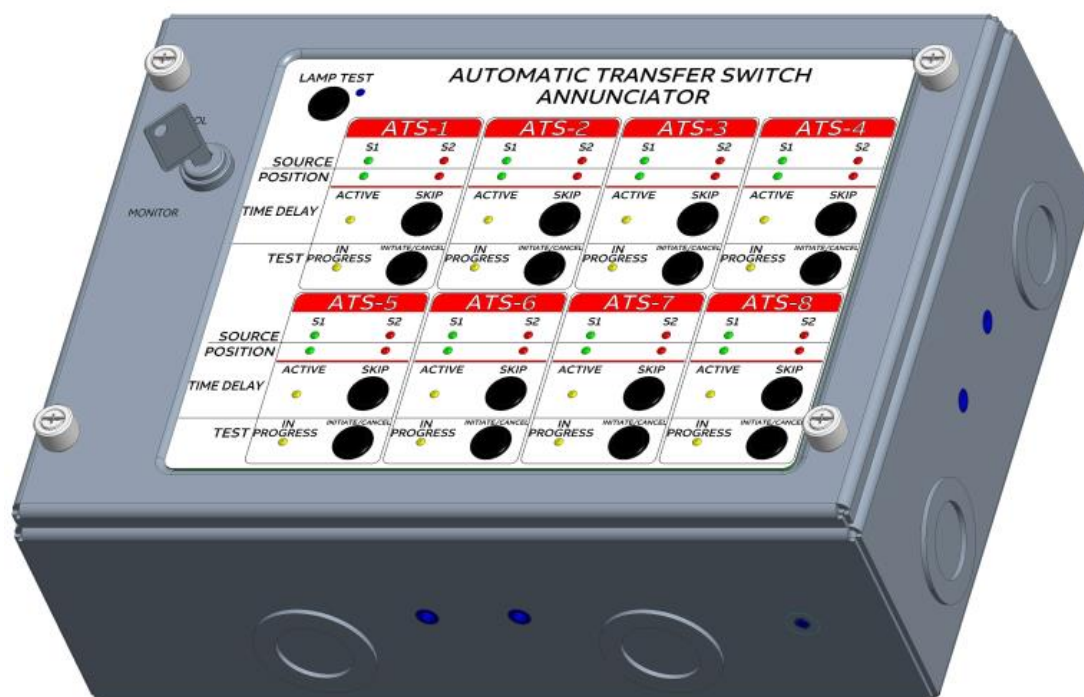QUICK START GUIDE

ATS Annunciator - MODBUS

ATS Annunciator monitors and controls up to 8 Automatic Transfer Switches. Suitable for use with ABB transfer switches of these types: TruONE, Zenith T-series, & Zenith with MX150/250 Control Systems.

**Before getting started, have the following tools and information available:**

- PC or Laptop with USB
- USB to RS-485 adapter - FTDI Chip USB-RS485-WE-1800-BT or similar
- ATS Annunciator Tool - PC graphic user interface for ATS Annunciator configuration
- Screwdriver - Flat blade & #2 Phillips

Review Information sections before beginning installation. Information sections follow installation steps :

Note: For TruONE & Zenith T-series annunciator applications please verify that Step 6.7 has been properly completed. Failure to set TruONE and Zenith T-series parameters as stated may result in improper operation.

—

Step 1 - Mount Annunciator

1. Attach both mounting brackets to unit - 2 screws each bracket
   Brackets may be attached to top and bottom or left and right sides.
   Orient brackets for wall or flush mount.
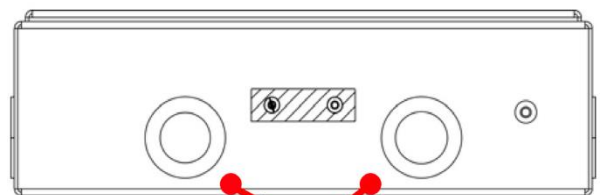2. Mount unit to desired NEMA-1 location.

—
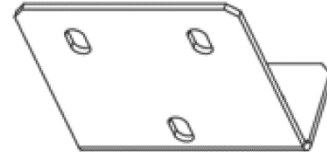
Step 2 - Run Conduits

Run conduits
  Between the Annunciator and all ATSs.
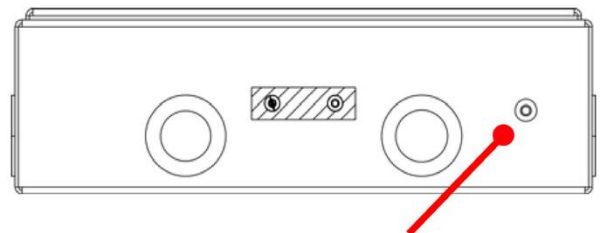 Between the Annunciator and the power source.

Knockouts are located on all 4 sides of the Annunciator.

Knockouts (typical)

—

Step 3 - Ground Annunciator

Ground to 6-32 stud inside box.

Ground Lug Landing
Inside box

—
Step 4 - Connect MODBUS Networks

MODBUS networks - See Information: MODBUS Networks

• Networks may be either Singularly Terminated or Doubly Terminated.

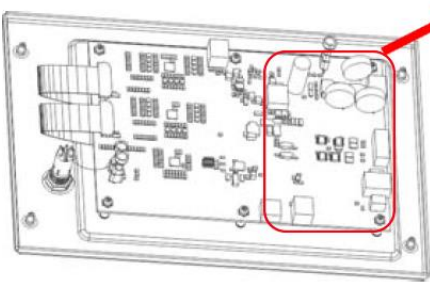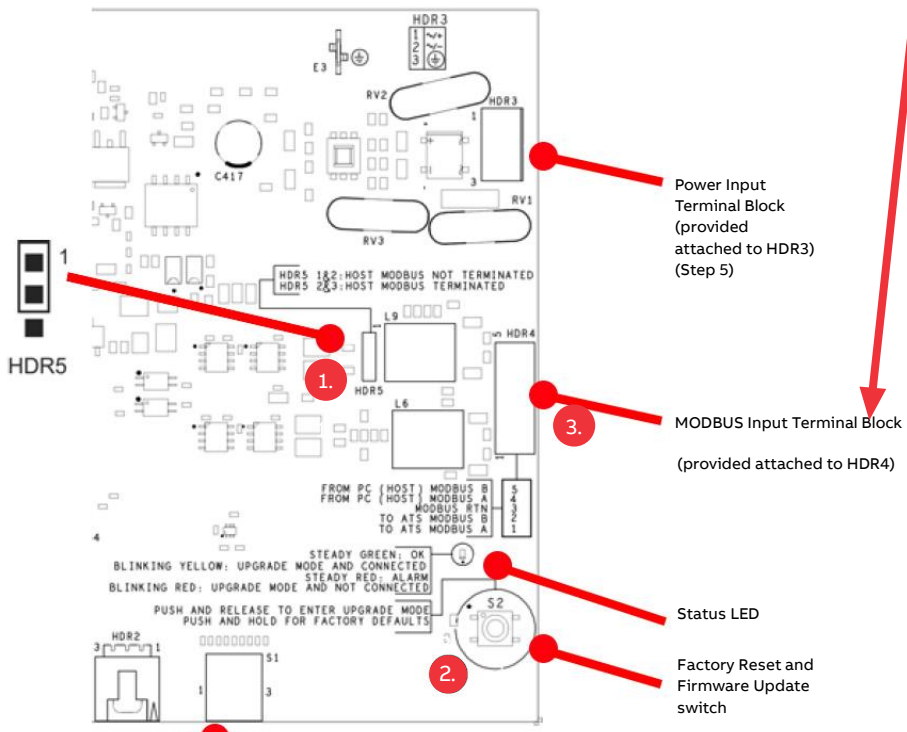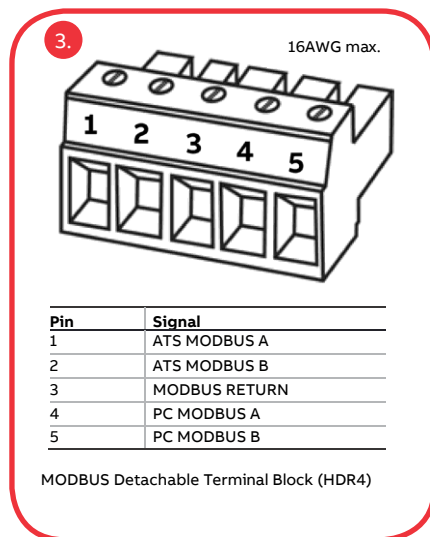• The Annunciator has two separate MODBUSs.

    ATS MODBUS connects to ATSs - 8 max.

    PC MODBUS connects a PC to Annunciators - max 32.

MODBUS connections are made to a detachable terminal block.

1. Open Annunciator - remove front cover screws.
2. Connect MODBUS cables **3.** :
   a. ATS MODBUS to ATSs
   b. PC MODBUS to PC and additional Annunciators if present.
3. Terminate ATS MODBUS - typically in the ATS at one or both ends of the bus.
4. Terminate the PC MODBUS at its non-PC end (typical): **1.**
   a. The Annunciator at the non-PC end of the bus: Place jumper across HDR5 positions 2&3.
   b. All other Annunciators: Place jumper across HDR5 positions 1&2.

16AWG max.

Pin	Signal
1	ATS MODBUS A
2	ATS MODBUS B
3	MODBUS RETURN
4	PC MODBUS A
5	PC MODBUS B

MODBUS Detachable Terminal Block (HDR4)

HDR5
PC MODBUS Termination

Jumper 2&3: terminated

Jumper 1&2: Not terminated (shown)

Power Input Terminal Block (provided attached to HDR3) (Step 5)

MODBUS Input Terminal Block

(provided attached to HDR4)

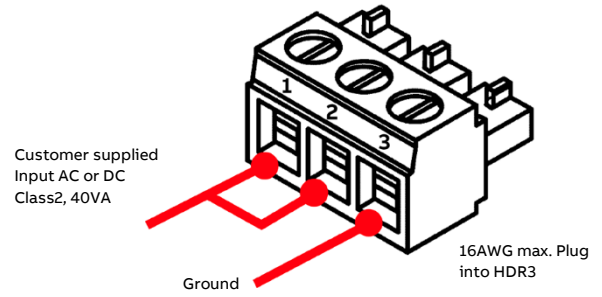Status LED

Factory Reset and Firmware Update switch

Annunciator Card - on inside of front cover

—

Step 5 - Connect Power

Power connections are to a detachable terminal block (provided attached to HDR3, see Step 4 figure).

⚠️

Input voltage range: 16 - 30VAC or VDC

Customer supplied
Input AC or DC
Class2, 40VA

Ground

16AWG max. Plug
into HDR3

—

Step 6 - Configure Annunciator - ATS Annunciator Tool

The ATS Annunciator Tool is graphic user interface that runs on a PC and communicates with the Annunciator via the PC MODBUS connection through an external USB to RS-485 adapter.

1. **1.** **PC Serial Port Settings > Serial Port** - set per the USB to RS-485 adapter instructions; **Connect** **6.** .

2. **2.** **Annunciator Information > Annunciator ID** - Select Annunciator to communicate with from list of connected IDs.

3. **3.** **From PC (Host) MODBUS Port Settings > Annunciator ID** - Configure as specified in site installation instructions, if provided.
    Set/change Annunciator ID from list IDs (1 -32); SUBMIT.
    Each Annunciator on the network must have a unique ID. Factory default ID is 1.

Procedure for setting IDs for multiple Annunciators
    a. Verify no connected Annunciator has ID = 1 - View list of connected IDs **2.** above.
    b. Connect a factory fresh Annunciator (ID=1).
    c. Select Annunciator ID 1 per step 2 (**2.**) above.
    d. Change Annunciator ID to a unique number other than 1 per step 3 (**3.**).
    e. Repeat from step a for additional Annunciators.
Remove Annunciators from the PC MODBUS network by removing their power connector or the PC MODBUS detachable block from their circuit card (see Step 4). Then **Disconnect** and **Connect** the Annunciator Tool **6.** to re-scan the PC MODBUS.

4. **4.** **To ATS MODBUS Port Settings;** click **SUBMIT.**
ATS-1: through ATS-8: -
For each desired Annunciator ATS position select the desired ATS ID from list IDs (1 -247) or "None" as specified in the site installation instructions.
"None" must be selected for each Annunciator ATS position not connected to an ATS.
Click **SUBMIT**.

Multiple ATSs with the same ID will be indicated by continuously increasing error count **5.** . See Troubleshooting (page 9).

5. **Other Settings and Controls** - as specified in site installation instructions.

6. **Repeat from step 2** for additional Annunciators.

7. **For ABB TruONE and Zenith T-series applications ONLY,** the MODBUS settings should be as follows:
    a. **BAUD rate**   : Set to 9600
    b. **DATA bits**   : 8
    c. **PARITY**   : N
    d. **STOP bits**   : 1

Settings, if other than as shown above, may cause the annunciator to not operate correctly.

Note: Re-scan may be necessary to discover newly connected or disconnected Annunciators. Disconnect and Connect the Annunciator Tool **6.** to re-scan the PC MODBUS.

LEDs and Operation
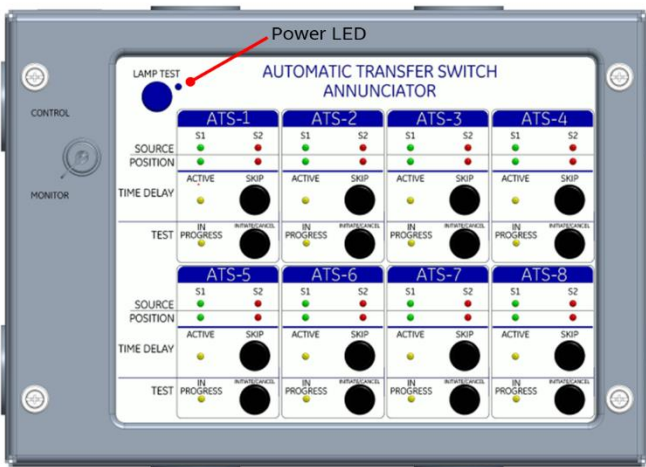
Annunciator for MX150/250

Annunciator for TruONE & Zenith T-series

Note: Graphics are for reference purpose only. See actual product for detail views

KEY SWITCH
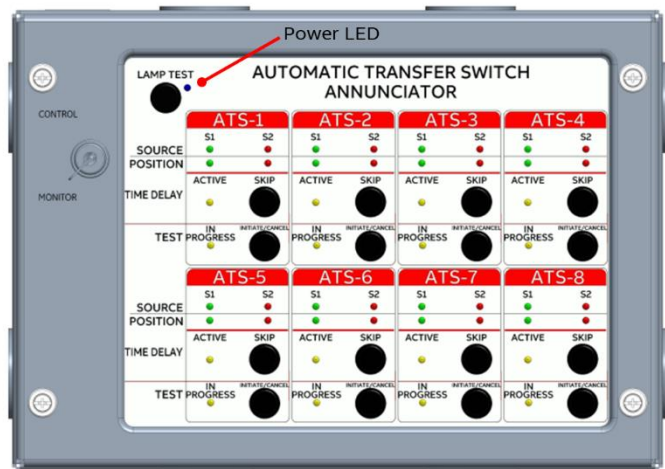> The MONITOR position allows operation of LEDs only.
> The CONTROL position allows operation of LEDs and the pushbuttons.

Power LED
> Indicates Annunciator is powered.

SOURCE — S1 (Normal) LED (Green)
> Indicates that the corresponding Transfer Switch has an acceptable Normal source.

SOURCE — S2 (Emergency) LED (Red)
> Indicates that the corresponding Transfer Switch has an acceptable Emergency source.

POSITION — S1 (Normal) LED (Green)
> Indicates that the corresponding Transfer Switch load is connected to the Normal source.

POSITION — S2 (Emergency) LED (Red)
> Indicates that the corresponding Transfer Switch load is connected to the Emergency source.

TIME DELAY — ACTIVE LED (Yellow)
> Indicates that the corresponding Transfer Switch has a timer functioning. Timers monitored include all timers
> associated with delaying transfer in either direction.

TIME DELAY — SKIP Push Button
> Immediately skip (lapse / terminate) T or W timer whichever is timing concurrent with pushbutton activation.
> ATS timers will be bypassed during a test sequence if pressed before the TEST — Initiate Push Button

TEST — IN PROGRESS LED (Yellow)
> Indicates the corresponding Transfer Switch is in a test mode. Indication will occur whether the test is initiated at the
> annunciator or locally at the ATS.

TEST — INITIATE/CANCEL Push Button
> Begins/Cancels a load transfer test sequence (power loss simulation). Press and release to Begin/Cancel Test.
> T E S T transfers to the emergency source.
>> Transfer is complete when both S2 Position and Source LEDs illuminate.
>> Transfer is complete when both S1 Position and Source LEDs illuminate.
> CANCEL ends the test and transfers back to the normal source.
> (Key Switch must be in the Control position)

LAMP TEST — Initiate Push Button
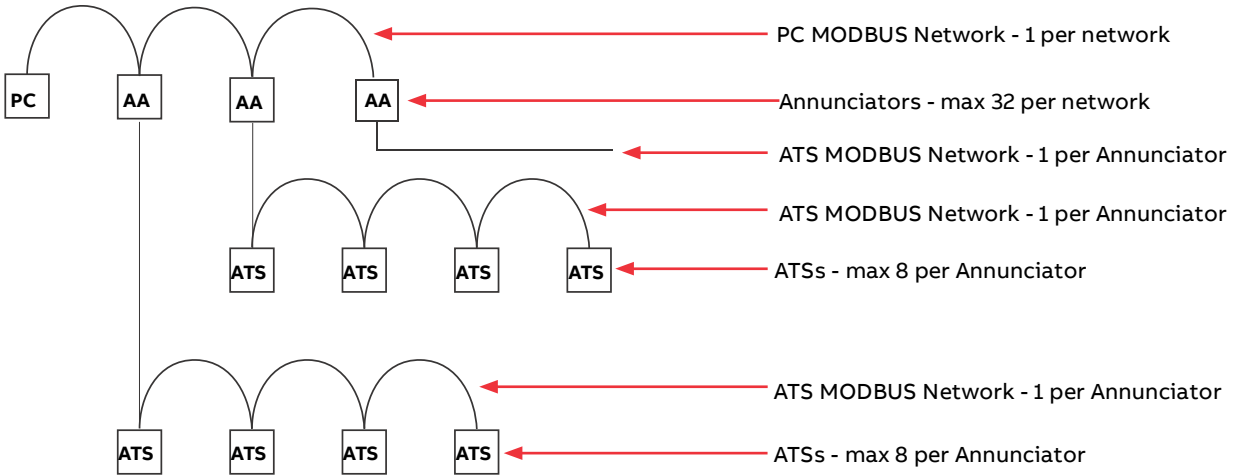> Turns all LEDs on for approximately 10 seconds.

—

Information

MODBUS Networks

Networks may be either Singly Terminated or Doubly Terminated.
The Annunciator has two separate MODBUSs.
• ATS MODBUS connects to ATSs. - 8 max.
• PC MODBUS connects a PC to Annunciators - max 32.

PC MODBUS Network - 1 per network

Annunciators - max 32 per network

ATS MODBUS Network - 1 per Annunciator

ATS MODBUS Network - 1 per Annunciator

ATSs - max 8 per Annunciator

ATS MODBUS Network - 1 per Annunciator

ATSs - max 8 per Annunciator

—

Network Termination
Cables:
• 300V rated insulation - Belden 9463
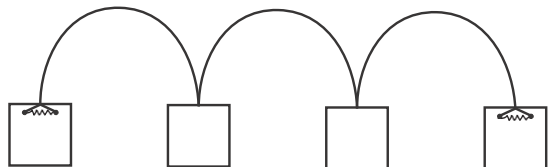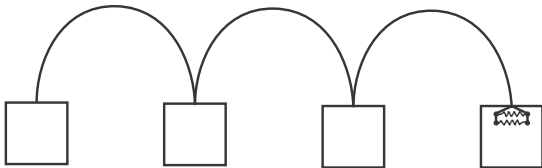• 600V rated insulation - Belden 3072F
Resistors: 105Ω

Singularly Terminated Network (Daisy Chain)
Maximum Total Network Cable Length: 500 M (1,640 ft)

Doubly Terminated Network (Daisy Chain)
Maximum Total Network Cable Length: 2,700 M (8,850 ft)

—

Information

—

MODBUS Device IDs

Each device on a MODBUS Network must have a unique ID.

Non-unique IDs cause communications conflicts and must be resolved. See Troubleshooting.

ATS IDs are set in the ATS MODBUS interface.

Annunciator IDs are set via the ATS Annunciator Tool (Step 6).

—

Factory reset

Factory default settings are Annunciator ID=1 (2. in Step 6) in and no configured ATS (4. in Step 6 all "None").

Press and hold Factory Reset and Firmware Update switch until the Status LED turns red (5 seconds) - 2. as shown in Step 4.

The Status LED will be green when Reset is complete.

—

Firmware Update

1. Download the Remote Upgrade Program to the PC – Contact Local service center for firmware updates.
2. Press and release Factory Reset and Firmware Update switch until the Status LED turns red (5 seconds) - 2. as shown in Step 4. The Status LED will blink red.
3. Run the Remote Upgrade Program on the PC.
   a. Establish communications with the Annunciator.
   b. Follow instructions as presented by the Remote Upgrade Program.
      The Status LED will be green when upgrade is complete.
      It may be necessary to power down and restart the annunciator to exit the programming mode.

—

Troubleshooting

—

MODBUS Device Address Conflict

Each MODBUS device must be configured with a unique address. Duplicate MODBUS IDs will cause indeterminate errors

1. Check ATS MODBUS address for unique addressing. See Step 6.

All LEDs Are OFF

1. Check power supply for proper connection to annunciator unit. (Power LED inside unit will be ON if power supply is connected properly). See Step 5.
2. Twisted pair connection from MODBUS card to ATS annunciator not installed correctly. Consider reversing wires to inputs MODBUS A (point 1) and MODBUS B (point 2).

LEDs for One or More ATSs Are All OFF

1. LEDs for ATS configured as "None" will all be OFF. See Step 6.
2. Are network terminations on ATS units connected?
3. Are all ATS units powered?
4. Are all ATS units equipped with network interface cards?

Position and Source Availability LEDs Flash ON and OFF

This indicates that network connections are open between annunciator and corresponding ATS.

1. Is one of more ATS configured as present (not "None"), but not present on the network?
2. Are network terminations on remote ATS units connected?
3. Are all ATS units powered?
4. Are all ATS units equipped with optional MODBUS Interface Card
   a. See 71R-2200 for MX150/250 MODBUS network card information
   b. See TruOne ATS Register Map for TruONE MODBUS network card information

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Specifications and Application

• Contact local sales center for specifications and ordering information.
• Installation Environment - Install in Network Telecommunication Facilities, OSP, or where NEC applies.

Notes

Notes

ABB

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ABB Zenith Controls, Inc.
305 Gregson Drive
Cary, NC 27511
24-hour support:
ABB Technical Services
+1 (800) 637-1738