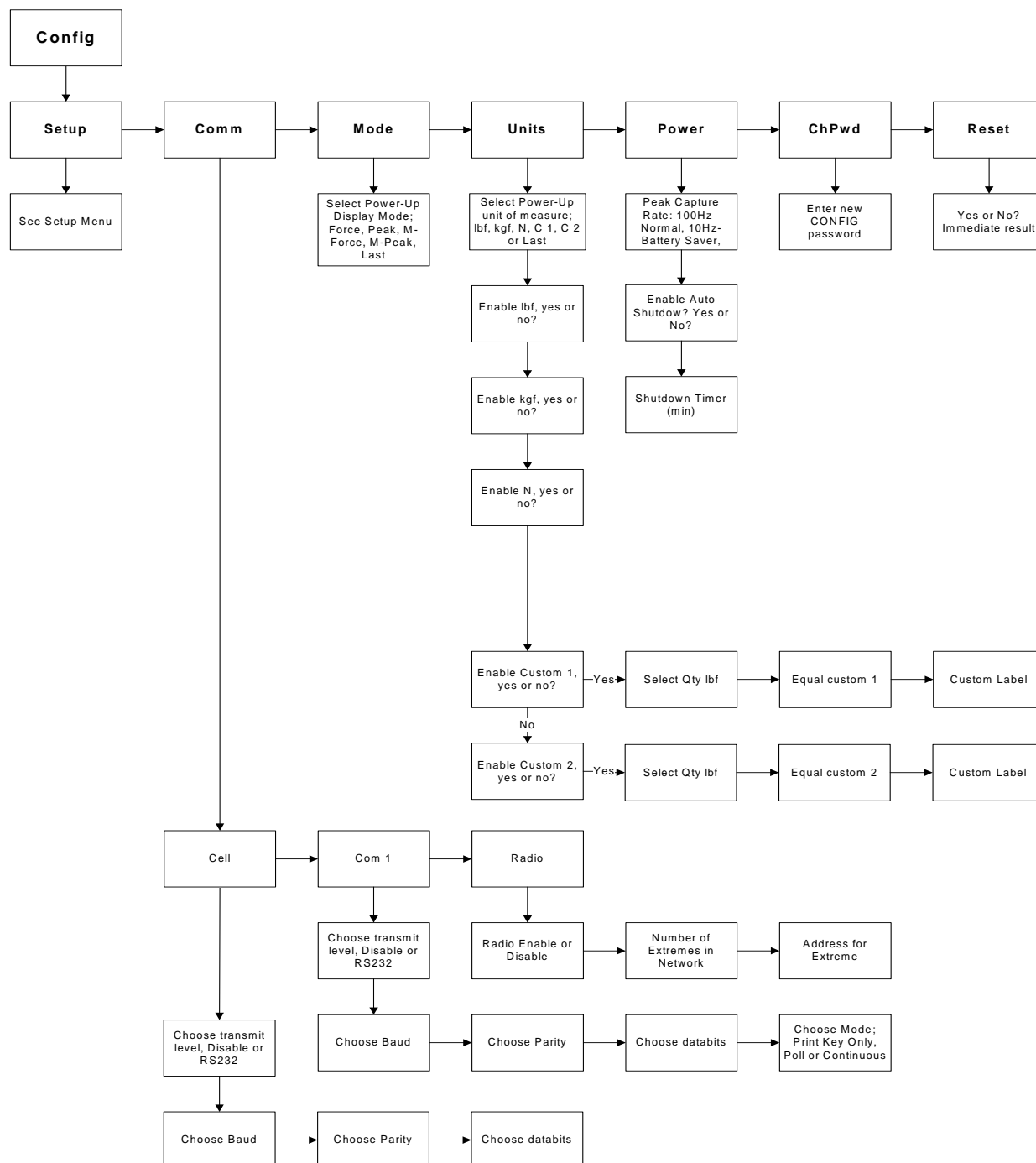


Figure 6.3 Communicator Config(uration) menu

Comm Choose to set up the following parameters for each Comm port:

baud (default = 9600)

parity (default = none)

databits (default = 8)

mode (default = Print key only) Other choices: Continuous and Poll.

If you choose Continuous you must pick a format (see *Communicator Print Formats* on page 48) and a broadcast rate (choices are 1, 2, 5 or 10 Hz)

If you choose Poll you must choose a poll character (any ASCII **Mode** Press this to set the display mode that will be active upon power-up.

To Configure Radio:

1. Press the **Radio** key.
2. Use the **Sel** key to enable or disable the radio mode. If enabled press the **Enter** key to proceed.
3. You are asked to key in the NUMBER OF EDXTREMES IN NETWORK. 0 = AUTO (0-15): 0 is the default value.
 - 3a. If you enter 0, the Dillon communicator will automatically connect to each EDXtreme in the area without configuring each unit.
 - 3b. If you have more than 1 system in the same airspace and want each system to operate independently, then each system will need to be configured separately with their own Network ID#.

To Configure a system for independent RF operation:

1. Key in the number of EDXtremes that will be communicating on this network. NUMBER OF EDXTREMES IN NETWORK 0 = AUTO (0-15)
2. Key in the address for EDXtreme 1. Must be the same number as the EDXtreme you are trying to communicate to. (Each EDXtreme must have a different address.)
3. Repeat steps 1 and 2 for each EDXtreme.
4. Press **ESC** repeatedly to return to normal operation. If any changes were made, you will be prompted to save changes. Press **YES** soft key to save the changes and return to normal operation. Press the **NO** softkey to disregard any changes made and return to normal operation.

Units Press this key to set the following:

Choice of power-up unit of measure

Enable or disable lbf, kgf, N, custom unit 1 and 2

Power Press this to set the following:

Enable Auto-shutdown (Y/N)

Shutdown Timer (set minutes before idleness causes unit to shut off)

ChPwd Press this to change the Config menu password.

Reset Press and you are given the choice of resetting the Communicator to its factory defaults.

6.4 Communicator Print Formats

Press the **Ptfmt** soft key to select the print format that will be sent from the Communicator on Com 1 to a peripheral printer when you press the **Print** soft key. Choose from the formats below. Data sent is shown below. The default is format #1.

Format #1 Current displayed value only (peak or live force) plus unit of measure on the active EDX only.

11/19/13 (if enabled)

12:46:00 (if enabled)

104.5 lbf (live force example)

or

302.5 lbf (peak force example)

Format #2 Live force value plus unit of measure on 1st line and Peak force and unit of measure on 2nd line for active EDX only.

11/19/13 (if enabled)

12:46:00 (if enabled)

104.5 lbf

302.5 lbf

Format #3 Live force value plus unit of measure on 1st line and Peak force and unit of measure on 2nd line with descriptive prefixes on each line for active EDX only.

11/19/13 (if enabled)

12:46:00 (if enabled)

Force 104.5 lbf

Peak 302.5 lbf

Format #4 Fixed position output for active EDX only. Works well with RS-232 utilities, such as WedgeLink, for parsing into a spreadsheet such as Microsoft Excel.

Excel	A	B	C	D
1	104.5	lbf	Date	Time
2	302.5	lbf	Date	Time

Fixed characters.

Position	Description
1-8	Live force number

Position	Description
10-16	Displayed unit of measure (up to 7 characters)
18-25	Peak force number
27-33	Displayed unit of measure (up to 7 characters)
9,17,26	Commas
34	Carriage Return

Example 1:

<sp><sp><sp>104.5,<sp><sp><sp><sp>lbf,<sp><sp><sp>302.5,<sp><sp><sp><sp>lbf<CR>

Example 2 (custom unit)

<sp>140000.,<sp><sp><sp><sp><sp>kg,<sp>165450., ,<sp><sp><sp><sp><sp>kg<CR>

This would yield (shown in courier):

```

111111111122222222223333333333444444444455555555
123456789012345678901234567890123456789012345678901234567
104.5,      lbf,      302.5,      lbf<CR>
140000.,      kg, 165450.,      kg<CR>
```

Format #5	<p>Live force, unit of measure, peak force, unit of measure for active EDXtreme only. All tab separated.</p> <p>11/19/13 (if enabled)</p> <p>12:46:00 (if enabled)</p> <p>104.5<tab>lbf<CR> (if presently displaying live readings)</p> <p>302.5<tab>lbf<CR> (if presently displaying peak readings)</p>
Format #6	<p>Cell #, description, live force, unit of measure for all active EDXs plus a total.</p> <p>Example:</p> <p>Cell<tab>Description<tab>Live Force<tab>Units<CR></p> <p>11/19/13 (if enabled)</p> <p>12:46:00 (if enabled)</p> <p>1<tab>North<tab>104.5<tab>lbf<CR></p> <p>2<tab>South<tab>4801<tab>lbf<CR></p> <p>Total<tab><tab>4905.5<tab>lbf</p>
Format #7	<p>Outputs print format #6 plus peak values for all EDXs.</p>

7 General Information

7.1 Changing Batteries

7.1.1 ED Xtreme

To replace discharged batteries, unscrew the battery compartment cap on the right side of the dynamometer. Remove the two C cells and replace them with the + poles inserted first.

If the spring in the cap becomes detached, you can reattach it by aligning the large end over the counterbored hole and turning the spring counterclockwise while pushing the spring into the hole. The spring will work into the recess and be self-retained.

7.1.2 Communicator

The Communicator uses 4 AA batteries. Refer to the instructions below for battery replacement.

1. Remove the black battery cover from the bottom of the communicator.



2. Press the tab of the gray battery box. The battery box will pop out slightly. Pull on the box to remove it from the Communicator.



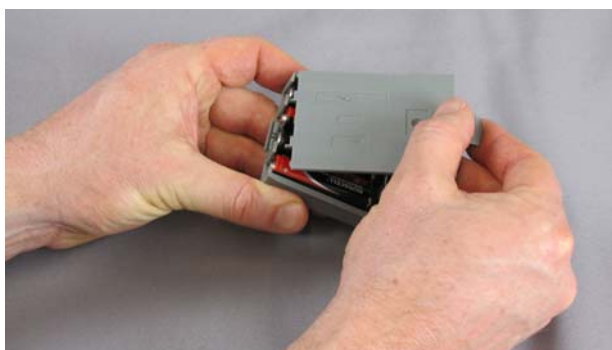
3. Place the battery box on a stable surface and remove the securing screw with a #1 phillips screwdriver.



4. Remove the batteries (with a screwdriver if necessary) and replace with new AA batteries. Be sure to observe polarity when installing new batteries.



5. Place the cover back on the battery holder and tighten the securing screw. Do NOT over tighten!



6. Push the battery holder back into the bottom of the communicator. Place the black battery cover back on the bottom of the Communicator.



7.2 Battery Life

The time required between battery changes can vary with usage, functions enabled, temperature, duration of use and recovery time, display update rate, battery grade and more.



CAUTION: Remove *batteries* from instrument when using the external AC power supply.

To maximize battery life:

- Disable radio if not being used. Even if an optional radio board is not installed, the software will run, if enabled.
- Disable other functions such as RS-232 and backlight.
- Warm environments result in longer battery life over cool environments.
- Use high quality alkaline batteries. **Do not use rechargeable batteries.**
- Turn off instrument when not in use. Alkaline batteries partially recover when the instrument is off.

7.3 Care

The EDXtreme is built to be rugged and endure typical industrial and commercial use. It is still, however, a precision instrument that should be treated with care. Store the instrument in its carry case with power off. Remove batteries if not being used.

7.4 Radio Information

The radio technology used in the radio equipped EDXtreme and Communicator is a 2.4 GHz digital spread spectrum system designed for communications reliability. Radio operation and the performance attained can be difficult to predict and will vary with environment and conditions. There are locations where radio use is impractical or even impossible.

Tips for best performance:

- Keep the Communicator and EDXtreme as close as possible together.
- Keep metal and other dense objects as far from the instruments as possible.
- Normally the higher that both the EDXtreme and Communicator are above the ground, the better the performance and range will be.

Many things can degrade radio signals, such as brick walls, metal reinforced concrete, machinery and even wiring within walls. Other systems such as wireless networks and cordless phones may degrade or interfere with operation of the Dillon radio-equipped system. As an FCC approved instrument on a license-free radio band, the instrument must accept interference received from other devices that share the same frequency and airspace. If other systems are colliding, it is best to isolate the device(s) that cause the interference and then take steps to eliminate the problem which may include relocation, conditional operation or retirement of the interfering device.

7.5 Installing Spacers

High capacity dynamometers with shackles of 50,000 lbf/20000kgf capacity and up, use spacers, shown in Figure 7.1, to insure proper centering of the dynamometer for performance and safety reasons.

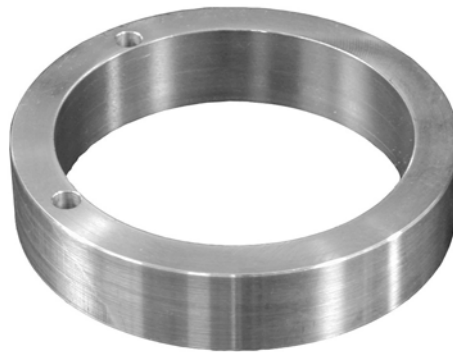


Figure 7.1 Spacer

Do not use the dynamometer with shackles if the spacers are not installed. The EDX design incorporates an innovative method to retain these spacers, if desired, to ease shackle installation.



The finish on your parts may vary from the ones shown in these photos.

Place spacer on a solid surface and use a hammer to start the roll pins into the two small spacer holes. See Figure 7.2.



Figure 7.2 Inserting Roll Pin

Insert through matching holes in dynamometer body. Lay the dynamometer on the spacers on a solid surface with the roll pins protruding from the top. See Figure 7.3.

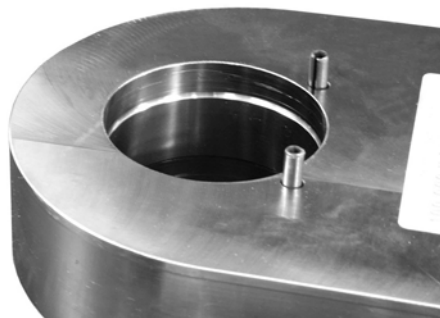


Figure 7.3 Roll Pins Extending Above Dynamometer Body

Position the holes of the second spacer over the holes and tap spacer into position. See Figure 7.4.



Figure 7.4 Placing Second Spacer on Roll Pins

A punch sized slightly smaller than the holes in the spacer may be helpful. The spacers should “sandwich” the dynamometer body, but should not be drawn completely tight.

Remove the four large circular foam plugs from the carry case and it can continue to be used with the spacers attached.

8 Common Configurations

EDXtreme being used stand-alone (no RS-232 or Communicator remote)

Key Settings (EDXtreme):

- COM1 Trans Level – Disabled
- CELL Trans Level – Disabled

EDXtreme connected to a computer

Key Settings (EDXtreme):

- CELL Trans Level – RS-232 (all other parameters should agree with peripheral such as baud, data bits & parity)
- COM1 Trans Level – Disabled

Communicator connected to one EDXtreme by wire on CELL port

Key Settings (EDXtreme and Communicator):

- COM1 Trans Level – Disabled
- CELL Trans Level – RS-232
- baud – 9600
- parity – none
- databits – 8
- Mode - Remote (EDX only)

Communicator talking to one EDXtreme by radio

Key Settings (Communicator):

- COM1 Trans Level – Disabled or RS-232
- RADIO Trans Level – Enable
- Number of EDXtremes in the Network (0-15): 1 (Setting to 0 will allow automatic setup and displays all EDX's in the area)
- Address of EDXtreme 1: 1

Key Settings (EDXtreme):

- COM1 Trans Level – Disabled
- RADIO Trans Level – Enable
- Network ID (1-255): 1 (must be unique value of each EDX)
- Network Identifier: (enter characters or digits to identify this specific EDX) (most useful if multiple EDXs are networked to one Communicator)

Communicator talking to four EDXtremes by radio

Key Settings Communicator

- COM1 Trans Level – Disabled or RS-232
- RADIO Trans Level – Enable
- Number of EDXtremes in the Network (1-15): 0 (Setting to 0 will allow automatic setup and displays all EDX's in the area)
- Addresses for EDXtreme 1: 1
- Addresses for EDXtreme 2: 2
- Addresses for EDXtreme 3: 3
- Addresses for EDXtreme 4: 4

Key Settings (EDXtreme 1):

- COM1 Trans Level – Disabled
- RADIO Trans Level – Enable
- Network ID (1-255)
- Network Name: (example EDX 1)

Key Settings (**EDXtreme 2**):

COM1 Trans Level – Disabled
RADIO Trans Level – Enable
Network ID (1-255)
Network Name: (example EDX 2)

Key Settings (**EDXtreme 3**):

COM1 Trans Level – Disabled
RADIO Trans Level – Enable
Network ID: (1-255)
Network Name: (example EDX 3)

Key Settings (**EDXtreme 4**):

COM1 Trans Level – Disabled
RADIO Trans Level – Enable
Network ID: (1-255)
Network Name: (example EDX 4)

9 Troubleshooting

Problem	Possible Cause	Solution
EDX powers on momentarily and turns off	Low battery	Replace with high quality alkaline batteries. Do not use rechargeable batteries.
	Bad keypad	Have unit serviced.
EDX does not power on	Low battery	Replace with high quality alkaline batteries. Do not use rechargeable batteries.
	Bad keypad	Have unit serviced.
	Batteries installed backwards or no spring contact	Insure that positive terminals of both batteries (nub) face inward – towards the black cap. Check that spring is attached to the battery cap.
	Software reset	Remove battery cap & reinstall after one minute. Attempt to turn power on again.
	Display contrast too light	Hold the Right Arrow key down while pressing the F2 key several times to increase the display contrast. If nothing occurs, release both keys. Press the power button and try again.
	EDX PSU Power Supply	Remove Power Supply and install batteries to see if the EDX or Communicator II will power up. Return EDX PSU to factory for repair/ troubleshooting.
Display is completely dark	Display contrast too dark	Hold the Arrow key down while pressing the F1 key several times to decrease the display contrast.
EDXtreme does not appear accurate	Check installation & system	Insure that shackles are in good working condition and aligned straight. Verify system is applying force directly through the dynamometer with no off center or torsional loads being applied to the instrument.
	Local gravitational variances	If being compared against dead-weights, check your local gravitational constant. Use custom units to compensate or calibrate on-site.
	Check repeatability	Place EDX in low-resolution mode. Lift an arbitrary weight several times as close to capacity as possible. Record each weight reading. Do the readings differ from each other? Calculate the standard deviation of the readings using a spreadsheet such as Microsoft Excel. See if the deviation is greater than 0.1% of the instrument capacity.
	Compare against a reference load.	Place EDX in low-resolution mode. Apply a known load near instrument capacity. Check calibration date.
Radio communication intermittent	Low batteries. Distance is excessive or dead-radio pocket	Bring remote closer to dynamometer. Allow several seconds to retrain.
	Excessive radio noise or interference in environment	Remove dynamometer and remote from the environment. Attempt communications in an area free of local radio signals.

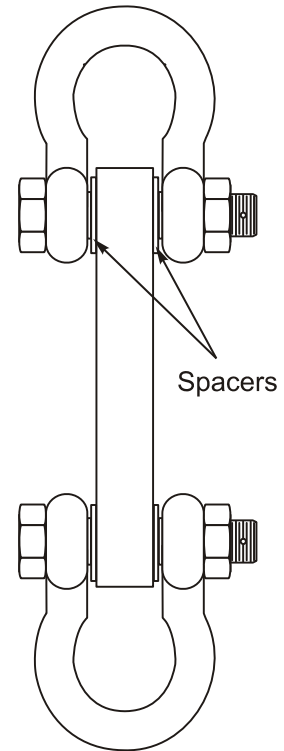
Problem	Possible Cause	Solution
Radio communications not working at all	Dead batteries. Distance is excessive, dead radio pocket	Bring remote closer to dynamometer. Allow several seconds to retrain.
	Operating channels mismatched	Remote and link must be on the same operating channel. See EDXtreme and Communicator configurations of COM1 for radio (under Comm menu) and Common Configurations.
	Excessive radio noise or interference in environment	Remove dynamometer and Communicator from the environment. Attempt communications in an area free of local radio signals. See Radio Information section of the manual.
Remote reading changes to dashes	Low batteries, lost communications	See steps above for improving communications.
Display locks up on DILLON marquee	Poor connection between EDX and Communicator	Remove batteries from EDX and Communicator, replace them and power up.

10 Weighing and Force Measurement Practices

The basis for all electronic force measurement or weighing is measurement of stress in a loadcell body. To obtain optimal results it is necessary to establish a few basic rules, otherwise the effect may be a nonlinear or non-repeatable response. Read and follow these tips and see the illustrations on the next page.

10.1 Load Centering

For accurate performance the force acting on the unit must be in line with the unit. Centering the load is accomplished by using the shims on each side of the load cell so that it is centered on the shackle pin. See the illustration at right. The 50,000 lbf (20000 kgf) and higher EDXtremes also include spacers supplied with shackles.



10.2 Alignment

Insure shackles are oriented parallel with the instrument. Apply load in the center of the shackle bow.

10.3 Proper Pin Fit

A proper fitting pin is important in order to generate an even stress distribution and avoid yield stresses.



To achieve published accuracy you must use the shackle pins and centering spacers provided by Dillon.

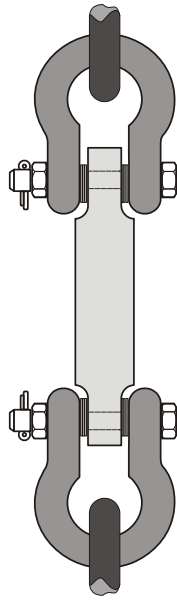
10.4 Torque and Bending

Torque and bending should be avoided. Use swivels on the lifting wire for anti-torque and avoid side forces.

10.5 Certified Gear

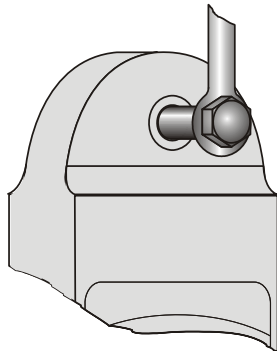
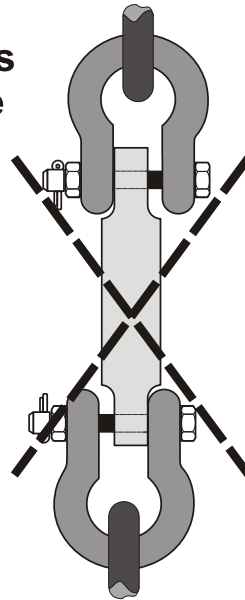
Certified shackles and lifting gear should always be used in accordance with local laws and federal legislation. Insure all hardware, fittings and line used to sustain the load are properly sized and rated for the installation. Have the system evaluated by a qualified engineer if any question or uncertainty exists.

10.6 Good Force Measurement Practice

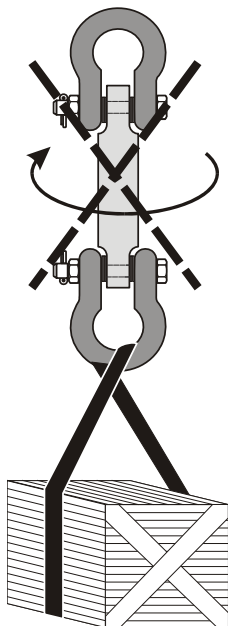
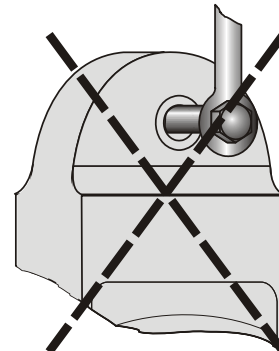


Be sure fixturing does not bind between the body of the EDX and the shackle!

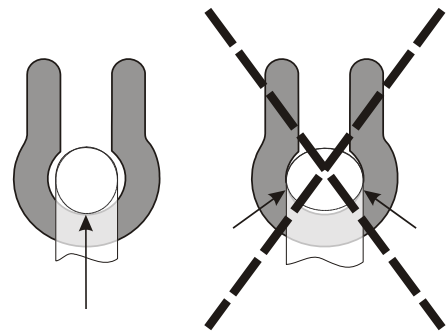
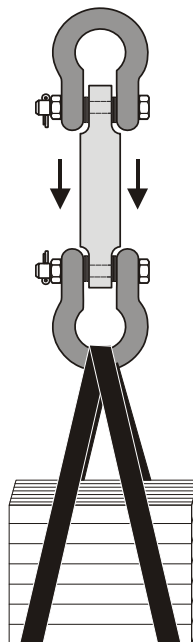
Center the load on the shackle pin.
Use spacers to insure centering where applicable.



Use only the original factory equipment pins and shackles. Pin fit is critical and will affect accuracy.



Do not torque, bend or sideload.



Use hardware that allows single point attachment and freedom of alignment. Do not use hardware that is undersize or restricts self-alignment. This results in poor measurement performance and possible dangerous safety conditions.

11 Specifications

11.1 Dynamometer Specifications

Enclosure:	Designed to NEMA4X/IP55. Suitable for continuous outdoor use.
Accuracy:	0.1% of capacity up to EDX-50T.*
	0.3% of capacity for EDX-75T and above.*
Repeatability:	0.1% of capacity up to EDX-50T.*
	0.3% of capacity for EDX-75T and above.*
	* Normal resolution mode with Dillon provided shackles.
Proof Load:	150% of capacity up to EDX-75T.
	110% of capacity EDX-100T and above.
Ultimate Overload:	See table on page 64 .
Safe Overload:	200% of capacity
Body Protection:	Aluminum and alloy steel capacities are powder coated.
Bearings:	Unmatched repeatability attained by needle bearings in shackle pin holes up to EDX-5T. Shackle pin acts as inner race.
Shackles:	Forged industry standard anchor shackles. Models up to EDX-5T use precision machined shackle pin. Higher capacities use bar stock pin.
Display:	128 x 64 dot-graphic LCD display shows up to 6 digits 1.0" (26 mm) high plus annunciators and softkeys. Digits are .11 inches (3 mm) thick for unmatched readability.
Display Update Rate:	2 times per second.
Peak Capture Rate:	10/100/1,000 Hz
Connector:	Recessed sealed connector may be used for serial communications or connection to a Communicator II remote.
RS-232 Communication:	Print or extract data easily. Continuous output can drive a scoreboard. Configurable poll character.
Calibration:	Traceable to the National Institute of Standards and Technology. Certificate included with curve of readings. Passes only with three consecutive confirming runs, with all points in specification.
Battery Life:	Stand alone EDXtreme with no radio and no backlight lasts up to 400+ hours. 40 hours continuous with Radio Link System. Use with two C-Cell alkaline batteries. (When using backlight, battery life will be reduced, depending on intensity.)
Operating Temperature:	-4° F to 158° F (-20° to 70° C)
Included with Instrument:	All include certificate of calibration, manual and batteries. Plastic carry case included for EDX-1T to EDX-50T. Higher capacities include rugged plywood storage crate. Instruments with shackles include centering spacers (EDX-20T & up) and shackle storage crate (EDX-20T to EDX-75T). Display backlight.
Options:	Shackles. Radio communications.
Approval:	CE

11.2 Communicator II Specifications

Enclosure:	Designed to NEMA 3 / IP54 with optional sleeve. Suitable for protected outdoor use.
Instrument Size:	9.5 x 5.0 x 2.5 inch (241 x 127 x 64mm).
Accuracy:	Not applicable. Only sends and receives digital information.
Display:	128 x 64 dot-graphic LCD display can show full readings up to 5 instruments.
Battery Life:	Up to 40 hours continuous radio using (4) AA alkaline batteries.
Operating Temperature:	-4° F to 158° F (-20° to 70° C)
Connectors:	Sealed connectors may be used for serial communications and wired connection to an EDXtreme dynamometer.
RS-232 Communication:	Print or extract data easily. Continuous output can drive a scoreboard. Configurable poll character.
Included with Remote:	Carry case and batteries
Accessories:	Rubberized case protector sleeve. Remote wall mount bracket. Serial and remote cable assemblies.
Approval:	CE

11.3 Radio Specifications

FCC Certified:	For unlicensed low power devices. No radio licensing or permits required for normal operation.* (In the US and Canada. Check local ordinances in other countries.)
Frequency:	ISM 2.4 GHz frequency band operates between 2.4 to 2.4835 GHz.
Output Level:	10 mW (10 dBm)
Display Update Rate:	1 time per second.
Number of Links Remote Can Control:	Up to 15 addresses.
Configuration Address:	Automatic and configurable.
Antenna:	Integral antenna.
Range:	Open-air range up to 600 feet, line-of-sight. Indoor range dependent upon environment with 300 feet common. Low power radio systems are dependent upon interference levels from other radio systems and environmental conditions. Radio devices are not suitable for all applications.

11.4 Capacity and Resolution

Model*	Capacity x Resolution (normal/enhanced)			Overload†	Construction
EDX-1T (EDX-2.5K)	2,500 lbf x 2/0.5	1,000 kgf x 1/0.2	10,000 N x 10/2	700%	Aircraft-quality 2024 aluminum
EDX-2T (EDX-5K)	5,000 lbf x 5/1	2,000 kgf x 2/0.5	20,000 N x 20/5		
EDX-5T (EDX-10K)	10,000 lbf x 10/2	5,000 kgf x 5/1	50,000 N x 50/10		
EDX-10T (EDX-25K)	25,000 lbf x 20/5	10,000 kgf x 10/2	100,000 N x 100/20	500%	Aircraft-quality E4340 alloy steel
EDX-25T (EDX-55K)	55,000 lbf x 50/10	25,000 kgf x 20/5	250,000 N x 200/50		
EDX-50T (EDX-100K)	100,000 lbf x 100/20	50,000 kgf x 50/10	500,000 N x 500/100		
EDX-75T (EDX-160K)	160,000 lbf x 100/50	75,000 kgf x 50/20	—	400%	Aircraft-quality E4340 alloy steel
EDX-100T (EDX-220K)	220,000 lbf x 200/50	100,000 kgf x 100/20	—		
EDX-150T (EDX-330K)	330,000 lbf x 200/100	150,000 kgf x 100/50	—		
EDX-250T (EDX-550K)	550,000 lbf x 500/200	250,000 kgf x 200/50	—		

*Model number in parenthesis shows U.S. convention for describing capacities.

† Ultimate overload protection rating.

11.5 EDX PSU Power Supply Specifications

Enclosure	Designed for indoor use
Input Voltage	100-240 VAC 50-60Hz, 0.55A
Output Voltage	5 VDC
Operating Temperature	-4 F to 158 F (20 to 70 C)
Connector	Sealed connector to be used with EDXtreme or Communicator II
Approval	CE

AUTHORIZED DISTRIBUTORS

Ask the experts. Dillon distributors offer complete service capabilities from application assistance to sales and product support. Their experienced representatives are the most knowledgeable experts that you will find in the force measurement industry. We recommend that you consult these capable specialists for all of your measuring needs.

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