



## MN TOUCH

---

 WIRING AND COMMISSIONING INFORMATION FOR

**I/A SERIES<sup>®</sup> MICRONET TOUCH SCREEN**
**APPLICATION**

Order Type:

MNN-TSP-100 - MicroNet NCP Touch Screen - Panel Mount

MNN-TS-100 - MicroNet NCP Touch Screen

The I/A Series MicroNet Touch Screen Display (Touch Screen) is a graphical LCD display that allows a user to view and configure parameters, and view parameter values, for multiple controllers on a LonWorks<sup>®</sup> FTT-10 Free Topology, NCP (Native Communications Protocol), or ARCNET communications network or sub-network. Controller parameters can be configured to cause alarm indications on the Touch Screen. The Touch Screen contains a built-in Real-time Clock that can be configured to be the master timekeeper for a network. A Lithium battery provides backup power for the Real-time Clock and 32Kb static RAM. The display parameters are configured from the MicroNet Tech Tool.

**SPECIFICATION**

Order Type	Description	Display
MNN-TSP-100	MicroNet NCP Touch Screen - Panel Mount	NCP <sup>a b</sup>
MNN-TS-100	MicroNet NCP Touch Screen	NCP <sup>a b</sup>

a. ARCNET communications protocol available with optional ARCNET plug-in card (MNA-C)

b. LonWorks communications protocol available with optional LonWorks plug-in card (MNL-C).


**A Siebe Group Product**

## INSTALLATION

### INSPECTION

Inspect carton for damage. If damaged, notify carrier immediately. Inspect controllers for damage. Return damaged products.

### REQUIREMENTS

(These items not provided)

- Installer must be an experienced technician
- Job wiring diagrams
- Tools:
  - Saw for panel mounting
  - Drill and bits
  - Digital Volt-ohm meter (DVM)
- Static protection wrist strap

- EN 60742 power transformer supplying a nominal 24 Vac (20.4 to 30 Vac) with a minimum rating of 8 VA, 50/60 Hz per controller.
- Three No. 10 self-starting screws for wall mounting or 35mm DIN rail for mounting.
- Terminators (If MicroNet LONWORKS network is used):
  - One LON-TERM1 terminator required for free topologies
  - Two LON-TERM2 terminators required for bus topologies

## PRECAUTIONS



**Warning: Electrical shock hazard!**  
Disconnect power before installing or removing the cover.

### GENERAL

- Follow Static precautions when installing this equipment.
- Use copper conductors that are suitable for 75°C (167°F).
- Make all connections according to electrical wiring diagram, national and local electrical codes.

### STATIC PRECAUTIONS

Static charges damage electronic components. The microprocessor and associated circuitry are extremely sensitive to static discharge. Use the following precautions when installing, servicing or operating the system:

- Work in a static-free area.
- Discharge static electricity by touching a known, securely grounded object.
- Use a wrist strap connected to earth ground when handling the controller's printed circuit board.

### EUROPEAN COMMUNITY DIRECTIVES

This equipment meets all requirements of European Community Directives for Low Voltage (72/23/EEC), General Safety (92/59/EEC), and Electromagnetic Compatibility (89/336/EEC).

### FEDERAL COMMUNICATIONS COMMISSION (FCC)

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

### CANADIAN DEPARTMENT OF COMMUNICATIONS (DOC)

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the radio interference regulations of the Canadian Department of Communications.

### MICRONET NETWORK WIRING PRECAUTIONS

- Do not mix network wiring with other types of wiring (power, DO, AO, DI or UI).
- Communication wire pairs must be dedicated to MicroNet network communications. They cannot be part of an active, bundled telephone trunk.
- Shielded cable is not required for LonWorks wiring, but is required for NCP and ARCNET.
- If the cable is installed in areas of high RFI/EMI, the cable must be in conduit.

### POWER SUPPLY WIRING PRECAUTION

- Do not mix power wiring with network, AO, UI or DI wiring.
- Use a EN 60742 power transformer supplying a nominal 24 Vac (20.4 to 30 Vac) with a minimum rating of 8 VA at 50/60 Hz. The supply to transformer must have a breaker or disconnect.
- The transformer frame must be grounded.

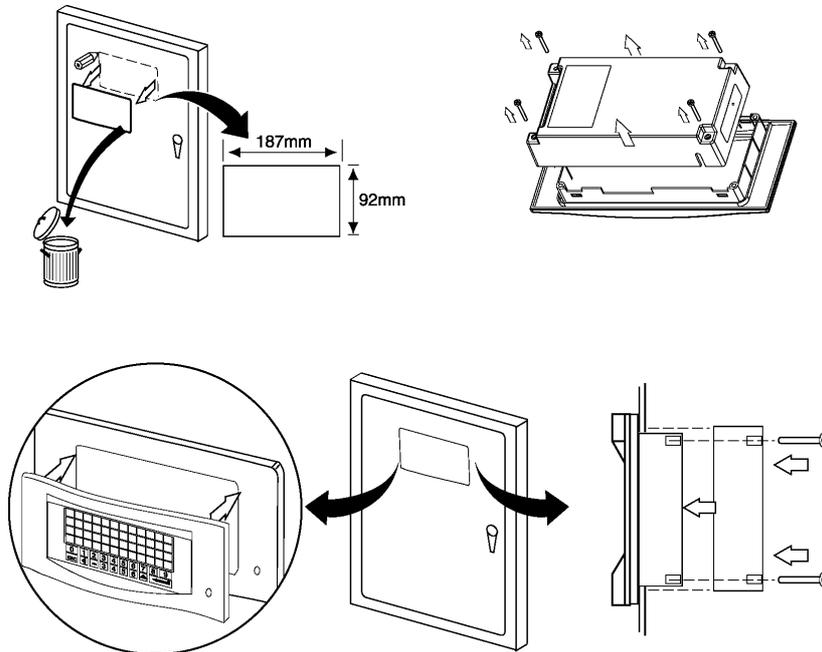
## MOUNTING

### PANEL MOUNTING (TSP MODELS)

1. Select mounting location (see page 10).
2. Draw case dimensions onto panel.
3. Carefully cut around outline on panel. Remove any burrs and smooth rough edges.
4. Remove four screws on Touch Screen back cover.

5. Remove back cover.
6. Go to Battery Setup section and enable battery.
7. Place Touch Screen in panel opening.
8. While holding Touch Screen in place, re-install back cover
9. Re-install four screws on back cover and tighten.
10. Check for a secure fit between back cover, panel, and front of Touch Screen

### PANEL MOUNTING A TOUCH SCREEN



### WALL OR DIN RAIL MOUNTING

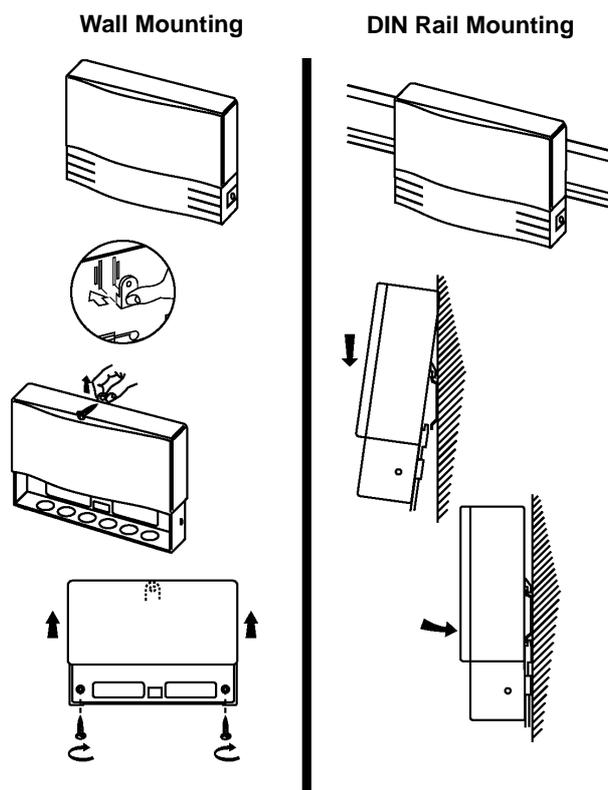
1. Select mounting location.
2. Do the following to mount Touch Screen on a wall:
  - a. Loosen two screws securing terminal cover and remove cover.
  - b. Press wall mounting bracket clip onto controller.
  - c. Using a self-starting screw, install top screw through wall mounting bracket.
  - d. Lift and level Touch Screen.
  - e. Using self-starting screws, install bottom screws.
  - f. Re-install terminal cover. (May be left off until wiring is completed.)

3. Do the following to mount Touch Screen on a DIN rail:
  - a. While pulling down on DIN rail locking bracket, snap base on a 35mm DIN mounting rail.
  - b. Release DIN rail locking bracket.

Note:

For Wall or DIN rail mounting a separate Wall Mounting Kit (MN-DK) is needed.

### WALL AND DIN RAIL MOUNTING



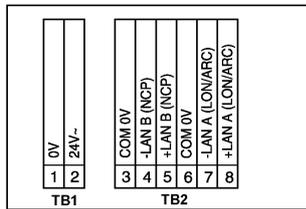
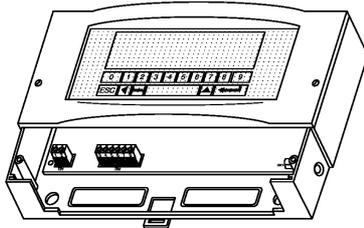
**WIRING**

The following electrical connections can be made to MN Touch Screens:

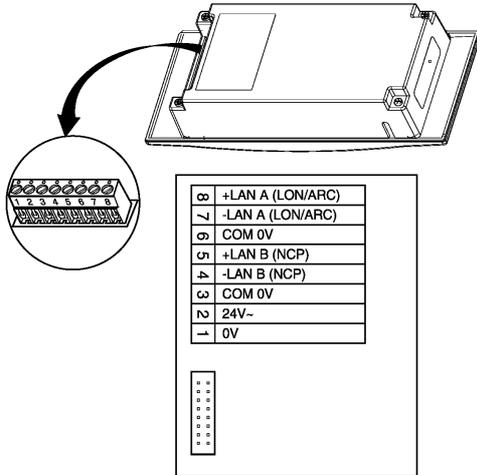
- MicroNet LonWorks connection to a MicroNet LonWorks Interface (MNN-MI-100 with MNL-C plug-in card) and other MicroNet LonWorks controllers.
- 24 Vac nominal class 2 (EN 60742) power source and earth ground power connection.
- Micronet NCP connection to a Micronet NCP Interface (MNN-MI-100) and other NCP type controllers.
- Connection to a sub-LAN on an NCP network.
- Micronet ARCNET connection to a Micronet ARCNET Interface (MNN-MI-100 with MNA-C plug-in card fitted) and other Micronet ARCNET controllers.

**TERMINAL CONNECTIONS**

**TOUCH SCREEN WITH WALL MOUNTING KIT**



**TOUCH SCREEN - PANEL MOUNT**



**COMMUNICATIONS WIRING**

Review Precautions section before connecting or installing any communications wiring. Communications wiring includes a connection between the controller and a MicroNet controller network.

Depending on the plug-in card used, one of three network types can be used:

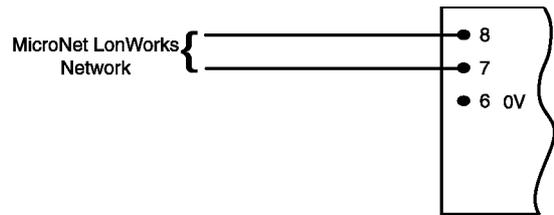
- NCP networks.
- FTT Lonworks network (MN Touch with MNL-C plug-in card fitted).
- ARCNET networks (MN Touch with MNA-C plug-in card fitted).

**MICRONET NETWORK WIRING**

Review Precautions section. For complete details on designing and wiring MicroNet networks (including approved cable models) refer to the I/A Series MicroNet System Engineering Guide.

**LONWORKS NETWORK ATTACHMENT (MNN-TS-100 OR MNN-TSP-100 WITH MNL-C FITTED)**

**LONWORKS TERMINAL CONNECTIONS**

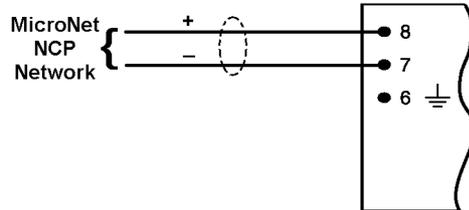


Note:

Unshielded cable is recommended.

1. Review Precautions section.
2. Connect two twisted wires of the FTT network cable to terminals 7 and 8 of controller. Polarity makes no difference.
3. Depending on topology chosen for the FTT segment, attach other controllers freely using multiple wiring tees and stars (Free topology), or daisy-chain connect controllers only in a device-to-device fashion (Bus Topology).
4. If shielded cable is used, connect one end only to earth ground (terminals 3 or 6) by a 470K ohm, 1/4 watt resistor. Keep the shield wire continuous throughout the wiring segment.

**NCP NETWORK ATTACHMENT (MNN-TS-100 OR MNN-TSP-100)**

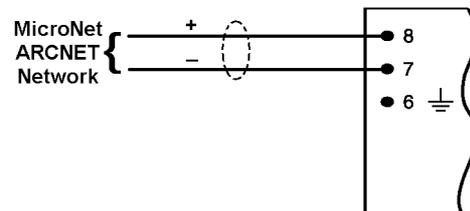


1. Review Precautions section.
2. Connect positive wire to terminal 8 and negative wire to terminal 7.
3. Using daisy-chain method, connect controller with other NCP devices in a device-to-device fashion. Do not use wiring tees or stubs.
4. Ground NCP wiring shield to earth ground only (terminals 3 and 6). Keep shield continuous between all NCP devices on LAN.

**Do the following to connect an NCP Sub-LAN:**

1. Connect positive wire to terminal 5 and negative wire to terminal 4.
2. Using daisy-chain method, connect controller with other NCP devices in a device-to-device fashion. Do not use wiring tees or stubs.
3. Ground NCP wiring shield to earth ground only (terminals 3 or 6). Keep shield continuous between all NCP devices on LAN.

**ARCNET NETWORK ATTACHMENT (MNN-TS-100 OR MNN-TSP-100 WITH MNA-C FITTED)**



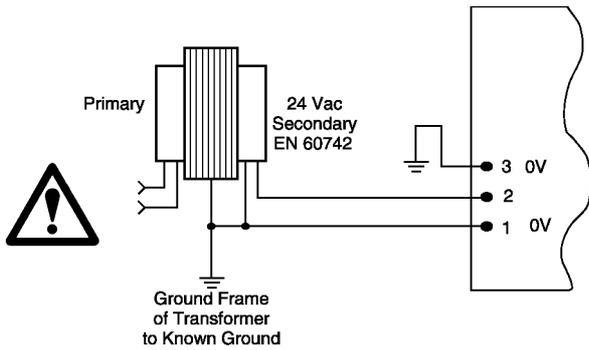
1. Review Precautions section.
2. Connect positive wire to terminal 8 and negative wire to terminal 7.
3. Using daisy-chain method, connect controller with other ARCNET equipped devices on network. Do not use wiring tees or stubs.
4. Ground ARCNET wiring shield to earth ground (terminals 3 or 6). Keep shield continuous between ARCNET devices and LAN.

**POWER SUPPLY WIRING**

Twisted or untwisted cable can be used for power wiring.

**POWER WIRING**

1. Review Precautions section.
2. Ensure that the controller 0V terminal is connected to Earth **before** connecting the power wiring to the controller.
3. Connect power ground wiring to terminal 1 (0V 24G).
4. Connect power 24Vac wiring to terminal 2 (24H).

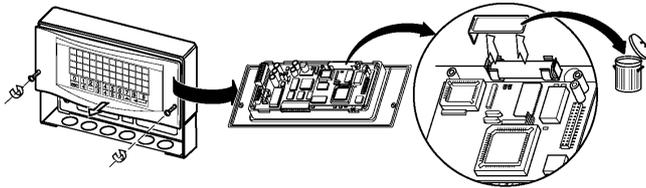


**BATTERY SETUP**

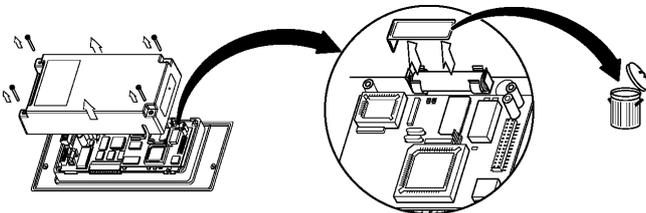
The unit is shipped with the battery disabled to preserve battery life. To enable battery, do the following:

1. Remove cover.
2. Remove battery.
3. Remove protective strip from battery.

**REMOVING PROTECTIVE STRIP FROM BATTERY ON WALL UNIT**



**REMOVING PROTECTIVE STRIP FROM BATTERY ON PANEL MOUNT UNIT**



4. Re-install battery. (Make certain polarity is correct.)
5. Make certain battery is fully seated in battery holder.
6. Re-install cover.

**CHECKOUT**

**MECHANICAL HARDWARE CHECKOUT**

1. Verify network wiring between Touch Screen and other devices is installed according to job wiring diagram and national and local electrical codes.
2. Verify 24 Vac power is provided from an EN 60742 power transformer and wiring is installed according to job wiring diagrams and with national and local electrical codes.

**PRELIMINARY PROCEDURE**

Energize Touch Screen and verify logo screen appears.

**Accessing the System Screen**

1. Press ENTER twice from the menu screen. A password entry box appears.
2. Using keys on Touch Screen key pad, type in 1024.
3. Press ENTER.
4. Press NEXT SCREEN until System Screen is displayed. Icons for Clock Screen, Alarm Review Screen, Maintenance Screen.

Note:

Use BACKSPACE to delete any incorrect entries. Press ESC to cancel input.

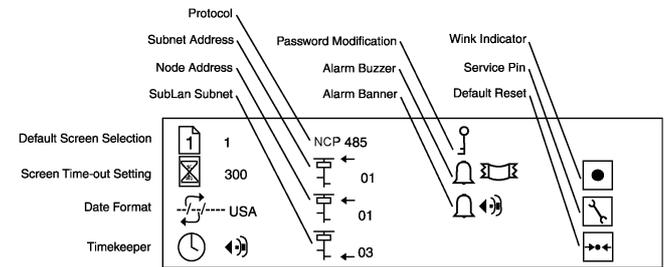
**EXAMPLE OF A SYSTEM SCREEN**



**Choosing Date Format**

1. From System screen, press Wrench icon. The Maintenance Screen appears

**AN EXAMPLE OF A MAINTENANCE SCREEN.**

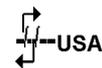


Note:

There are two date formats available in the Touch Screen. The "UK" version is set up as DD/MM/YYYY with a 24 hour clock. The "USA" version uses MM/DD/YYYY and is displayed in 12 hour format. The format chosen is displayed next to the icon on the Maintenance Screen.

2. On Maintenance Screen, press Date Format Icon to select.
3. Press ENTER. The date format toggles to other format.

**AN EXAMPLE OF THE DATE FORMAT DISPLAY**

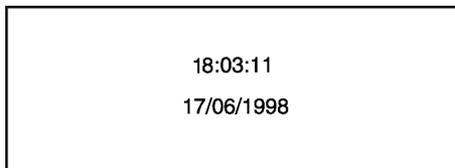


Note:

The Touch Screen time and date is automatically updated from MN-MI.

**Setting the Time**

1. Select Clock icon on System Screen and press ENTER. The time and date screen appears.
2. Press or touch value to be changed (hours, minutes) and press ENTER. An entry box is displayed.
3. Scroll up or down to set time.
4. When correct time is set, press ESC.

**AN EXAMPLE OF A CLOCK SCREEN****Setting the Date**

1. Select Clock icon on System Screen and press ENTER.  
The time and date screen appears.
2. Press or touch value to be changed (hours, minutes, day, month or year) and press ENTER.  
An entry box is displayed.
3. Type in new value.
4. Press ENTER.  
The new value is displayed.
5. Repeat procedure on each field until correct time and date are displayed.
6. Press ESC to return to System Screen.

**COMMUNICATIONS ADDRESSES**

Each Touch Screen needs a unique address to operate on a MicroNet network. This network address includes both a subnet number and a node number.

There are three levels of communications addresses that may be necessary for proper communication to the other devices on the network. The Maintenance Screen displays the addresses used for the Touch Screen. LonWorks network addresses are net programmable.

**NCP and ARCNET Touch Screens**

Note:

Ensure each device on an NCP LAN or ARCNET LAN is assigned a unique node address.

1. From System screen, touch Wrench icon and press ENTER. The Maintenance Screen appears.
2. On Maintenance screen Select the Icon for the address to be edited.
3. Press or touch the icon. An entry box appears.
4. Type in the new address (numbers only).
5. Press ENTER.
6. Repeat the process for all addresses to be edited.



Subnet Address: The communications address of the Touch Screen.

01



Node Address. The communications node address of the Touch Screen.

01



SUBLAN Address. The communications sub-LAN address of the Touch Screen used with NCP.

03

**LonWorks Touch Screens**

LonWorks equipped models (Touch Screen with MNL-C fitted) are addressed with the touch Screen powered and connected to the network. A service pin message is sent from the controller as described below. See *I/A Series MicroNet Tech Tool Engineering Guide* for other LON addressing details.

**Service Pin**

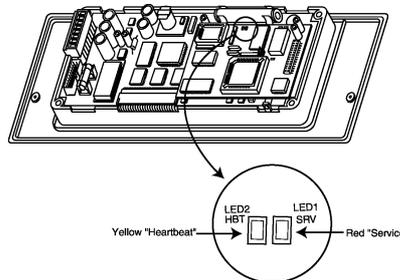
The service pin allows network identification. When used with a LonWorks system, this icon sends a service pin request to the MicroNet Interface identifying the Touch Screen. When used with an NCP network, selection of this icon sends a sequence of messages which tell the devices on the Touch Screen Sub-LAN their subnet address.

1. From System screen, press Wrench icon. the Maintenance Screen appears.
2. On Maintenance screen Select Wrench icon.
3. Press ENTER.

**COMMUNICATIONS CHECKOUT****Touch Screen with LonWorks Card Fitted**

1. Ensure Touch Screen is powered and connected to LonWorks network.
2. If cover is attached, remove cover.

3. Observe yellow "Heartbeat" LED on LonTalk Daughter Board and do the following:
  - a. If yellow "Heartbeat" LED is blinking, go to step 4.
  - b. If yellow "Heartbeat" LED is off, check power.
4. If red Service LED is blinking (1/sec), use MicroNet Tech Tool to address the Touch Screen. When Touch Screen has been addressed, download appropriate application. Refer to *I/A Series MicroNet Tech Tool Engineering Guide* for details on addressing MicroNet Touch Screens on LONWORKS networks and downloading applications.
5. When Touch Screen has been addressed, verify red service LED is off.



6. Re-install cover.

## LONTALK DAUGHTER BOARD (LDB) LED INDICATION

Indicator	Context	Status	Corrective Action
"Heartbeat" LED - Yellow	Anytime	Blinks at 50% on and 50% off rate when the controller is operating properly.	None required.
		Off	Make certain controller power is on. If power is on and LED remains off, replace controller.
	Power-up	Long ON then long OFF then long ON, then blinks at a 50% on 50% off rate.	None required.
	Flash Clear	Long ON the long OFF then long ON, then blinks at a 80% on, 20% off rate to indicate flash clear jumper is installed.	Contact factory service representative for procedure to restore controller to normal operating status.
Service LED - Red	Power-up	If a valid application is loaded, the LED blinks several times to indicate successful power-up.	None required.
	Power-up	Steady On indicates that the neuron application is not running. Neuron applications are not field replaceable.	Replace the controller.
	After Flash Clear Procedure	Blinks (1/sec) to indicate that the neuron application is loaded, but the neuron's communication parameters are not loaded, are being reloaded, or have been corrupted. Communication parameters cannot be configured by field personnel.	Use MicroNet Tech Tool (or third party network management tool) to download the appropriate application. If the red service LED continues to blink, download the applications two to three more times. If the red LED is still blinking, replace the controller.
	Power-up	Either of the following:  Off indicates that the neuron application is loaded but the device is off-line. In this state, a pre-loaded HVAC application will not run, and you will be unable to download an application to the controller.  OR	If you are unable to download and/or run an HVAC application, use the MicroNet Tech Tool (or third party network management tool) to put the controller on-line. When the controller is on-line, it will be possible to download and/or run an HVAC application.
Off may also indicate a normal state. In this state, the controller operates normally, and you can download and/or run HVAC applications.		If the controller is able to accept and/or run a downloaded HVAC application, no action is required.	

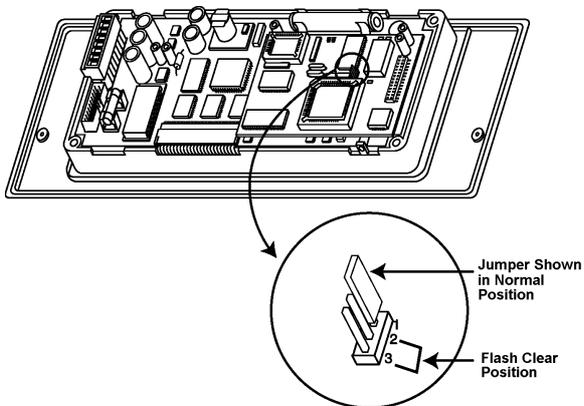
## LDB Flash Clear

### Caution:

This function clears the Lontalk Daughter Board (LDB) of all information. This procedure is only performed under extreme conditions and usually only when instructed by a factory service representative.

1. Turn OFF power to Touch Screen.
2. If cover is attached, remove cover.
3. Place jumper in Flash Clear position (jumper pin 2 and 3).

### FLASH CLEAR / NORMAL OPERATION JUMPER ON LDB



4. Turn ON power to Touch Screen.
5. Wait about 15 seconds and verify red Service LED blinks rapidly and yellow Heartbeat LED blinks at 80 % duty cycle.
6. Turn OFF power to Touch Screen.

### Caution:

When restoring Flash Clear jumper to normal operating position, place jumper on Pin 1 only. Placing jumper on Pin 1 and 2 will initiate a factory test operation.

7. Remove jumper from Flash Clear position and place jumper on Pin 1 only (Normal Operation position).
8. Re-install cover.
9. Turn ON power to Touch Screen.

## SERVICE

Components within MN Touch Screens can not be field repaired. If there is a problem, follow the steps below before contacting your local Satchwell Controls office.

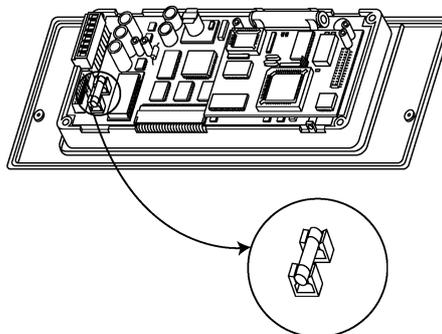
1. Make sure Touch Screen is connected and communicating to desired devices.
2. Record precise hardware setup indicating the following:
  - Version numbers of applications software.
  - Controller firmware version number.
  - Information regarding the MicroNet Tech Tool or MicroSat.
  - A complete description of difficulties encountered.

## Fuse Replacement

A fuse provides overcurrent protection for the controller. Do the following to check and replace fuse:

1. Turn OFF power to Touch Screen.
2. Remove Touch Screen cover.
3. Remove fuse.
4. Check continuity across fuse.
5. If fuse is faulty, replace fuse with same type and rating.
6. Re-install cover.
7. Turn ON power to Touch Screen.

## FUSE LOCATION

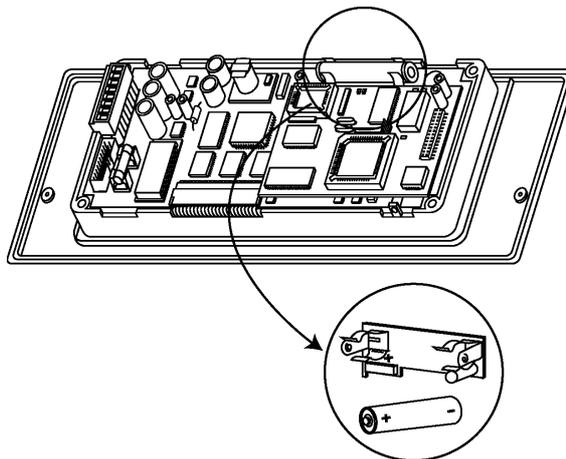


## Battery Replacement

Should there be a power failure, the clock and RAM are protected with a battery-backup. Replace the battery every 10 years. Do the following to check and replace battery:

1. Turn OFF power.
2. Remove cover.
3. Remove battery.
4. Check battery.
5. If battery is faulty, replace battery with same type and rating. (Siebe part number E17-129, 3.6V AA Non-rechargeable lithium)
6. Re-install cover.
7. Turn ON power to Touch Screen.
8. Dispose of battery properly.

## BATTERY LOCATION

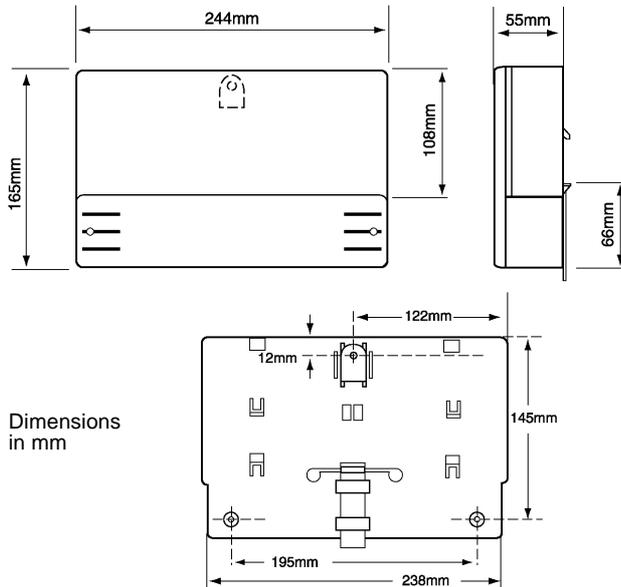




## LOCATION

MN Touch Screens are suitable for indoor use only (IP 40 in European Community). When selecting a mounting location make certain the following conditions are met.

- Do not install where excessive moisture, corrosive fumes, vibration, or explosive vapours are present.
- Do not install near large contactors, electrical machinery, or welding equipment.
- Allow 150mm (6 inch) clearance from contactors, switches, and associated cabling.
- Locate where ambient temperatures do not exceed 40°C (104°F) or fall below 0°C (32°F) and relative humidity does not exceed 95% or fall below 0%, non-condensing.



# Satchwell

## Satchwell Control Systems Limited

Farnham Road  
Slough  
Berkshire SL1 4UH  
United Kingdom

Telephone +44 (0)1753 550550

Facsimile +44 (0)1753 824078

A Siebe Group Company

### CAUTION

- This is a 24Vac device. Do not exceed rated Voltage. Local wiring regulations and usual safety precautions apply.
- 24Vac must be supplied by a transformer conforming to EN 60742.
- Do not exceed the maximum ambient temperature.
- Interference with parts under sealed covers invalidates guarantee.
- The design and performance of Satchwell equipment is subject to continual improvement and therefore liable to alteration without notice.
- Information is given for guidance only and Satchwell do not accept responsibility for the selection or installation of its products unless information is given by the company in writing relating to a specific application.
- A periodic system and tuning check of the control system is recommended. Please contact your local Satchwell Service Office for details.