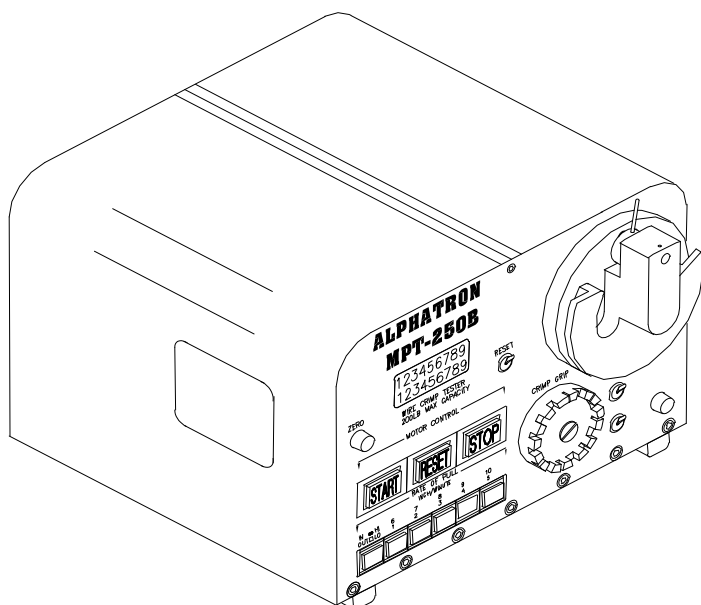


# MPT-250B SPECIFICATIONS AND OPERATING INSTRUCTIONS

## DATASHEET



### General Description

The MPT-250B Wire Crimp Pull Tester is intended as a bench top motorized pull force/ tensile tester capable of measuring up to 250lbs to test the strength of crimped terminations.

### SPECIFICATIONS PERFORMANCE

Capacity: 250lb (113kg) (1112N)  
Safe Overload: 150% of capacity  
Readout Accuracy:  $\pm 0.5\%$  of full scale  
Resolution: 0.1lb (.1 kg) (1 N)  
Speed Control Accuracy:  $\pm 1/8''/\text{min}$  @ 1-5''/min rate of pull  
 $\pm 1/4''/\text{min}$  @ 6-10''/min rate of pull  
Standard Display: Pound, Kilogram, or Newton Units  
Operating Temperature: 50°F to 100°F (10°C to 38°C)  
Auto-Stop: Selectable to be enabled or disabled

### PHYSICAL

Weight: 26lb, less options  
Height: 8in; Width: 10in; Depth: 15in  
Covers: Painted Steel

### OPTIONAL FEATURES AND ACCESSORIES

Universal self-tightening cam type lower grip (P/N 15-3202)  
Ring terminal lower grip (P/N 15-0066)  
Adjustable set point for motor stop at preset force




### NOISE EMISSION DATA:

Base Environment Sound: 43dBA  
Motor On (Max Speed-setting 10): 73.5dBA at 3' (1m) from surface of machine and 5.25' (1.6m) from floor.  
Note: The tool may be placed on top of a non-slip rubber mat to further reduce noise transmission and vibration.

### ELECTRICAL

100-250VAC 50/60 HZ Single Phase

This unit conforms to CE requirements. For declaration of conformity please contact DMC. See following picture for representative data plate found on the back of each tool.

Part # MPT-250B Cage Code: 11851 National Stock No: 635-01-581-9996 Year of Mfg: 2013	
MADE IN USA	
Input Power: 100-250 VAC 50/60 Hz Single Phase	
Current: 106 mA @ 250 VAC 171 mA @ 115 VAC	
Interrupt Ratings: Fuse: 300mA 250 VAC Interrupt: 200A 250 VAC	
	

### 1. SAFETY

The MPT-250B Wire Crimp Pull Tester is a force measurement device, and as such should be operated with due caution. Operators should wear safety glasses for eye protection because the crimp under test may break suddenly and fragments may fly off.

**Do not overload:** The gear motor in the pull tester can exceed the load limits of the load cell component in this device. For your protection the MPT-250B has been factory set to stop if the peak force exceeds 250lb. The unit is set to automatically stop at readings above 249.9lb.

If the tool becomes inoperable or jammed for any reason, press the STOP button, then the RESET button to try to unload the specimen being tested. If this does not correct the problem, STOP the tool, turn the POWER switch OFF, unplug the tool and contact DMC.

**Intended usage:** The MPT-250B is intended to be used to measure tensile strength of crimped connections from 28AWG to 10AWG wire sizes. It is not intended to be used to tensile test material coupons, cables, or welded connections.

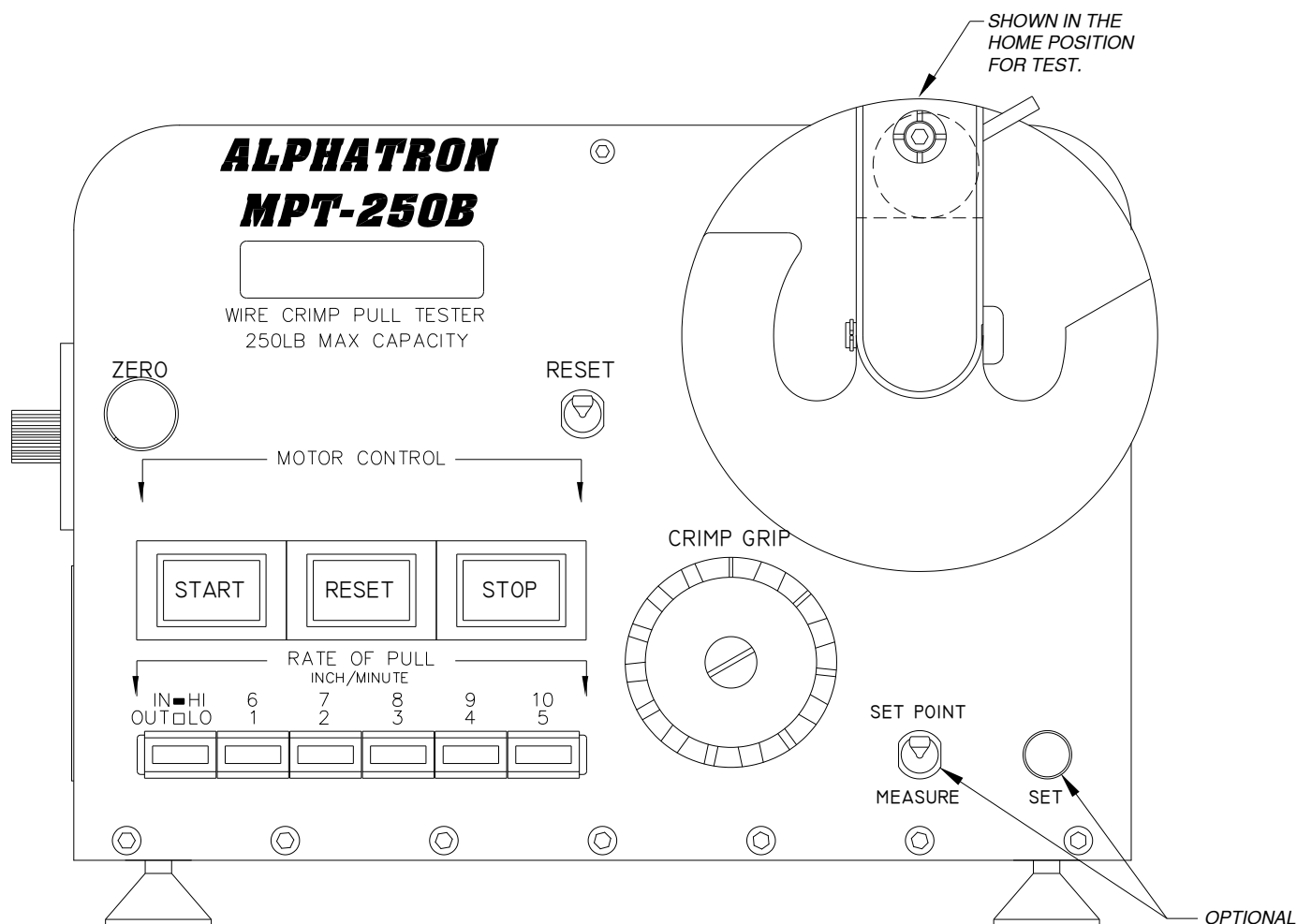
**Typical Workstation:** The MPT-250B is typically placed on a well-lit and sturdy bench with sufficient space around all sides. It is typically placed at a level so that an operator can be seated in front of it and comfortably use the tool.

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## 2. SETUP

The Alphasatron MPT-250B is shipped from the factory pre-calibrated and tested. To assure consistent, correct results, users should familiarize themselves with the setup and operation of the unit before placing it in service.

To operate, set the MPT-250B on a flat, level surface in an upright position. The unit can be tilted with the adjustable front feet to ease operator viewing of the display. Do not handle, pick up or move the unit by exerting leverage against any front or rear panel controls, fixtures or connections. Always lift by the base plate, preferably at the mid-point along either side. DO NOT use the lower grip as a handle for lifting or moving the MPT-250B. This can result in permanent damage to the load cell sensing unit.



## 3. ASSEMBLY

### 3.1 UPPER GRIP

The MPT-250B is shipped with the upper grip installed.

### 3.2 LOWER GRIP

The MPT-250B is shipped with the standard lower grip installed. If an optional lower grip was ordered it will be necessary for the purchaser to install it.

#### 3.2.1 Self-tightening cam type lower grip (optional)

To install the self tightening cam type lower grip proceed as follows:

- Remove the screw holding the standard lower grip in place.
- Place the screw in the mounting hole of the self-tightening cam type lower grip. To get the screw head past the operating gears into its recess, use the operating lever to rotate the cams into the fully open position.
- Screw the assembly firmly into place in the load cell sensing unit.

**3.2.2 Ring Terminal Lower Grip (Optional)**

If the ring terminal lower grip has been ordered, installation is as follows:

- A. Remove the screw holding the standard lower grip in place.
- B. Substitute the optional grip for the standard grip and tighten the screw until the lower grip rotates with resistance but is not loose or does not need to be forced to turn.

**3.3 FRONT PANEL CONTROLS**

**3.3.1 MOTOR CONTROLS**

***NOTE: PRESS AND HOLD SWITCHES FOR APPROXIMATELY 1 SECOND TO ALLOW FOR PROPER ACTIVATION.***

**START** – Motor start switch to begin test.

**RESET** – Resets display meter to zero, and resets pull wheel to START position for the next test. RESET must be performed after each test.

**STOP** – Stops the motor and the meter retains the current peak value.

**3.3.2 RATE OF PULL CONTROLS**

**LO-HI SWITCH**

**LO (Green)** – selects rate of pull of 1-5 in/min.

**HI (Yellow)** – selects rate of pull of 6-10 in/min.

**NUMBERED RATE SWITCHES**

Select the rate of pull, 1-5 in/min (LO-Green), or 6-10 in/min (HI-Yellow) as chosen by setting of LO-HI switch.

**3.3.3 DISPLAY CONTROLS**

**ZERO** – Adjusts the display to true zero. When turned counterclockwise the meter reading will decrease. When turned clockwise the meter reading will increase. The display will be checked for zero adjustments at startup and after each test when the RESET switch is pressed.

**RESET** – Resets the display (clears peak values) to zero.

**3.4 OPTIONAL CONTROLS ON THE FRONT PANEL**

**3.4.1 SETPOINT** – The SETPOINT option enables an operator to set the force at which the MPT-250B is to stop automatically if the test proceeds to that force and the connection under test does not fail.

When the SETPOINT/MEASURE switch is held in the MEASURE position it enables the operator to select the set point by turning the SET adjusting knob next to the switch. As the knob is turned, the set point force will be indicated on the display meter. Clockwise adjustment increases the set point value, and turning the knob counterclockwise decreases the value. The force reading from the load cell is disabled, and will not be enabled until the switch is in the SETPOINT (raised) position. Tests are conducted with the switch in the raised position. When the load reaches the set point level, the motor will stop and the unit can be reset and reloaded for the next test.

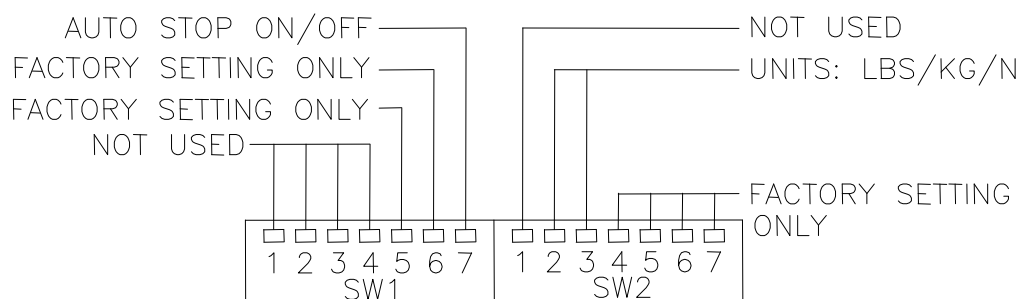
***NOTE: The unit must be turned off, and then back on for the set point measure changes to take effect.***

This option can be used in conjunction with the AUTO STOP (section 3.5.1) feature. When both features are turned on, the test will stop automatically if either condition is met (AUTO STOP, or SETPOINT).

If the peak reading of the force necessary to part a connection is desired, the set point should be at 249.9lb before testing.

### 3.5 SIDE PANEL DIP SWITCH SETTINGS

The dip switches are accessed through the opening on the left side of the MPT-250B. The access opening is covered with a plate that can be swung out of the way. Turn the large captivated screw counter clockwise until it comes loose from the side cover. The label below the cover depicts the switch banks and lists the switch functions. The detailed description of the switch settings is as follows:



**NOTE:** The unit must be turned off, and then back on for dip switch changes to take effect.

#### Bank SW1 (Toward rear of tester)

Switch 1:	Not Used
Switch 2:	Not Used
Switch 3:	Not Used
Switch 4:	Not Used
Switch 5: Factory Setting DO NOT adjust.	
Switch 6: Down = Normal Up = Set point measure enabled	
Switch 7: Auto Stop	Down=Off Up=On

#### Bank SW2 (Toward front of tester)

Switch 1:	Not Used	
Switch 2: (Section 3.5.2)	lb units	Down
	Kg units	Up
	N units	Up
Switch 3: (Section 3.5.2)	lb units	Up
	Kg units	Down
	N units	Up
Switch 4: Factory Setting DO NOT adjust.		
Switch 5: Factory Setting DO NOT adjust.		
Switch 6: Factory Setting DO NOT adjust.		
Switch 7: Factory Setting DO NOT adjust.		

#### 3.5.1 AUTO STOP

This feature stops the pull test when the piece under test fails. When the force applied to the piece drops below 70% of the displayed reading, the test is completed and the unit stops. This feature is turned on or off using switch 7 of dip switch bank SW1.  
ON=AUTO STOP enabled.

OFF=AUTO STOP disabled (the STOP switch must be used at the completion of a test).

**NOTE:** The AUTOSTOP function will not operate if the test range is at or below approximately 1.5lb. This is necessary to allow for the preload that an operator will normally apply when inserting a connector for the test. If the preload is greater than the lower limit, the unit will not start. In this case depress the reset toggle switch next to the display to be able to begin test.

#### 3.5.2 POUND, KILOGRAM, NEWTON

Dip switch 2 & 3 of dip switch bank SW2 control the type of units that are measured by the tester. If pounds are desired switch 2 is down and switch 3 is up. If kilograms are desired switch 2 is up and switch 3 is down. If Newton units are desired both switch 2 and 3 are up.

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### 3.6 REAR PANEL

**FUSE** – If the main fuse requires replacement install a .3 Amp 125/250V slow blow fuse. The fuse compartment is located on the back of the unit and labeled as FUSE.

**ON/OFF** – Depress the rocker switch in order to turn the unit ON or OFF.

**AC POWER** – Insert the proper end of the supplied power cord into the male receptacle.

## 4. OPERATION

In the instructions that follow operation of both standard and optional features will be covered.

### 4.1 POWER

**4.1.1** Check the operating voltage of the unit. The correct operating voltage is on the identification label on the back of the unit. Be sure that this voltage is the same as the voltage available at your location before you plug in the MPT-250B.

**4.1.2** Turn the power switch in the center of the back plate OFF.

**4.1.3** Plug the power cord into its receptacle on the back of the MPT-250B, and into the incoming power receptacle.

#### 4.1.4 Startup Sequence

**NOTE:** Please read this section in its entirety prior to performing the startup sequence.

1. **PRIOR** to turning on the unit, turn the zero adjustment knob to the maximum clockwise position.
2. Turn the power switch ON (Rear Panel). The display will turn on and the motor control stop switch will illuminate.
3. The unit will warm up for approximately 60 seconds.
4. The unit will then display the serial number.
5. The unit will need to be adjusted to zero.

**NOTE:** It is imperative to move the zero adjustment knob accurately and slowly for proper operation of the Alphasron unit. If the adjustment knob is turned too quickly, the value may extend beyond the zero mark into the negative value range and cause an error message to be displayed. As a general rule, it is suggested to begin turning the adjustment knob slowly once the "+002.0" display value is reached so as to not pass zero.

- a. Turn the zero adjustment knob counterclockwise slowly until zero is displayed.
- b. Once zero is reached the unit will automatically perform an internal calibration sequence.
- c. If the calibration is OK the unit will be ready for operation.
- d. If the Alphasron does not zero calibrate properly, an error message will display prompting the end user to contact DMC. Prior to contacting DMC the following steps should be taken:
  - i. Turn the power to the unit OFF (Rear Panel).
  - ii. Turn the zero adjustment knob clockwise one complete turn.
  - iii. Follow section 4.1.4. steps 1 through 5.
  - iv. If the calibration is OK the unit will be ready for use.

**If the Alphasron still does not zero calibrate properly, an error message will display prompting the end user to contact DMC. Contact DMC.**

### 4.2 LOWER GRIP

**4.2.1** (Standard Grip) Rotate the lower grip to place the correct slot for the wire/terminal under test in the uppermost position. Select a slot that is the same width as the wire diameter, or one size larger.

**4.2.2** Self Tightening Cam Type Lower Grip (optional). Depress the operating lever of the self-tightening cam type lower grip to open it far enough to accept the sample under test. When you release the lever, the cam wheels will grip the sample.

**NOTE: DO NOT POSITION THE GRIP PRESSURE ONTO THE CRIMP BARREL OF THE TEST SAMPLE.**

**4.2.3** Ring Terminal Lower Grip (Optional). Rotate the grip to place the correct stud in the uppermost position, and place the terminal over the stud.

### 4.3 UPPER GRIP

**4.3.1** If the upper grip is not positioned in the home position, as shown in the diagram on page 2, press the RESET button.

# **MPT-250B SPECIFICATIONS AND OPERATING INSTRUCTIONS**



## **DATASHEET**

**4.3.2** Depress the operating lever of the self tightening cam type upper grip to open far enough to accept the test sample (wire). When you release the lever, the cam wheel will grip the wire.

### **4.4 SAMPLE OPERATION**

The following is an example procedure for testing a wire specimen after the unit has successfully completed the STARTUP SEQUENCE (section 4.1.4):

**4.4.1** Place the terminal end of the wire sample in the Lower Grip (section 4.2).

**4.4.2** Pull the sample to remove any slack in the wire and place the opposite end of the wire sample in the Upper Grip (section 4.3).

**4.4.3** Once the sample is taut between the grips, press the motor control START switch (section 3.3.1).

The pull wheel will turn in a clockwise motion thereby tightening the grip on the sample and applying tension to the wire.

**4.4.4** The unit will cease operation once the sample has failed (section 3.5.1) or the force limit has been reached. Record the value indicated on the display panel.

**4.4.5** Press the motor control RESET switch (section 3.3.1) to return the pull wheel to the start position to allow for the next test.

**4.4.6** Press the display control RESET switch (section 3.3.3) to return the display to zero.

**4.4.7** Repeat steps 4.4.1 to 4.4.6.

## **5. CALIBRATION**

The MPT-250B wire crimp pull tester is factory calibrated with equipment traceable to the NIST. It is recommended practice to return the unit to DMC for calibration. In order to maintain traceability to NIST, do not exceed 12 months between factory calibration intervals. The internal calibration test sequence is a reliable verification that the tester is accurate, but it does not assure traceability to NIST.

## **6. TRANSPORT**

It is recommended that the MPT-250B wire crimp pull tester be transported within a sufficiently sturdy box to handle the weight of the tester and that the tester be surrounded with impact absorbing material (i.e. foam) on ALL sides in the box. It is recommended that any accessories (i.e. grips) being transported with the tester be individually packed and wrapped in foam to avoid damage.

## **7. PREVENTATIVE MAINTENANCE/ADJUSTMENT**

It is recommended that the MPT-250B wire crimp pull tester be kept clean and free of debris on a daily basis using a dry cloth.

CALIBRATION ADJUSTMENT OR MAINTENANCE IS TO BE DONE ONLY BY A CERTIFIED OPERATOR OR DMC.

No adjustment or maintenance is to be performed by end users if not certified/trained by DMC.

### **LIMITATION OF LIABILITY/LIMITED WARRANTY\***

DANIELS MANUFACTURING CORPORATION IS NOT LIABLE FOR CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY NATURE OR KIND RESULTING FROM THE USE OF ANY OF ITS PRODUCTS. OWNERS AND USERS OF DMC PRODUCTS ASSUME FULL RESPONSIBILITY FOR INSTRUCTING THEIR EMPLOYEES IN THE PROPER AND SAFE USE OF SUCH PRODUCTS.

Daniels Manufacturing Corporation warrants each new unit sold by it to be free from defects in material and workmanship under normal use and service. Its obligation under this warranty is limited to the free correction or, at its option, the refund of the purchase price of any such unit which proves defective within ninety (90) days after delivery to the first user, provided that the unit is returned with all transportation charges prepaid, and which shall appear to its satisfaction, upon inspection by it, to have been defective in material or workmanship. This warranty shall not cover any damage to such products, which in the opinion of Daniels Manufacturing Corporation, was caused by normal wear, misuse, improper operation or accident. This warranty is in lieu of all other warranties express or implied. No warranty, express or implied, is made or authorized to be made or assumed with respect to products of Daniels Manufacturing Corporation, other than that herein set forth.

\*as defined by PL93-637

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