Peripheral and Detection Devices Initiating Device

Intelligent Test Switch and Status Indicator
Model TSM-1X

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Architect & Engineer Specifications

☐ **Intelligent test-switch module with momentary, normally open (N.O.) turn-key activated (T45) switch**

☐ **Dual, built-in isolators**

☐ **Meets Class X (Style 7) survivability requirements**

☐ **Multi-color light-emitting diode (LED) indicates system status:**
  - GREEN | AMBER | RED

☐ **Low current draw**

☐ **Restriction of Hazardous Substances (RoHS) compliant**

☐ **Mounts in a single-gang box:**
  - 3.5 inches (8.9 cm.) deep

☐ **Device Programmer / Tester (Model DPU) programs and verifies device's address:**
  - programming capabilities include testing a duct detector, as well as other Siemens addressable devices

☐ **Capability of being installed anywhere on a communication loop, or on the wiring of that loop**

☐ **UL864 | UL2572 | UL2017 Listed; CAN/ULC-S527 & CAN/ULC-S576 Listed**
  - File S24304, Vol. 3

Product Overview

The Siemens – Fire Safety Intelligent Test Switch Module (Model TSM-1X) is a key-activated (T-45), addressable normally open (N.O.) momentary switch with a tri-color light-emitting diode (LED) indicator. The tri-color LED mimics the status of the associated Siemens smoke detector or compatible device(s). Each Model TSM-1X switch can be configured to test and monitor group of devices, using one (1) address on the fire-alarm control panel (FACP) loop.

Model TSM-1X provides a valid test of a Siemens duct detector – even the detectors found in inconspicuous, inaccessible areas – and will test associated logic functions of duct housings and other modules. Other common applications include: fan-restart switch; drill switch; recall switch, and remote Arm/Disarm switch.

<u>NOTE</u>: Refer to installation manual: **P/N – A6V101055486** to ensure Model TSM-1X compatibility with the Siemens FACPs intended for use in the given application.

Overall, Model TSM-1X is an economical solution since each X-series Test Switch seamlessly provides combined, pre-packaged functionality of Siemens In/Out modules (TRI-S); Siemens status indicators (ILED-series), and T-45 test switches. Therefore, there is no longer the need of having to buy individual parts and configuring them in the field. Additionally, Model TSM-1X is modernized through its capability to provide built-in isolation, which shows the location of a short.

Specifications

Model TSM-1X is designed for use with addressable duct detectors or other intelligent devices on a Device Loop Circuit (DLC) of Siemens compatible Fire Alarm Control Panels (FACP). Turn-key activation will cause all associated logic functions to be tested. Typical applications in which key activation is used include: intelligent duct detectors | hidden or inaccessible smoke detectors | Fan, Recall, Restart, Drill and remote Arm/Disarm switches. This alarm condition will cause all logic associated with the duct detector to activate. The TSM-1X is mounted in a 3.5-inch (8.9 cm.) deep single-gang back box, which is supplied-by-others (BO).

Model TSM-1X supports two (2) operation methods:
➤ Polarity insensitive mode
➤ Isolator mode

The module can be wired in either mode and configured by the compatible Siemens FACP. While in isolation, the built in dual isolators will work at both sides of the module to isolate a line short in front or behind the module.

Model TSM-1X provides intelligent built-in, dual isolation, meeting Class X (Style 7) survivability requirements for shorts while providing reliable alarm communication to the Siemens FACP. Additionally, Model TSM-1X allows up to 190 isolators per loop, and up to 30 devices between isolators (wired in polarity insensitive mode). The devices between isolators can either be pre-existing `H'-series or later `X' generation devices.
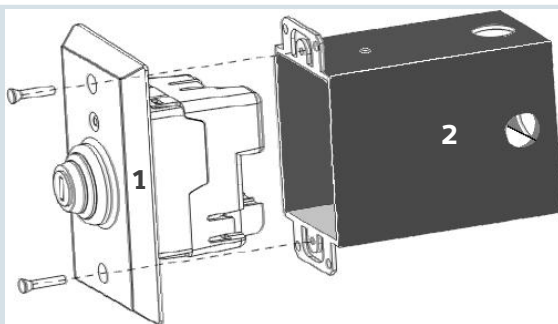
Model TSM-1X
Duct Detector Test Switch

1. **TSM-1X faceplate**

2. **Single-gang switchbox (user supplied)**

NOTES: The single-gang electrical box, seen in this CGI depiction, is supplied-by-others (BO).

Specifications – (continued)

The isolation feature found on a Model TSM-1X Test Switch provides a location of the fault (short). When a short occurs, the Siemens FACP can identify the fault automatically and the module recognized the short location (in front of the device or behind the device). Overall, the built-in isolators improve the diagnostics and location of the short and report when a Class X module is misconfigured.

Each Test Switch Module is configurable by a Siemens compatible panel(s) in an isolator (polarity sensitive) or non-isolator (polarity insensitive) mode. When Model TSM-1X is configured as an isolator, it may serve a dual purpose by simultaneously functioning as a test switch and status indicator and isolator. Advanced troubleshooting is provided by compatible Siemens FACPs (via identification for when a Model TSM-1X Test Switch is configured as an isolator, but is wired incorrectly in a polarity insensitive mode).

Operation

Field-Device Programmer / Test Unit

Each Test Switch is programmed with the Siemens field-device programmer / test unit (Model DPU), which is a compact, portable and menu-driven accessory for electronically programming and testing Siemens peripheral modules and devices promptly and reliably. For instance, the field technician selects the accessory's program mode, and enters the desired address. Vibration, corrosion and other conditions that deteriorate mechanical-addressing mechanisms are no longer a cause for concern. Each remote alarm lamp is connected to Model DPU with the programming cable provided with the tester. This programming cable **(P/N 110-694927)** utilizes two (2) clip connectors to attach to the module.

NOTE: Since Model TSM-1X Test Switches are advanced initiating devices, the latest Model DPU firmware update is required.

When set in `test' mode, Model DPU will perform a series of diagnostic tests without altering the address or other stored data, allowing technicians to determine if the detector is operating properly.

Each field-device programmer / test unit operates on AC power or rechargeable batteries, providing flexibility and convenience in the programming / testing of fire-safety equipment from practically any location. Additionally, with the use of a Model DPU unit, there is no longer a concern with any vibration, corrosion and other deteriorating conditions that compromises the vitality of a mechanical-addressing mechanism. Model DPU electronically sets the interface address for each Model TSM-1X into the non-volatile memory of the interface microcomputer-chip.

Each Model TSM-1X module is fitted with screw terminals for connection to an addressable circuit with compatible Siemens FACPs.

NOTE: Refer to installation manual: **P/N – A6V101055486** to ensure Model TSM-1X compatibility with the Siemens FACPs intended for use in the given application.

Application Data

The Model TSM-1X from Siemens is an intelligent, key-activated device that tests detectors for associated logic functions for proper functionality. A Model TSM-1X Test Switch operates with any Siemens intelligent fire, smoke and duct detector used on a compatible Siemens FACP. Other applications include the testing of logic functions of inconspicuous, inaccessible smoke detectors | Fan, Recall, Restart, Drill and remote Arm/Disarm switches.

When the TSM-1X momentary switch is activated, a signal is transmitted to the Siemens compatible FACP, resulting in the Siemens detector on the configuration network to go into `Alarm' mode. In turn, the `Alarm' event will activate all functions programmed to follow the detector. For this reason, Model TSM-1X provides a valid, accurate test of Siemens duct detectors used on Siemens FACPs, therefore meeting the requirement found in local fire-safety jurisdictions.

Every Model TSM-1X Test Switch mounts in a single-gang electrical back box.
Additionally, each shipment includes a cover plate.

Compatibilities

The `X'-series modules may be used, along with Model `H'-series intelligent detectors; Model `HMS'-series addressable manual stations, or any other `H'-series addressable intelligent module (e.g. Model HZM or Model HCP).

Interspersing Siemens `X' and `H'-series detection devices on the same loop is mostly permitted, but there are exceptions: Models HLIM (isolation module) and SBGA-34 (audible base) cannot be used with `X' devices on the same loop.

Temperature and Humidity Range

Duct Detector Test Switches are UL Listed | ULC Listed. Environmental operating conditions for each Model TSM-1X module is 32°F (0°C) to 120°F (49°C) with a relative humidity of no greater than 95%, non-condensing.

Technical Data

OPERATING VOLTAGE RANGE:	13VDC – 32VDC
RELATIVE HUMIDITY:	0 – 95% (non-condensing)
`ACTIVE' OR `STANDBY' CURRENT, MAX.:	500µA
LINE SIZES AMERICAN WIRE GAUGE (AWG)	14 AWG, max. 18 AWG, min.

Details for Ordering

MODEL OR TYPE	PART NUMBER	PRODUCT
TSM-1X	S54370-B3-A1	Intelligent Test Switch | Status Indicator | Wall Plate | Isolator
DPU	500-033260	Device Programmer / Test Unit

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