INSTRUCTION MANUAL

Multi-Dwelling Switch Unit

Model 636

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General Description

The MDS 636 Multi-Dwelling Switch Unit provides eight 3 x 1 switch assemblies, controlled by an RS-485 data string. Each section of the MDS-636 switch consists of two latching, RF rated relays. Eight sections comprise a single unit.

Each unit and each of the eight switch sections are individually addressable. A total of 64 units may be connected comprising 512 individual sections. Each section permits two separate inputs to be selectively routed to a single output. The output maybe disconnected from both inputs and terminated with 75 ohms. This configuration provides accurate, clean, dependable switching in remote locations.

Specifications

RF input per Module
75Ω terminated, LEVELS >37 dBmV, 'F' connectors

Isolation @ 750 MHz
>52 dB

Isolation @ 950 MHz
>48 dB

Return Loss @750 MHz
> 18 dB

Return Loss @950 MHz
> 14 dB

Bandwidth
± 1 dB to 950 MHz

Control Interface
RS-485 communications
LAN adapters may be used.
MDS-COM software supplied.
Factory will supply protocol for user interface if desired.

Power Requirement
12-24 VAC @ 25 mA average per unit

Physical
3.5" H X 5.8" W X 9.9"W   w/Flange Mount
3 LBS

Design and specifications are subject to change without notice.

Installation

<u>Mounting:</u>
Secure the unit to the mounting surface with fasteners, using the flanges integral with the case. The unit is not water resistant, so care must be taken to protect the unit from adverse environmental conditions.

<u>Connections:</u>
For each of the 8 sections, there is provision for a primary signal interface, a secondary signal interface, and a single common output. All connections are configured as "F" type cable connectors. Space is available on the case to label the destination of the connections, for any subsequent service.

The screw terminal connector at the end accepts the 12-24 VAC power inputs into the terminals as marked. If the power continues on to another unit, the output wiring for power is inserted into the same terminals.

The screw terminals marked for the RS-485 connections receive the + and – wiring for the RS-485 data. Ensure that the polarization is consistent from the sending unit and from unit to unit. If necessary, attach the ground from the RS-485 to the AC ground terminal. If there is more than one unit, connect the control lines for the next unit to the same terminals. Again, observe the proper polarity/color code for the wiring.

<u>Operation:</u>
Each unit has a distinctive address, set by the jumpers on the PC board, and this address must be used when controlling the switches. See Unit Address Set-up on page 7 for jumper details.

In addition, jumpers in positions 7, 8 and 9 must be installed **ONLY** on the last unit on the RS485 control line. All other units **MUST** have the jumpers removed.
Each of the units has eight sections. The software identifies these as 1 through 8, and the label on the top of the case marks the corresponding section.
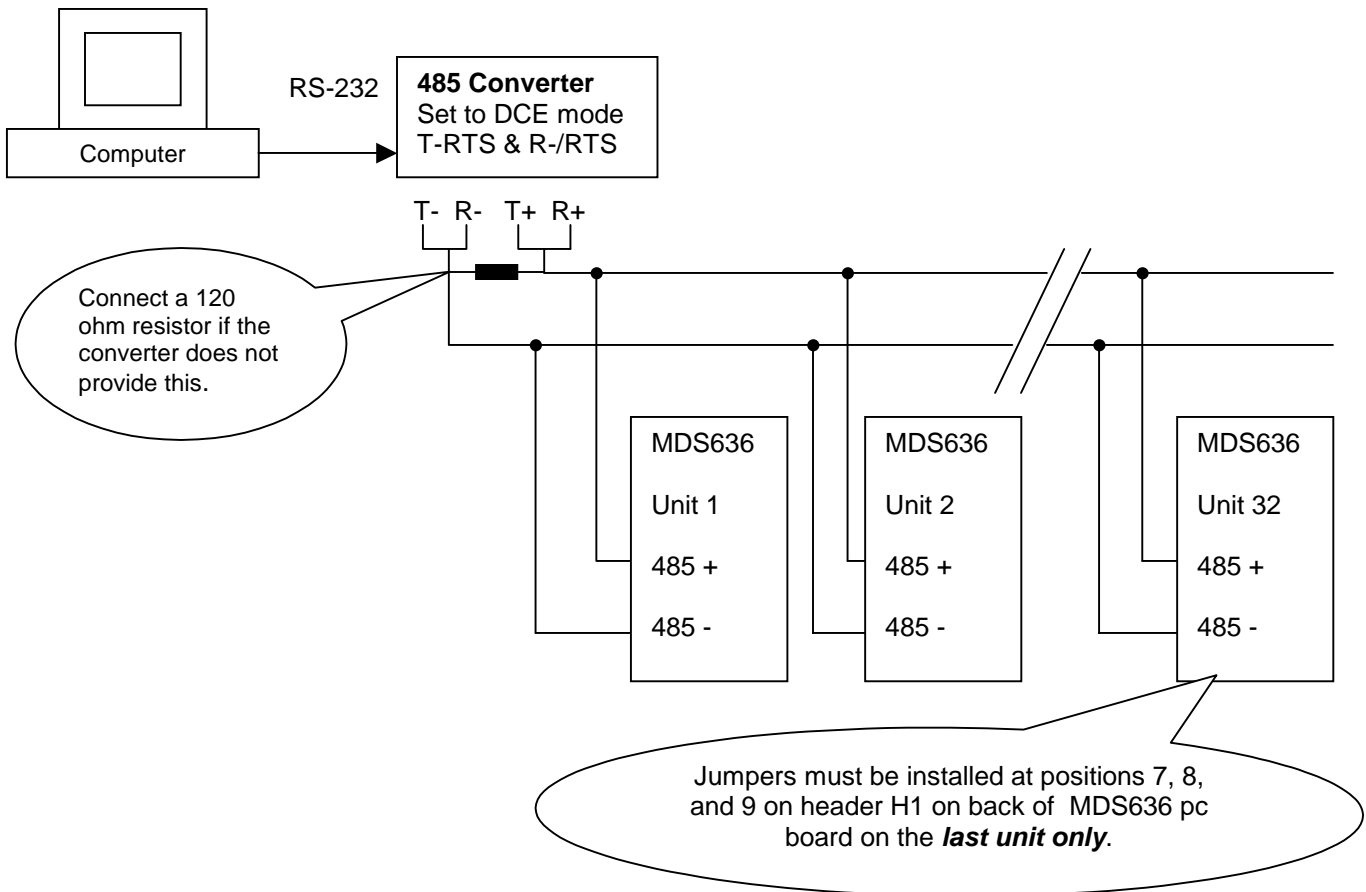
Depending upon the commands sent from the control unit software, one of the two relays in each section is latched on. This action does one of three things: it connects the basic signal input to the output, or it connects the premium signal input to the output, or it disconnects the output from either input and terminates the line in a 75 Ω resistance.

Refer to the control software for a description of the command sequence required to perform which action.
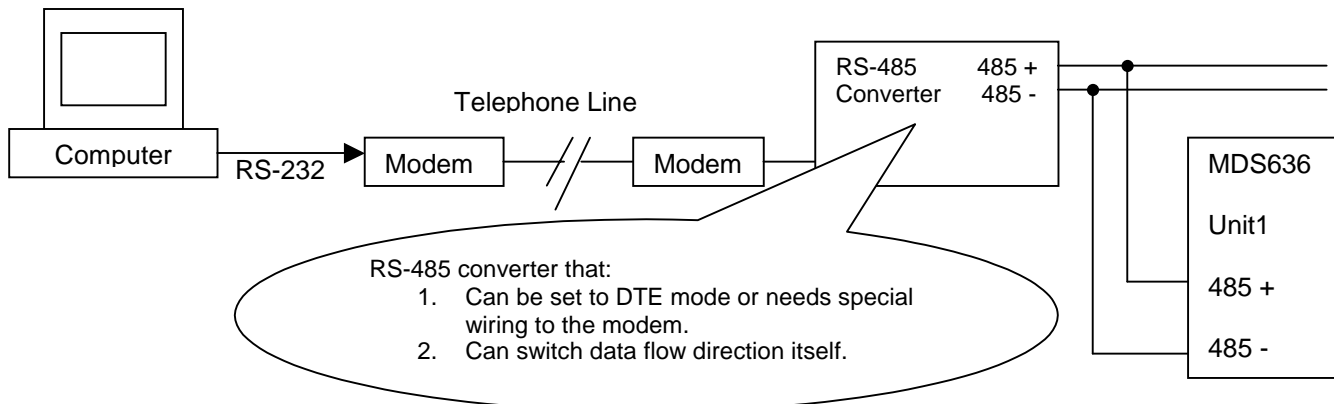
<u>Power:</u>
The MDS 636 requires 12-24 VAC. Attach the power wires to appropriate terminals on the top of the model 636 case as described in **<u>Connections</u>**.

Communication Wiring Diagram

485 Converter
Set to DCE mode
T-RTS & R-/RTS

RS-232

Computer

T- R- T+ R+

Connect a 120 ohm resistor if the converter does not provide this.

MDS636 Unit 1	MDS636 Unit 2	MDS636 Unit 32
485 +	485 +	485 +
485 -	485 -	485 -

Jumpers must be installed at positions 7, 8, and 9 on header H1 on back of MDS636 pc board on the *last unit only*.

- If more than 32 units or longer than 4000 feet is connected to the system, an RS-485 repeater is required.

- A connection to ground for each MDS636 is recommended.

Modem Connection Diagram

Computer

RS-232

Telephone Line

Modem

Modem

RS-485 Converter   485 +   485 -

MDS636 Unit1

485 +

485 -

RS-485 converter that:
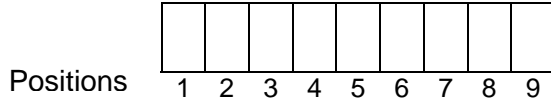1. Can be set to DTE mode or needs special wiring to the modem.
2. Can switch data flow direction itself.

Unit Address Setup

To access header, F1 to set unit addresses remove the four screws from the cover and lift out cover plate and attached pc board.

The addressing header F1 is located on the back of the pc board. Position 1 is marked.

Positions   1   2   3   4   5   6   7   8   9

The first 6 positions are for addressing units as follows.

0 = jumper removed   1 = jumper installed

Unit#		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Jumper position	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
	2	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
	3	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
	4	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Unit#		17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Jumper position	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
	2	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
	3	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
	4	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Unit#		33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Jumper position	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
	2	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
	3	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
	4	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Unit#		49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
Jumper position	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
	2	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
	3	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
	4	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

MDS-COM Software

MDC-COM is a PC program designed to communicate with MDS636 units. It sends commands and receives replies through the serial port. An RS-232 to RS-485 converter is required to connect the PC comport, modem, or the LAN adapter to the and MDS636 units (refer to the wiring diagram on page 6.)
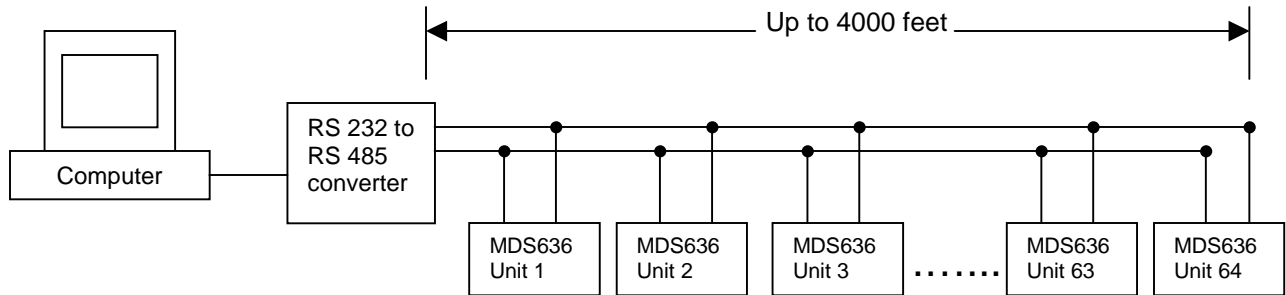
Installation

To install MDS-COM onto a hard drive insert the distribution diskette into drive A.

1. Click on: Start → run

2. Type: A:\setup.exe   Then click [OK] or
     Click the [Browse] button; navigate to drive A and click setup.exe

3. Follow the instructions

Installation will automatically create a MDS-COM file in your computer's Program Files folder.

Upon completion of the installation, the program icon will be displayed in a window. To place the icon of your desktop, right click on the icon and drag it to your desktop screen.
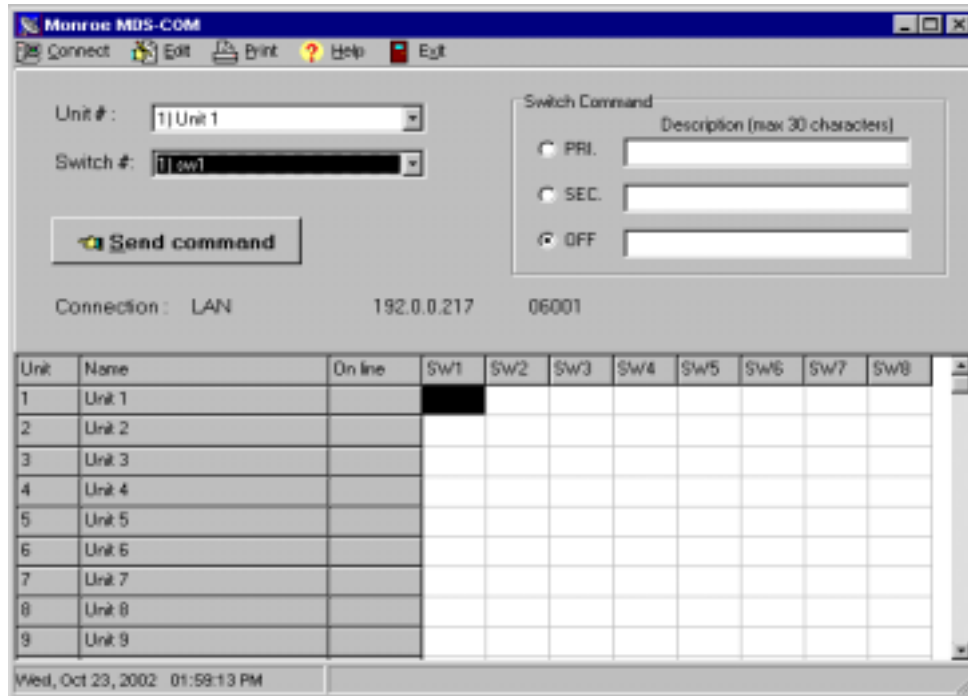
To run the MDS-COM software click on the desktop icon – *or*

Click on: Start → Programs → MDS636-COM → MDS636-COM

Should you elect to uninstall the MDS-COM software:

1. Click on: Start → Settings → Control Panel → Add/Remove Programs

2. Select: MDS636-COM then click on the Add/Remove button

Set-up and Operation

Upon entering the program, a table is displayed to show all 64 units each units switch status. After a switch command is sent and an O.K. message is received, the table will be updated. The status will be saved upon exiting the program, and read when opening the program.

Connect

Click on the Connect menu on the toolbar. Select the desired connection - LAN, Comport, or Modem and enter the appropriate information as requested.

Enter the desired Unit # and the Switch # by clicking on the appropriate drop down boxes or by clicking on the corresponding grid in the table.

Enter the desired switch command:

> Clicking on PRI – Sends the Primary (Basic) signal input to output.
> Clicking on SEC – Send the Secondary (Premium) signal input to output.
> Clicking on OFF – Disconnects the output from either input.

Click on Send Command to send the switching commands to the MDS636. If the commands are received the unit will reply O.K. and the switch table will record the entries. This information will also be saved to the MDS636.cfg file with a default password Monroe-636.

Edit

Click on the Edit menu on the toolbar. Select the desired option for editing; Switch Name, Poll Units, Reset Table, or Change Password.

Switch Name – Allows entering of names for each unit and switch.

Poll Units – Checks to find which units are connected on line.

Reset Table – Clears the switch status on the table only.

- The Poll and Reset commands will not change any switches of the MDS636 units.
- Resetting the switches can be done from the Connection window individually or per unit by selecting the appropriate option from the Switch # drop down menu.

Change Password – Enables the user to change the password associated with the software. The default password is: Monroe-636

Print

Print the switch configurations for each unit.