

CONGRATULATIONS ON YOUR CHOICE

We are pleased to offer you the finest technology in grain quality control. Your moisture meter was submitted through an extensive quality control process to ensure its reliability and accurate results.

Thank you for choosing us!

Please unpack your instrument carefully and if you find any damage or noncompliance, you should put it back into the original package and contact your sales representative for replacement.

PACKAGE CONTENT

- 01 Moisture Meter;
- 01 Volumetric Cup;
- 01 Power Cord;
- 01 User Guide.

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GENERAL INFORMATION

The Moisture Meter is a bench top instrument designed to measure grains, seeds and a wide variety of other product's moisture content. Based on North American Standards (USDA and CGC), all the instruments must provide results equivalent to the air oven, which is the reference method.

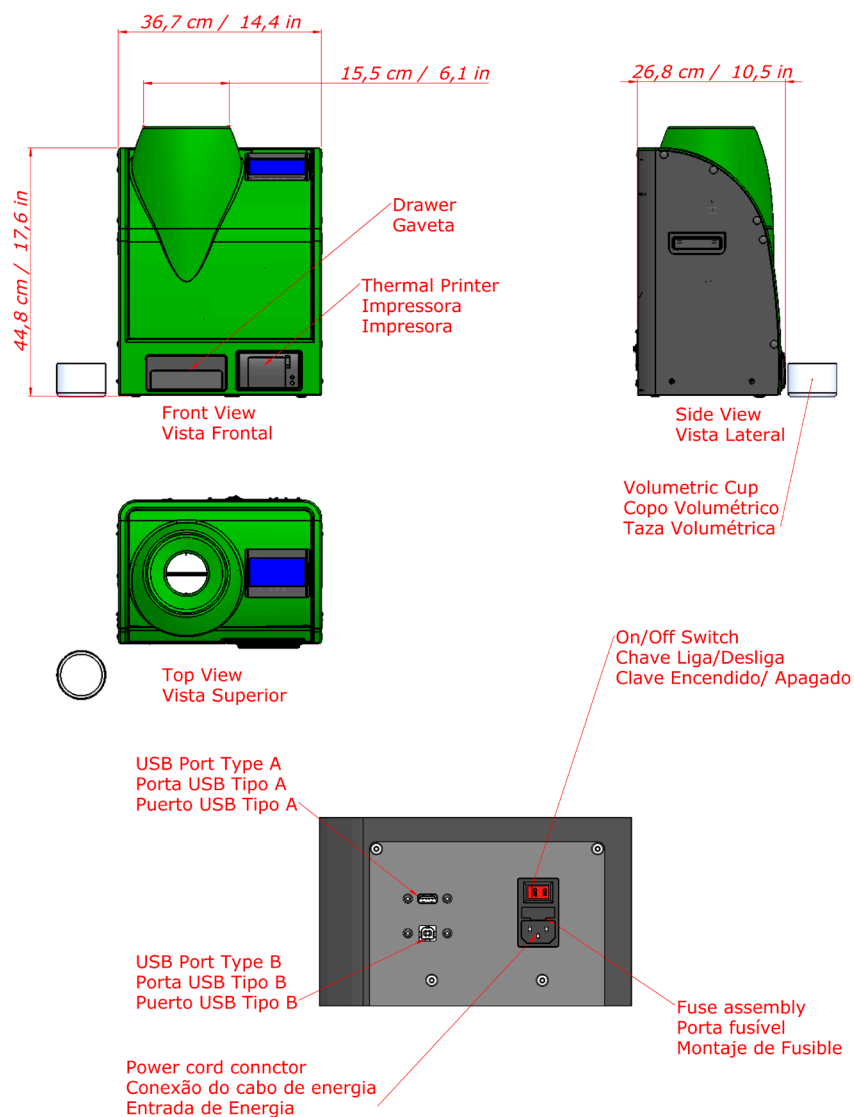
The moisture content reading process uses a technology based on the water dielectric properties in the sample. Using calibration charts, the water amount in the sample is converted to moisture percentage.

Designed to provide fast and accurate results, the instrument has also a simple and intuitive operating interface, offering the user a color display with touch panel to easily interact with the instrument. Built to meet or exceed the precision, security and performance demands for grain moisture meters described in the NIST (National Institute of Standard and Technology) Handbook 44. Plus, the instrument comes loaded with the USDA and CGC calibration charts.

FEATURES

The instrument has the following features:

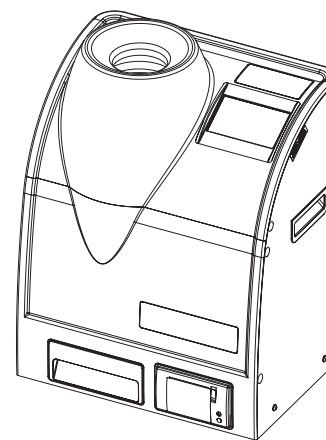
1. Integrated precision scale with a safety device to prevent misuse and results tampering;
2. Integrated high tech temperature sensor which can measure from -4°F to
3. 158°F;
4. Integrated thermal printer;
5. Security protection to metrological parameters access;
6. Full range voltage input (100 —VA C);
7. Software with capacity to load up to 458 different types of grains;
8. Single measurement or 03 average readings for greater precision;
9. 4.3" Color LCD display with touch panel;
10. Self-test sequence to assure proper equipment operation;
11. Input custom ID to each moisture read;
12. Virtual emulated RS-232 output for external connection;
13. Foreign material, Damaged kernel and Test Weight measurement.

**TYPE A USB PORT**

Shall only be used to record your results to an external flash drive.

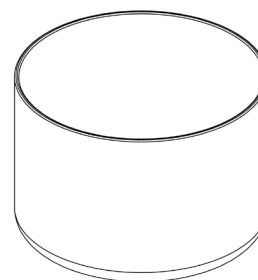
TYPE B USB PORT

Is the RS-232 output. Connect to your computer to access it.

MAIN COMPONENTS**MAIN HOUSING**

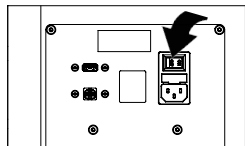
The electronic circuits of the moisture meter is completely isolated inside the instrument enclosure, carefully developed to withstand the rigors of field usage.

The ON/OFF Switch, communication ports, and power inlet are located in the back of the unit. Equipped with a touch panel over a 4.3" LCD color display, it offers the user an easy and intuitive interface.

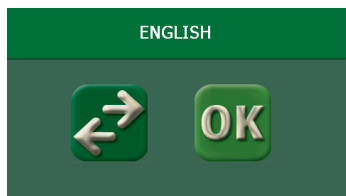
**VOLUMETRIC CUP**

It is a metal container where the operator pours the sample in when AUTOMATIC measurement is active. It is extremely important the operator overfills it with the sample that he/she wants to measure the moisture. Remove the excess with a ruler. Then, dump the sample in the Dump Cell.

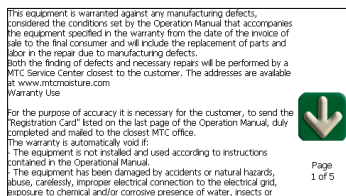
FIRST TIME STARTUP



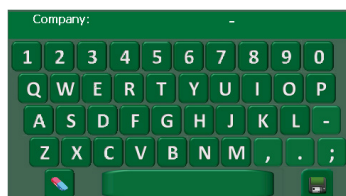
1. Press the power button at the back of the instrument.



2. Choose the desired language by pressing until your choice appears. Then, press then press **OK**.



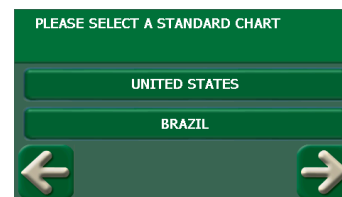
3. Read the Terms of Use¹ carefully. Navigate through the text using the arrows on the right side of the screen. After you reach the end of the page, a screen will pop-up, if you agree to the terms please touch the **YES**.



4. The name of the company that owns the instrument can be recorded on the system. To do so, please use keyboard on the screen and after you finish touch . If mistyped, press to write it again. After the name is saved, a screen will pop-up with a message asking for confirmation. If you agree, touch **YES**.

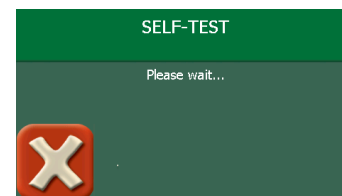
¹ The Terms of Use can also be found at the end of this manual.

STANDARD CHARTS SELECTION / SELF-TEST



The instrument has 10 built-in charts groups (Argentina, Bolivia, Brazil, CGC English, CGC French, German, Italian, Mexico, Spanish in General, United States).

5. Select appropriate chart group to your area by navigating through .



6. Follow the steps on the screen to complete the self test, such as:



- Configuration parameters integrity;
- Memory;
- Time and date;
- Equipment calibration data integrity;
- Scale.

At the unlikely event of an error, restart the process pressing . In most cases, it is just an alert that can be easily solved by the user. If you can not solve the issue by yourself, please contact the most convenient authorized technical service office.

MAIN SCREEN




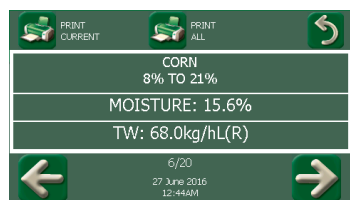
This initial menu works as a screen for quick measurement where once selected the proper chart, this set up will not be needed anymore. **On page 15 and 16**, it is explained how to make the moisture measurement.

Here you have access to results log , measurement ID  and machine settings **MENU**.

7. Press **MENU**.

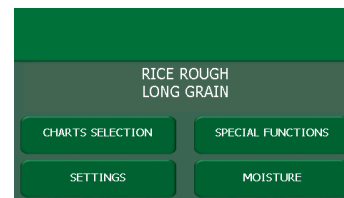


Press on  to add an **ID** to the measurement, like a truck license plate. This will be recorded for next measurement. If you want to change or remove, touch the button again and do so.

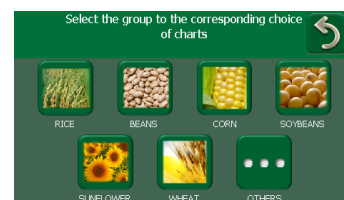


Press on **PREVIOUS RESULTS**. It shows a moisture measurement log. It is possible to browse using the arrows and the equipment system stores up to twenty readings.

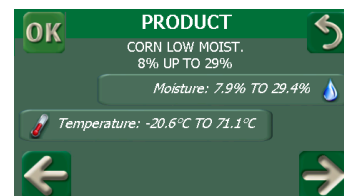
CHARTS SELECTION





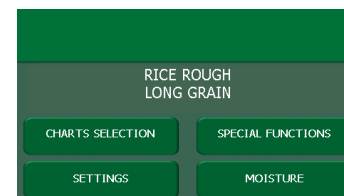
8. Press on **CHART SELECTION** to choose the desired chart.



9. Select the group, touching on it.




10. Browse through options with   and touch on **OK** to select.

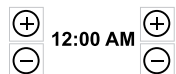
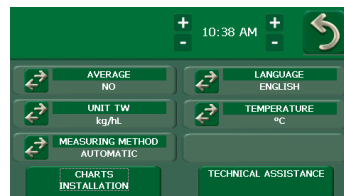


At **MAIN MENU**, the option **MOISTURE** will return to moisture measurement screen. Plus, **SPECIAL FUNCTIONS** and **SETTINGS** will be explained on next pages.

SETTINGS

Press  to change

Press  to return to **MAIN MENU**.



Use + and - to adjust the time, for hours use the left icons and for minutes the ones on the right.



It is possible to get the average moisture reading from 03 sequential dumps. You can enable it by choosing **YES**. If **NO** is chosen, the average mode is turned off. Plus, **OVER 20%** option will do the average, however it will not count for the average calculation if the sample has 20% or less humidity.



Celsius and **Fahrenheit** are available.



When available, the Test Weight (TW) result can be shown in 5 different units: **kg/hL ; lb/bu ; lb/A bu ; lb/W bu ; g/0.5l ; KIT**. When KIT is selected, the equipment will ask the user if he wants to measure TW with precision and then the user will select the measurement method. This option can be activated through **SELECT FUNCTIONS / TEST WEIGHT**. It is explained on page next page.



There are 6 languages available: **ENGLISH / SPANISH / GERMAN / FRENCH / ITALIAN / PORTUGUESE**.



It will change how measurement happens. If **AUTOMATIC** is selected, the equipment will suit automatically according to the selected chart. However, the user can choose **WEIGHT ONLY** to make the moisture reading by weight. This option does not provide pH.



Change the charts region

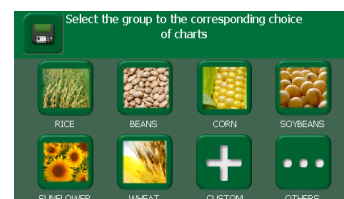
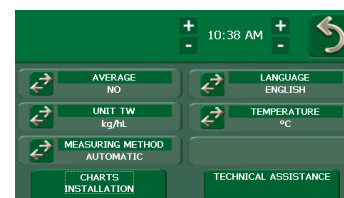


Restricted area access.

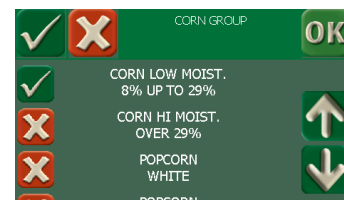
CHARTS INSTALLATION



To install more charts, follow the instructions below:

1. Go to settings.
2. Touch on **CHARTS INSTALLATION**.
3. Choose the desired region.

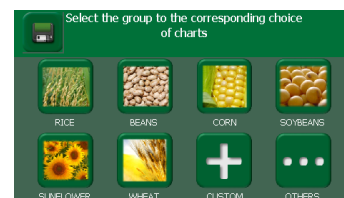



4. Select the desired group grain chart.




5. Select the chart to chosen grain. On the top, there are two buttons:  and . This option allows the user to check or uncheck each available chart in the group. Use the arrows at the right of the screen to navigate through the options. Each curve also has the same buttons to indicate whether or not they are selected. You can also select charts uniquely.

6. When the selection is done, press **OK** to return to groups.



7. After desired curves are selected, touch  the button to record your selection curves.

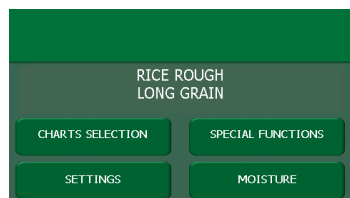
SPECIAL FUNCTIONS

The instrument has some **SPECIAL FUNCTIONS** such as: Measurement of Test Weight, Purity, Foreign Material and Damaged Kernel. After each moisture reading, it is send to a flash drive and through RS-232 output. It can be printed, pressing .

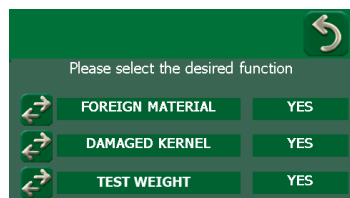


To activate desired functions follow the instructions below :

1. Press **MENU** on the main screen.



2. Press **SPECIAL FUNCTIONS**.

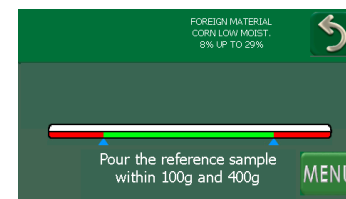


3. Activate each one pressing . If it shows **YES**, it is enabled.

4. Return to **MAIN MENU** pressing .

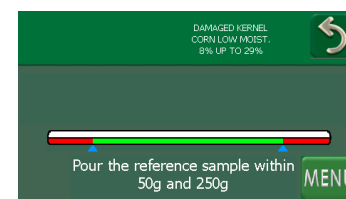
5. Press **MOISTURE**.

SPECIAL FUNCTIONS



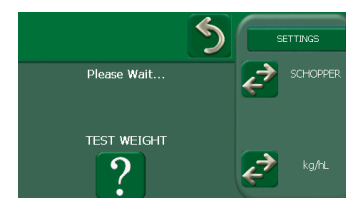
FOREIGN MATERIAL measures how impure is the sample.

- Place the sample within 100 grams and 400 grams inside the grain cell.
- Remove the foreign material from the grain cell.
- Place just the foreign material in the equipment.



DAMAGED KERNEL measures how much the sample is damaged and each kind of defect.

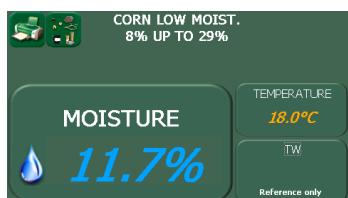
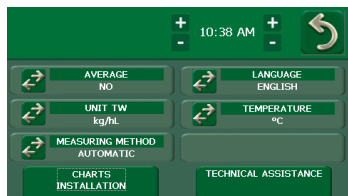
- Place the sample within 50 grams and 250 grams.
- Remove the damaged grains from the sample.
- Place just one type of damaged material in the equipment.
- There are two options: Press **OK** to measure type 2 or removing the sample from the grain cell to continue the process.



TEST WEIGHT measure the sample weight, moisture, and temperature.

1. Select test weight kit type (SCHOPPER grain tester, PINT or 0,5 Liters).
2. Select sample type and the unit result (kg/hl, lb/ A bu, lb/ W bu, g / 0.5L).
3. Prepare the sample.
4. Dump it inside the instrument .
5. Press **OK**.

MEASUREMENT PROCESS (WEIGHT)



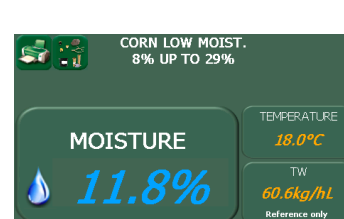
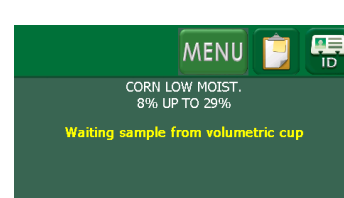
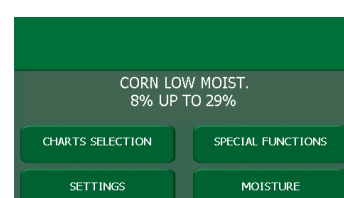
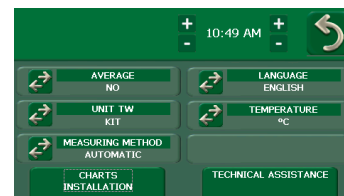
1. Make sure that the instrument is placed on a leveled surface.
2. Turn the instrument on and wait for the start-up process to finish.
3. Change measuring method to **WEIGHT ONLY** in **SETTINGS**.
4. Select the desired chart in **CHARTS SELECTION**.
5. Access the measurement screen through **MOISTURE**.
6. Fill the dump cell up to 100%, the instrument will beep twice shortly when you reach the correct amount. Press the dump cell button to release the grain into the grain cell.
7. The moisture result is shown in this screen. Press to check **FOREIGN MATERIAL**, **DAMAGED KERNEL** and **TEST WEIGHT**.

To repeat the process, remove the drawer. After that remove the sample and replace the drawer. Restart the process from step 6. Press to print the result.

Notes:

- When the average mode is enabled, the moisture result is only shown after the third reading.
- If the humidity or temperature is outside of specification limits, no results will be displayed.
- If you need to set any parameter before the measuring process, access **SETTINGS**.

MEASUREMENT PROCESS (AUTOMATIC)



1. Make sure that the instrument is placed on a leveled surface.
2. Turn the instrument on and wait for the start up process to finish.
3. Change measuring method to **AUTOMATIC** in the settings.
4. Select the desired chart in Charts Selection.
5. Access the measurement screen through **MOISTURE**.
6. Place the sample in the volumetric cup and overfill it with the sample you want to measure the moisture from. With a ruler remove the excess.
7. Fill that sample into dump cell constantly and controlled way.
8. The moisture result is shown in this screen. Press to check **FOREIGN MATERIAL**, **DAMAGED KERNEL** and **TEST WEIGHT**.

To repeat the process, remove the drawer. After that remove the sample and replace the drawer. Restart the process from step 6. Press to print the result.

Notes:

- When the average mode is enabled, the moisture result is only shown after the third reading.
- If the humidity or temperature is outside of specification limits, no results will be displayed.
- If you need to set any parameter before the measuring process, access **SETTINGS**.
- Not all curves have this measurement method by volume. If it is the case, the equipment will automatically switch to the measurement method to **WEIGHT ONLY**.

CARE AND MAINTENANCE

The instrument is factory calibrated with a Manufacturer Standard Tester, which goes under periodic verification to assure that it meets the tolerances defined by the USDA and CGC.

To assure its accuracy, the instrument must be periodically submitted to the manufacturer, where it will be calibrated and fully checked.

We strongly recommend that the instrument is submitted yearly to maintenance, during the off season, when its usage is reduced. The presence of foreign material inside the cells directly affects the instrument accuracy. It is recommended to clean the accessible parts with a damp soft cloth. The use of alcohol or other chemicals can damage the instrument.

Keep the instrument indoors and away from the external environment. Avoid strong impacts to the external enclosure, as it can directly affect the scale.

Do not let liquids get in contact with electrical parts, 2 way radios and other RF equipment near the instrument, since the RF can cause interference on the measurement.

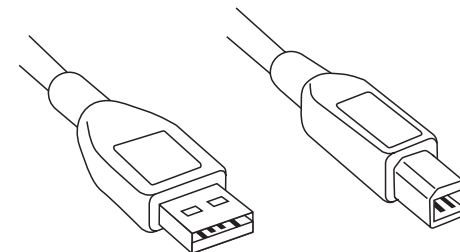
For maintenance, please place your instrument in the original box, with all accessories and send to the manufacturer.

SERIAL COMMUNICATION

The instrument is equipped with an internal RS-232 module. To connect it to your PC, please use a USB cable (see figure below). It is necessary to install the module driver, contact the manufacturer.

Serial Port Settings:

Baud rate = 9600
Data Bits = 8
Parity = none
Stop bit = 1
Flow control = none





OUTPUT RECEIPT SAMPLE

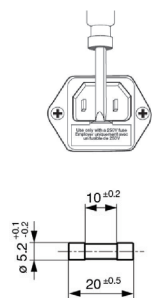
```


XXXXXXXXX          S/N:00000
S/W: XXXXXXXX      F/W: XX1.0
CALIBRATION DATE:   01/01/2015
COMPANY:            XXX
DATE:01/01/2015     TIME:12:00:00
ID 01:
ID 02:
SAMPLE:              1
PRODUCT: CORN
8% TO 21%
MOISTURE:             11.3%
TEMPERATURE:          19.3C
TEST WEIGHT:          80.8kh/hl
FOREIGN MATERIAL:     4.8%
PURITY:               95.2%
DAMAGED KERNEL:
TYPE1:                23.1%
FULL DAMAGED KERNEL  23.1%
  
```

SAFETY NOTICES

 THE GROUNDING PIN ON THE LINE CORD CONNECTS DIRECTLY TO EQUIPMENT. WHEN USING AN ADAPTER, MAKE SURE THE GROUNDING WIRE IS CONNECTED PROPERLY TO A GOOD EARTH GROUND.

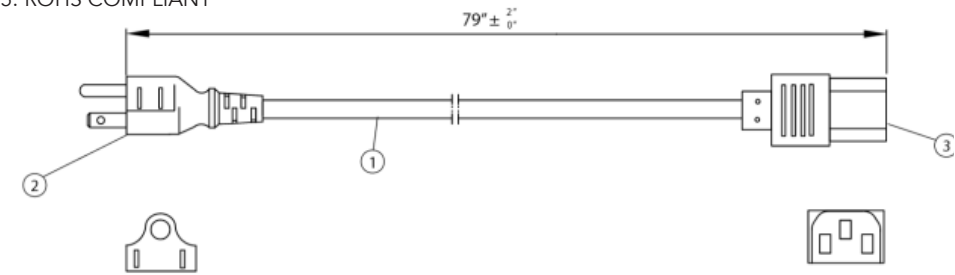
 WHEN REPLACING THE FUSE MAKE SURE THE EQUIPMENT IS DISCONNECTED FROM THE POWER LINE. USE ONLY REPLACEMENT FUSES THAT MATCHES TO THE SPECIFICATIONS BELOW.





Technical Data	
Rated Voltage	250VAC
Rated current	1A
Breaking Capacity	35A
Characteristic	Time-Lag T
Admissible Ambient Air Temp.	-55°C to 125°C
Climatic Category	55/125/21 acc. to IEC 60068-1
Material: Tube	Glass
Material : Endcaps	Nickel-Plated Copper Alloy
Unit Weight	1g
Storage Conditions	0°C to 60°C, max. 70% r.h.
Product Marking	 ,Current, Dielectric strength, Characteristic, Breaking Capacity, Approvals

  MAKE SURE THE POWER SUPPLY CORD IS UL 817 LISTED AND MATCHES THE SPECIFICATION BELOW.:

- 1 . CORDAGE: SJT, 14AWG/3C, UNSHIELDED, CEE COLOR CODE, TEMP. RATING 60°C, RATING: 125V 15A, JACKET COLOR: BLACK
2. PLUG: NEMA 5-15P
3. CONNECTOR: IEC 60320 C-13
4. APPROVALS: UL,CSA
5. ROHS COMPLIANT



  THE GROUNDING PIN ON THE LINE CORD CONNECTS DIRECTLY TO THE INSTRUMENT CHASSIS. WHEN USING AN ADAPTER, MAKE SURE THE GROUNDING WIRE IS CONNECTED PROPERLY TO A GOOD EARTH GROUND.

TECHNICAL ASSISTANCE/ ASSISTÊNCIAS TÉCNICAS /CENTRO DE SERVICIO / SERVICE TECHNIQUE

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sales.usa@motomcogroup.com

MTC - CANADA

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