

# Transient Voltage Surge Suppression (TVSS) TBB/TPB/TSB30KA Plug in Series 230V 50 and/or 60Hz Installation and Operation Document

## 1. Installation

- ◆ A qualified electrician should carry out Installation and connection of these devices.
- ◆ Not designed as stand alone, these units must be fitted inside a distribution unit or suitable enclosure.
- ◆ These units must be earthed.

### 1.1 Introduction

The T\*B30KA series of StrikeSafe transient voltage suppression units are designed to be installed inside control panels or OEM enclosures at any point in the distribution system where medium to high transient surges are likely to occur. StrikeSafe modules use a combination of SADs (Silicon Avalanche Diodes) and MOVs (Metal Oxide Varistors) to give maximum protection. They have visual and remote alarm indication and both thermal and wire fuse protection.

This document covers the following models:

The TPBs are the individual SAD, MOV and SAD/MOV plug in modules.

The TSB 30KA11s are single-phase units consisting of 1 x TBB 30KA11 and plugin module, connection terminals, alarm indication, volt free contacts and neutral/earth protection.

The TSB 30KA33s are 3 phase units consisting of 1 x TBB 30KA33 and 3 x plugin modules, connection terminals, alarm indication, volt free contacts and neutral earth protection.

**NOTES:** The TBB 30KA11/01 & TBB 30KA33/01 non plugin base units populated with MOVs only.  
/03 & /53 versions of TBB 30KA\*\*/01 units have remote indication. See MAN471 supplied with these models.  
TBBE/TSBE versions are housed in a wall mountable enclosure.

### 1.2 Connecting

**NOTE:** Ensure that the circuit is isolated from the mains before installing the TVSS device

The method of connecting any TVSS device can have a dramatic effect on its ability to protect against transient voltage surges. The feed cable must be kept as straight, short and as large a cross section as possible. Diagrams 'A' & 'B' (fig.1) show the method of connection. The point of connection should be close to the supply/equipment being protected. If connection is to be made using stranded wire fit correctly sized bootlace ferrules before terminating.

#### TBB 30KA11 (fig.3)/TBB 30KA11/01

Chassis mounted single-phase unit. Mount unit on a flat surface, inside panel/enclosure, as close to the circuit to be protected as possible, using the fixing points (b). Insert cables through appropriate holes into terminal (i-m) and tighten screw (e). If stranded wire is used fit bootlace ferrule to ensure reliable connection, recommended wire size 6 mm<sup>2</sup>.

#### TBB 30KA33 (fig.2 overleaf)/TBB 30KA33/01

Chassis mounted three-phase unit. Mount unit on a flat surface, inside panel/enclosure, as close to the circuit to be protected as possible, using the fixing points (b). Insert cables through appropriate holes into terminal (i-m) and tighten screw (e). Ensure correct orientation or damage to unit may occur. If stranded wire is used fit bootlace ferrule to ensure reliable connection.

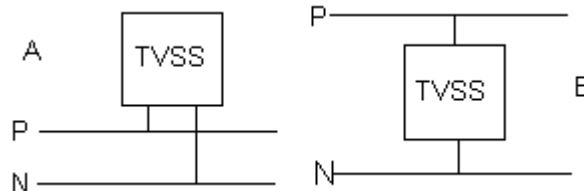
#### TPB Plug in Modules

(not non plug in versions)

Each module (g) has three pins, for the power connections and the alarm contact.

When a module is inserted ensure the pins line up with the sockets and keep the module square to the base unit to reduce the possibility of damage to the pins. Ensure all modules are fitted in the same orientation.

FIG 1



## 2. Operation

Once the installation has been completed and checked turn the supply on. The protection status LED (h) should glow ORANGE and the supply LED (c) should glow GREEN. The relay in the base should operate and the High Neutral/Earth led should remain off. If this does not happen check that all the modules are inserted correctly and that the supply connections are in the correct rotation.

If the module and base LEDs are correct then the module is functioning correctly and is protecting your distribution system.

## 3. Alarms

If the High Neutral/Earth Voltage LED (d) glows RED this indicates that there could be a wiring fault.

The Green leds on the base indicate that the supply is on. If any are off there is no supply to that phase.

The tri-coloured LED on the plugin module (h) provides the following information:

- ◆ Orange 100% protection
- ◆ Red 50% protection
- ◆ Yellow 50% protection
- ◆ Off Zero protection

A faulty plug in module can be changed, with care, without removing the supply, however it is recommended that modules are changed with the supply off. This should only be carried out by approved personnel.

**NOTES:** On the non plug in versions these leds are mounted on the base.

TBB 30KA33/03 & /53 versions have no LEDs as they are on the remote display.

If TPB 30KA11 modules are used red indicates SAD failure, this will mean the clamping voltage has risen to TPB 30KA11/010 level.

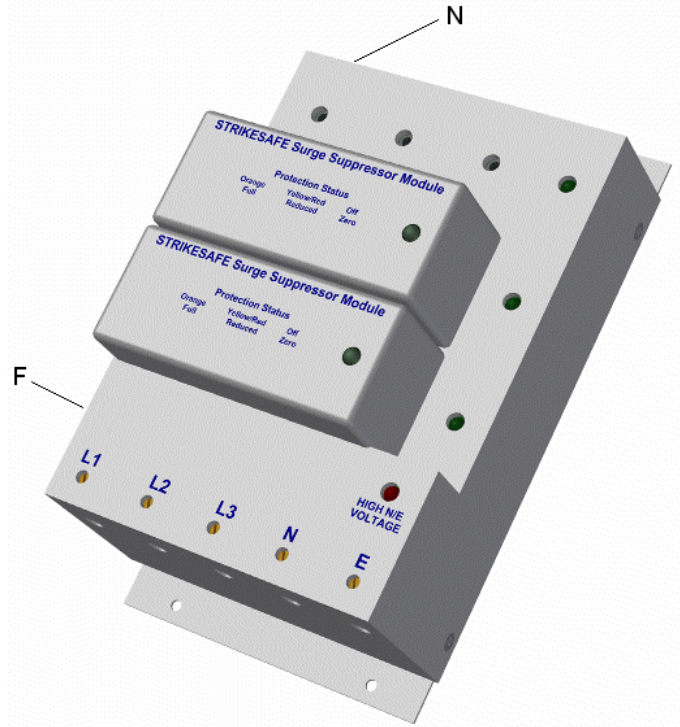
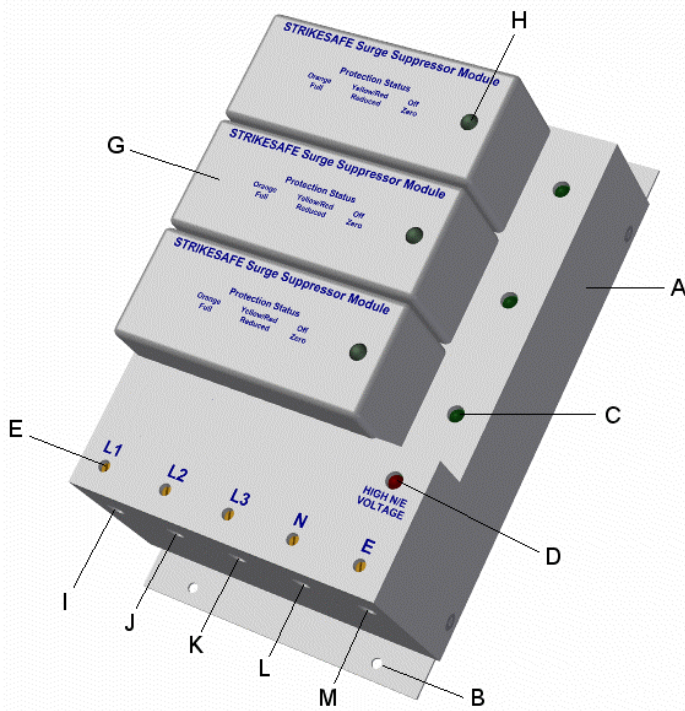
## 4. Connectivity (not /04, /05 & /06 versions)

There are three terminals marked NO, NC & COM. (f) connected to volt free relay contacts (8mm creepage & clearance). The NO (normally open) and NC (normally closed) relate to normal alarm free operation. In the event of a fault, or the removal of a plug in module, the relay will change state. To insert wire push the release button with the blade of a small screwdriver. The wire can now be inserted and is clamped by removing the pressure on the release button.

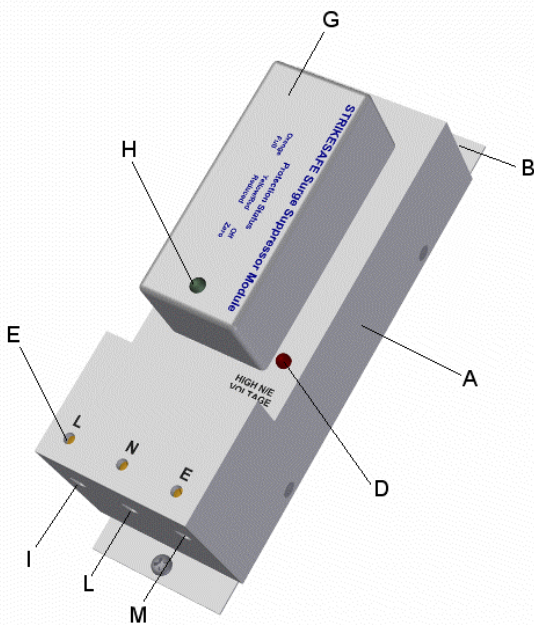
Maximum switching for the volt free contacts 230Vac at 5Amps.

Recommended wire size 1.25mm<sup>2</sup> (stranded) Ø1.2mm (solid).

**Fig 2 TSB 30KA33**



**Fig 3 TSB 30KA11**



- a) Base unit
- b) Fixing points (3.5mm dia. top & bottom)
- c) Supply LED
- d) High Neutral/Earth LED
- e) Screw Terminals
- f) Remote alarm volt free contacts
- g) Plug in modules (not TBB 30KA\*\*/01)
- h) Protection status LED
- i) Phase A wire entry point.
- j) Phase B wire entry point.
- k) Phase C wire entry point.
- l) Neutral wire entry point.
- m) Earth wire entry point.
- n) Remote display socket (TBB 30KA33/03 & /53 only)

**5. Specification**

	TPB 30KA11/02	TPB 30KA11	TPB 30KA11/01	TBB 30KA11/01	TBB 30KA33/01
<b>Nominal Clamping Voltage</b>	401Vpk	401Vpk	401Vpk	460Vpk	460Vpk
<b>Maximum Clamping Voltage</b>	560Vpk	560Vpk	560Vpk	710Vpk	710Vpk
<b>Peak Pulse current (8x20uS)/ph</b>	12KA	32KA	45.5KA	45.5KA	45.5KA
<b>Protection:</b>	Internal thermal & wire fuses				
	All bases include 26KA Neutral/Earth protection.				

	TSB 30KA33	TSB 30KA11	TSB 30KA11/01	TSB 30KA33/01
<b>Fixing:</b>	Chassis mounting, screw fixing.			
<b>Nett. Dimensions:</b>	110W x 76D x 160L mm	60W x 76D x 160L mm	60W x 59D x 160L mm	110W x 59D x 160L mm
<b>Nett Weight:</b>	0.761kg	0.265kg	0.262kg	0.768kg
<b>Local Indicators:</b>	Base LEDs, Green (c), Red (d). (see section 3) Tri-coloured LEDs, plug in modules (h). see section 3)			
<b>Remote indication:</b>	Single pole changeover volt free contacts.			
<b>Contact rating:</b>	230Vac, 5Amp			
<b>Operating voltage:</b>	230Vac per phase (phase to neutral)			
<b>Complies with:</b>	EN60335-1, EN60950-1: 2001, EN61000-4-1: 2001.			