www.meda.com

AN-100
APPLICATION NOTE

485 SPRING PARK PLACE, HERNDON, VA 20170 PHONE: (703)471-1445

POWER LINE ADAPTER CABLE FOR THE FM300

By Warren Dunham

INTRODUCTION

A power line adapter cable can be very useful if you anticipate operating the FM300 in a laboratory or factory environment for long periods of time. The FM300 is supplied with two 9V lithium batteries for normal field operation.

This application note describes a simple method for assembling a power line adapter cable. The power line adapter cable connects to the FM300 battery straps and permits operation of the FM300 from the local AC power line. Continuous instrument operation will now be possible without concern for battery voltage levels, and the FM300 readily reverts back to a portable instrument by simply removing the power line adapter cable and reinstalling the batteries.

SELECTING THE RIGHT POWER SOURCE

The preferred power source is either a 9V regulated or unregulated, wallmount, AC to DC plug-in power module rated for operation at 100 or 200 milliamperes (mA).

WARNING! DO NOT SELECT AN UNREGULATED 9V POWER SOURCE RATED FOR OPERATION ABOVE 200 mA.

Unregulated 9V power sources rated for operation above 200 mA, when lightly loaded, can produce output voltages in excess of 12V. This voltage level is too high for the FM300 and will cause permanent damage to the instrument.

Table 1 contains a list of wallmount, plug-in power module options suitable for this application. Table 2 lists two mating connector options, and Table 3 lists the distributor part numbers for 9V battery straps.

CONTINUOUS INSTRUMENT OPERATION

To take full advantage of a power line adapter cable for continuous operation, the FM300 operator needs to disable the instrument power down mode. This is accomplished by performing the following operations. On the FM300 keypad, press **ALT** followed by **Pwr Dn** which causes a menu to appear on the lower left of the instrument display. The menu contains two choices [PD] and [Dsbl] or [Enbl], which are associated with the 1 and 2 numbered keys, respectively. If [PD] is followed by [Dsbl], pressing the 2 key will disable the power down function and place the instrument in the continuous operation mode. If [PD] is followed by [Enbl], the instrument is already in the continuous operation mode and no further action is required.

If the FM300 is turned OFF and then back ON, the instrument will default to the power down enabled mode and must be reset for continuous operation following the procedure described above.

BUILDING THE POWER LINE ADAPTER CABLE

- Select and procure a 9V, 100 or 200 mA power source.
- Procure two sets of 9V battery straps.
- Procure a mating connector for the power source output plug, and solder the battery straps to the mating connector as shown in Figure 1.
- Alternatively, you can cut off the power source output connector, and splice the battery straps directly to the power source output wires as shown in Figure 2.

Table 1 Wallmount, Plug-In Power Modules

DESCRIPTION	ALLIED ELECTRIC	NEWARK ELECTRIC	MOUSER ELECTRIC	STANCOR
9V, 100 mA Unregulated (1)	928-9675			STA-3590B
9V, 200 mA Unregulated (1)	928-9680		412-109024	STA-3590
9V, 200 mA Regulated (1)	928-9892	84F2078		STA-4190C

(1) North American – 120 VAC, 60 Hz, with standard 2.1 mm female DC power Jack on the output cable.

Table 2 Mating Connector

DESCRIPTION	LZR ELECTRONICS	MOUSER ELECTRIC
DC Power Plug (2.1 mm)	DC17A	163-0300

Table 3 Battery Straps

DESCRIPTION	ALLIED ELECTRIC	NEWARK ELECTRIC	MOUSER ELECTRIC	KEYSTONE ELECTRIC
9-Volt Battery Straps (2 required)	839-3086	16F434	12BC009	2239

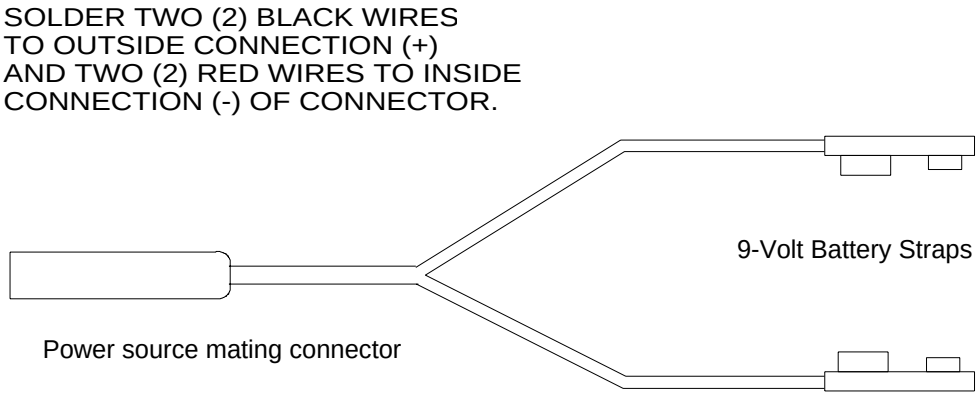

Figure 1 AC Power Supply Adapter Cable Assembly

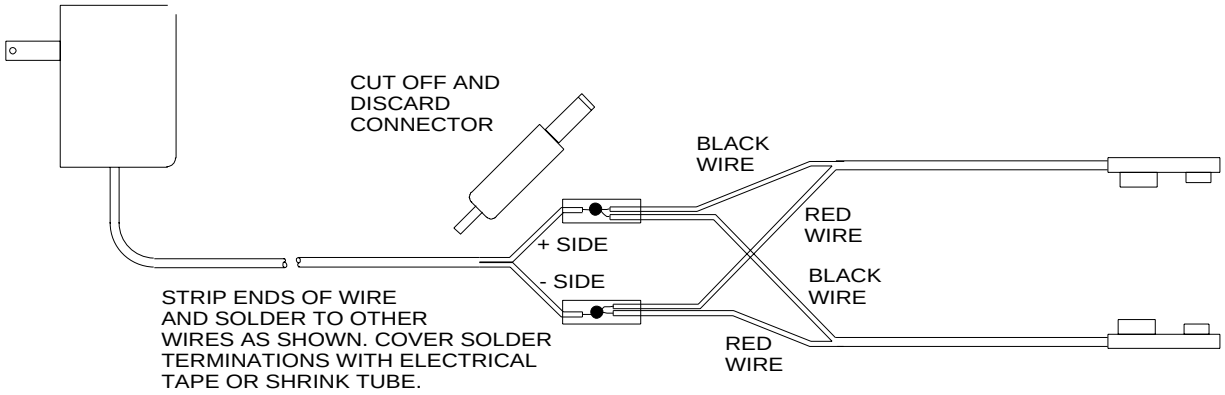

Figure 2 AC Power Supply Adapter Cable Assembly (alternate method).

SUMMARY

The power line adapter cable allows indefinite operation of the FM300 without concern for the battery voltage level while preserving the instrument design flexibility.