Milpower Source

M359-1-X-**2**

Special Option Description

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1. Scope

This document supplements the "M359 Users Manual" (Milpower Source Doc: M359_UM) and the "Software Interface Manual" (Milpower Source Doc: UPS_Soft_1) by describing the items affected by the **-2** Special Option Communication Port (M359-1-X-**2).**

1.1. Part Number and Marking

M359-1 Units that include special option(s) are identified by the second and third dash numbers. This "RS-232 Special Option" is identified by the third "-**2**" dash number. The applicable Part Number: **M359-1-X-2** appears on a label attached to the top left corner of the unit's front panel. The second dash number depends upon the specific configuration of the Unit.

1.2. Intended Usage

The M359-1-X-2 is intended for systems that do not need an Ethernet port, but need a delayed shutdown capability, initiated by an RS-232 command, and a discrete Turn-on Command input.

1.3. General Description

The M359-1-X-2 is identical to the standard M359-1, except for the followings:

1) It does not have the Ethernet RJ-45 connector (J6).
2) It has a new set of SBX, RS-232 commands.
3) The functionality of Pin 3 of J3 (the Dry-contact connector) has been modified from Shut-down to Turn-on command.

2. Detailed Description

2.1. No Ethernet Port

The M359-1-X-2 does not have the RJ-45 connector (J6) on its back panel and does not support Ethernet SNMP communication.

2.2. SB0, SB1, SB2, …SB9 Command Set

The standard **SB**X Command set (**SB0, SB1**) described in the Software Interface Manual has been modified as follows.   The Set contains ten (10) Critical, Volatile commands: **SB0, SB1, SB2, … SB9**.   (For the definition of the terms "Critical" and "Volatile", please see the Software Interface Manual).   These commands allow the host to turn off the UPS output after a selectable delay.   The UPS responds to these commands by entering the Standby Mode after the specified delay. In the Standby Mode the UPS output is Off (disconnected), but communication and battery charging are still active.

During the delay, the Yellow Standby LED on the UPS front panel will blink On and Off, indicating that the Output is about to turn Off.

Mnemonic	Description
SB0	Cancel Standby Request
SB1	Standby Now
SB2	Standby in 10 Seconds.
SB3	Standby in 30 Seconds.
SB4	Standby in 60 Seconds.
SB5	Standby in 90 Seconds.
SB6	Standby in 120 Seconds.
SB7	Standby in 180 Seconds.
SB8	Standby in 600 Seconds.
SB9	Standby in 810 Seconds.

SB0 will cancel a request for a delayed Standby Mode, only if the M359-1 did not enter the Stand-by Mode yet. Once the M359-1 is in Standby Mode, this command does not affect the unit.

If two consecutive **SB**X commands are given and the M359-1 did not enter yet the Standby Mode, the first **SB**X command will be voided and a new delay will start, in accordance with the last **SB**X command.

Once the UPS has entered the Standby Mode, it can exit it by one of the following methods:

> Toggling the Front Panel On/Off Switch, Off and then back On.
> Toggling the Remote On/Off switch (if used), Off and then back On.
> Using the Remote **On Command** of connector J3 (see Para. 2.3 below).

2.3. Remote On Command

The functionality of Pin 3 of the Dry-contact connector J3 was changed from "**Remote Shutdown**" to "**On Command**".

When the **On Command** input signal changes from "Low" to "High" ("edge triggered") it will cause the M359-1 to exit the Standby Mode into normal UPS Mode.

An **On Command** given after an **SB**X command (before the M359-1 has entered the Standby Mode) will cancel the **SB**X command.

The **On Command** is "de-bounced" internal to the M359-1. Therefore, the user should ensure that the **On Command** signal will remain stable, in each state, for at least 50mS

If the M359-1 was forced into a Standby Mode by an Over-load failure (or any other resetable failure), asserting the **On Command** will reset the protection latch and turn the M359-1 output back on.

The **On Command** interface is an Opto-isolator (in the UPS).   Pin 3 of J3 is connected, via a 1KΩ current limiting resistor, to the anode side of the opto-isolator. The cathode of the opto-isolator is connected to Pin 5 of J3 (**System Common Ground** of the Dry-contacts).

Applying a 5V between Pin 3 (+) to Pin 5 (RTN) will activate the opto-isolator. Logic "High" is a voltage of 4.25V or higher. Logic "Low" (open circuit) is a voltage of less then 0.5V, or a current lower than 0.05mA. The absolute maximum voltage allowed between Pins 3 and 5 is 12VDC (16V for 200mS or less).

If this input has to be activated from a 28VDC source (MIL-STD-704, or similar) an external 3.3KΩ/0.5W resistor should be added in series with Pin 3 or 5.

Except for the contacts of the Dry-relays, pins 3 and 5 are galvanically isolated from chassis ground and from any other signal of the M359-1.