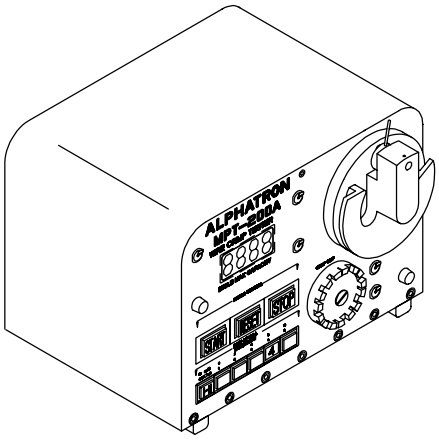
MPT-200A SPECIFICATIONS AND OPERATING INSTRUCTIONS

DANIELS MANUFACTURING CORPORATION
DATASHEET



MPT-200A

SPECIFICATIONS

PERFORMANCE
Capacity: 200Lb (90.7Kg) (890N)
Safe Overload: 150% of capacity
Readout Accuracy: ± 0.5%
Resolution: 0.1 lb
Speed Control Accuracy: ±1/8"/min. @ 1-5"/min. rate of pull
±1/4"/min. @ 6-10"/min. rate of pull
Standard Display: Pounds (XXX.X)
Optional Display: Kilograms (XX.X), or Newtons (XXX)
Operating Temperature: 50°F to 100°F (10°C to 38°C)
Auto-stop enable/disable switch

PHYSICAL
Weight: 26 Lb., less options.
Height: 8 inches
Width: 10 inches
Depth: 15 inches
Cabinet: Painted carbon steel

ELECTRICAL
Power: 115VAC, 50/60 Hz std. (230VAC 50/60 Hz optional)

OPTIONAL FEATURES AND ACCESSORIES
Display units in Kilograms
Lb./Kilograms switching
Display units in Newtons
Lb./Newtons switching
Kg/Newtons switching
7.5-30"/min. selectable rate of pull in ten 2.5"/min. increments
Universal self-tightening cam-type lower grip
Ring Terminal lower grip
Adjustable setpoint for motor stop at preset force
Constant force pull
RS232 output
230VAC 50/60 Hz operation (International Power Cord Configuration)
Slotted screw adjustment for Zero - Replaces standard knob adjustment

1. SAFETY

The MPT-200A Wire Crimp Pull Tester is a force measurement device, and as such should be operated with due caution. Operator should wear safety glasses for eye protection because the crimp under test may break suddenly and fragments may fly off.

Do not overload: The geared motor in the pull tester can exceed the load limits of the load cell component in this device. For your protection the MPT-200A has been factory set to stop if the peak force exceeds 205 Lb. Display blanking will occur above 199.9 Lb.

2. SETUP

The Alphatron MPT-200A is shipped from the factory precalibrated 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-200A on a flat, level surface in an upright position. 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-200A. This can result in permanent damage to the load cell sensing unit.

3. ASSEMBLY

3.1 UPPER GRIP

The MPT-200A is shipped with the upper grip installed.

3.2 LOWER GRIP

The MPT-200A 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.

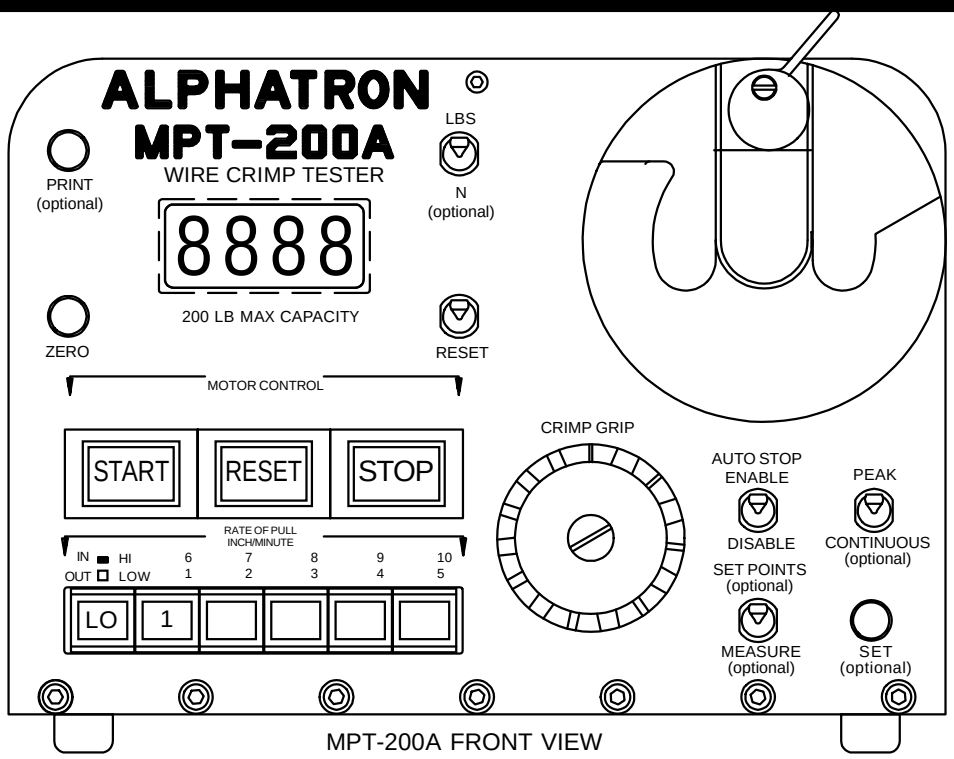
3.2.1 Self-Tightening Cam-Type Lower Grip (optional)

To install the Self-Tightening Cam-Type Lower Grip proceed as follows:

A. Remove the screw holding the standard lower grip in place.
B. Place the screw in the mounting hole in 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.
C. Screw the assembly firmly into place in the load cell sensing unit.

ALPHATRON® by DMC

DANIELS MANUFACTURING CORP., 526 THORPE ROAD, ORLANDO, FL 32824, USA
PHONE (407) 855-6161 • FAX (407) 855-6884 • WWW.DMCTOOLS.COM • E-MAIL: DMC@DMCTOOLS.COM



MPT-200A FRONT VIEW

3.2.2 Ring Terminal Lower Grip (optional)

If the Ring Terminal Lower Grip option 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.

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-200A.

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-200A, and into the incoming power receptacle.

4.1.4 Turn the power switch ON. The display will turn on and the Motor Control Stop Switch will be lighted.

4.1.5 Allow 15 minutes warm-up before making valid tests.

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 it will grip the sample.

4.2.3 Ring Terminal Lower Grip (optional)
Rotate the grip to place the correct stud uppermost and place the terminal over the stud.

4.3 UPPER GRIP

4.3.1 If the upper grip is not positioned as shown on the Front Panel drawing press the RESET button.

4.3.2 Depress the operating lever of the Self-Tightening Cam-Type Upper-Grip to open it far enough to accept the sample under test. When you release the lever it will grip the sample.

4.4 FRONT PANEL CONTROLS

4.4.1 Motor Controls:

A. START — motor start switch to begin test.

B. RESET — resets peak hold meter to approximate zero and resets pull wheel to START position for the next test. Reset must be performed after each test.
NOTE: The peak hold meter does not always return to an exact zero reading. If the meter reads less than .5 Lb. (in the Lb. mode) continue testing. If the figure is greater than .5 Lb. depress the RESET switch next to the display. This should clear the residual peak value. If it does not, adjust the meter ZERO (see section 4.6.2)

C. STOP — Stops the motor, and the meter retains the current peak value.

4.4.2 AUTO STOP — This feature stops the pull test when the piece under test fails. When the force applied to the piece under test peaks and then falls below 70% of the displayed reading, the test is completed and the unit stops.
The ENABLE/DISABLE switch will have the following effect:
ENABLE = AUTO STOP works.
DISABLE = AUTO STOP doesn't work (the STOP switch must be used at the completion of a test).
NOTE: The AUTO STOP function will not operate if the test range is at or below approximately 4.5 to 6 Lb. 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 circumstance it is necessary to decrease the preload and depress the meter RESET switch in order to be able to start the test.
If the test involves loads (connections) that will part at a force less than the lower limit, AUTO STOP does not function. Press the MOTOR CONTROL STOP switch to stop the test when the connection breaks.

4.5 RATE OF PULL CONTROLS

4.5.1 LO-HI switch

A. LO selects rate of pull of 1-5 in./min.

B. HI selects rate of pull of 6-10 in./min.

4.5.2 1-5 switches select rate of pull between 1-5 in./min.(LO), or 6-10 in./min. (HI) as chosen by setting of LO-HI switch.

4.6 DISPLAY CONTROLS

4.6.1 RESET — Resets the display (clears peak values) to zero. Use this switch when making zero adjustments.

4.6.2 ZERO adjusts the display to true zero. When turned counterclockwise the meter will not read a number greater than -01.0. Press meter RESET after each increment turned to arrive at zero. Several adjustments may be necessary to reach exact zero.

4.6.3 *Lb/Kg Switch (optional), switches the display to indicate pounds force of kilograms as the unit of measure.

4.6.4 *Lb/N Switch (optional), switches the display to indicate pounds force or newtons as the unit of measure. Decimal point switching is automatic.

4.6.5 *Kg/N Switch (optional), switches the display to indicate KG force or newtons as the unit of measure. Decimal point switching is automatic.

*NOTE: If using RS232 Digital output on an MPT-200A with an optional units switch you must turn the MPT-200A off each time you switch units, so that the change can take effect in the digital output when you restart the MPT-200A

4.7 OTHER OPTIONAL CONTROLS ON THE FRONT PLATE

4.7.1 PRINT push-button. Activates RS232 output to serial printer or other RS232 compatible device.

4.7.2 The SETPOINT option enables an operator to program the force at which the MPT-200A is to stop automatically if the test proceeds to that force and the connection under test does not fail.
NOTE: When setting the force for the setpoint, the display reading is in LBS. only. For systems using kilograms or Newtons as the unit of measure a conversion factor must be applied.

1 lb = .454 KG.
1 lb = 4.448 N

SETPOINT/MEASURE when held in the MEASURE position enables the operator to select the setpoint by turning the SET adjusting knob next to the switch. As the knob is turned, the setpoint force will be indicated on the peak hold meter. Clockwise adjustment increases the setpoint 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 setpoint level, the motor will stop and the unit can be reset and reloaded for the next test.
This option can be used in conjunction with the AUTO STOP 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 setpoint should be at 199.9 Lb before testing. A connection requiring more than that peak force to part will cause the digital display to go blank and the unit will stop automatically without a peak reading.

4.7.3 The CONSTANT FORCE option operates similarly to the SETPOINT option. An additional switch is provided above the SET knob. The switch should be set to PEAK for normal operation, and to CONTINUOUS when using the CONSTANT FORCE option.

4.8 SPECIAL FEATURES

4.8.1 Optional Digital Output Board — RS232.

The MPT-200A with the optional RS232 Digital Output Board is shipped from the factory ready for use with all required communications parameters preset to the most common settings, Switches 1, 2, 6, and 7 have been preset based on the display units and should not require any modification.
If communication parameters are not compatible with interfacing hardware, it is necessary to set a series of output parameters by means of the 8 switch DIP package installed on the board.
REMEMBER: You must switch the unit off each time any switch settings are changed in order to have them take effect when you restart the MPT-200A.

4.8.1.1 Switch Location

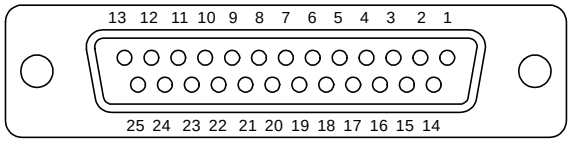
To gain access to the Digital Output Board switches it will be necessary to remove the left hand cover (when looking at the front of the machine) which is held in place by two screws at the base plate. The Digital Output Board is the top board, and the DIP switches are on the edge nearest the center of the machine.

4.8.1.2 Dip Switch Settings:

See Table Below

4.8.1.3 RS-232 I/O Port pin functions

Pin 2 Rx received data to MPT-200A
Pin 3 Tx transmitted data from MPT-200A
Pin 5 (CTS) Normally high, goes low at start, high at stop
Pin 7 SG Signal GND
Pin 24 Remote switch enable (normally open, momentary contact)
Pin 25 Signal ground for remote switch.



4.8.1.4 RS-232 General Specifications

Communications System: .... Full duplex serial
Definition: ..... DCE
Baud Rate: ..... Selectable - 300, 600, 1200, 2400, 4800, 9600
Start Bits: 1
Data Bits: 8
Parity: ..... None
Stop Bits: 1
Coding: ..... ASCII
Transmission Sequence: ..... LSB first
End of Trans. Delimiters: ..... CR LF

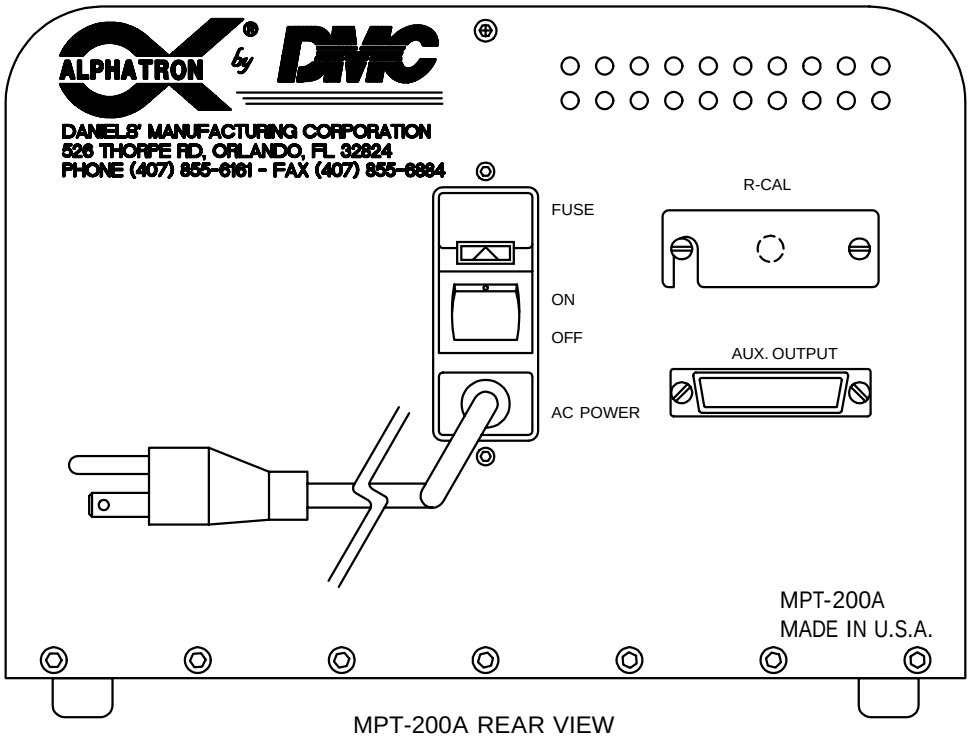
Data will be transmitted in response to any received character on the Rx port or by pressing the PRINT button on the MPT-200A.

SWITCH	#1	#2	DECIMAL POINT
	Closed	Closed	xxxx
	Closed	Open	xxx.x (1)
	Open	Closed	xx.xx

SWITCH	#3	#4	#5	BAUD RATE
	Closed	Closed	Closed	9600 (1)
	Closed	Closed	Open	4800
	Closed	Open	Closed	2400
	Closed	Open	Open	1200
	Open	Closed	Closed	600
	Open	Closed	Open	300
	Open	Open	Closed	300
	Open	Open	Open	300

SWITCH	#6	#7		
	Closed	Closed	LB	(Pounds) (1)
	Closed	Open	KG	(Kilograms)
	Open	Closed	N	(Newtons)
	Open	Open	LB	(Pounds)

SWITCH	#8	Not used
(1) Factory Settings (MPT-200A)		



MPT-200A REAR VIEW

Character	1	Space (for positive sign)
	2	Digit
	3	Digit or decimal point
	4	Digit or decimal point
	5	Digit or decimal point
	6	Digit or space
	7	Space
	8	Units (L K Space)
	9	Units (B G N)
	10	CR
	11	LF

4.9 FUSE

If the main fuse requires replacement install a .3 Amp. 125/250V slow blow fuse.

5. FUNCTIONAL CHECK

The MPT-200A Wire Crimp Pull Tester is factory calibrated with equipment traceable to the NIST. It is a recommended practice to recalibrate the unit at intervals not to exceed one year in duration.

The functional check is executed using the R-cal switch built into the unit. The R-cal switch is located behind the swing-away cover on the rear of the unit, and its R-cal value is on the sticker on the switch cover plate.

A functional check can be performed at any time:

1. Allow the MPT-200A to warm up for 15 minutes.
2. Depress the reset toggle momentarily.
3. Zero the display by alternately turning the zero knob and momentarily pressing the reset toggle until the display reads 00.0.
4. Press the R-cal button on the back of the unit (under the swing-away cover). Press the reset toggle to zero the display. Repeat this process several times to assure a repeatable value. The display value (R-cal # X .005 = tolerance
   R-cal # plus & minus tolerance = range) should be within +/- .5% the value recorded on the swing-away cover.
   EXAMPLE: R-cal = 140.0
   140 X .005 = 0.7
   139.3 to 140.7 = range
5. If any of the procedures in steps 2-4 do not produce the expected results, the unit should be returned to DMC for repair and recalibration.

Special information for Self-Tightening Cam-Type Lower Grip users:

When you install the Self-Tightening Cam-Type Lower Grip the R-cal number may be different than the one that is on the sticker.

For your convenience we suggest that after the optional grip is installed, take an R-cal reading and record it for use as the R-cal factor for this particular machine.

LIMITATION OF LIABILITY / LIMITED WARRANTY*

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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

DANIELS MANUFACTURING CORP., 526 THORPE ROAD, ORLANDO, FL 32824, USA
PHONE (407) 855-6161 • FAX (407) 855-6884 • WWW.DMCTOOLS.COM • E-MAIL: DMC@DMCTOOLS.COM