

# Transient Voltage Surge Suppression (TVSS) TDC Series 230V/415V 50 and/or 60Hz Installation and Operation Document

## 1. Installation

**NOTE:** Installation and connection of these devices should be carried out by a qualified electrician.

### 1.1 Introduction

The TDC series of StrikeSafe transient voltage surge suppression units are designed to be installed at either the point of the incoming supply or at any point on the distribution system where high transients 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 three models:

The TDC200KA11 is a din rail mountable module that will fit in a standard consumer unit taking 6 modules width.

The TDCE200KA11 is a single-phase unit housed in a 12way consumer unit containing 1 x TDC200KA11, 1 x isolation switch and connection terminals.

The TDCE200KA33 is a 3-phase unit housed in a 24way consumer unit containing 3 x TDC200KA11s, 1 x isolation switch and connection terminals.

### 1.2 Connectivity (/04, /05 & /06 versions)

There are three terminals (marked NO, NC & COM. (fig 2 overleaf) 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 the relay will change state. To insert wire put the blade of a small screwdriver into the hole (i) and twist. The wire can now be inserted and is clamped when the screwdriver is removed.

Where multiple modules are fitted the alarm contacts can either be used individually or commoned in series for the normally closed or parallel for the normally open. The maximum switching for the volt free contacts is 230Vac at 5Amps.

### 1.3 Connecting

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

Model No	Rating	Phases	Wire Size
TDC 200KA11	100A	Single Phase	Up to 25mm <sup>2</sup>
TDCE 200KA11	100A	Single Phase	Up to 25mm <sup>2</sup>
TDCE 200KA33	100A	Three Phase	Up to 25mm <sup>2</sup>

The method of connecting any TVSS device can have a dramatic effect on its ability to protect against transient voltages. Ideally the TDC should be in line with the supply cables. If this is not feasible the feed cable must be kept as straight and short as possible. With the TDC wired as 'A' or 'B' in Fig 1 the longer the connecting wires the less effective the TDC will be in suppressing transient voltages. Diagrams 'C' & 'D' (fig.1) show the preferred method of connection. If connection is to be made using stranded wire fit correctly sized bootlace ferrules before terminating.

#### TDC200KA11 (fig.2 overleaf)

This module is designed to fit on a standard 35mm x 7.5mm top hat section din rail inside an enclosure or distribution unit. Once in place remove the cover (a) and grommets (b) fit the Phase wires into connection block (c) and the Neutral wires in (d). Tighten the allen screws using an A/F 2.5mm allen key. Replace the cover (a) and grommets (b). For three phase installations repeat for the other two modules.

#### TDCE200KA11 (fig.3 overleaf) & TDCE200KA33 (fig.4 overleaf)

These are a single phase (/01) and three phase (/02) models housed in wall or cabinet mounting consumer units.

To install, attach to the wall, feed the cables through the fitted glands and terminate as follows:-

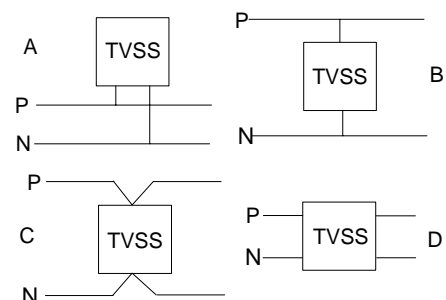
If the connection is to be made in a tee formation connect to Lin & Nin.

In this configuration the isolation switch only disconnects the TVSS device.

If you are making an in-line connection the feed wires terminate on Lin(1-3) & Nin(1-3) and the distribution wires terminate on Lout (1-3) & Nout (1-3). In this configuration the isolation switch disconnects both the TVSS device and the distribution system.

Refit and secure cover.

**Fig. 1**



## 2. Operation

Once the installation has been completed and checked turn the supply on. For TDCE200KA11 and TDCE200KA33 versions the internal isolator switch must also be turned on. The two LEDs on the front of the module should glow GREEN and the relay operate. If this does not happen check the connections.

If both LEDs are green then the module is functioning correctly and is protecting your distribution system.

## 3. Alarms

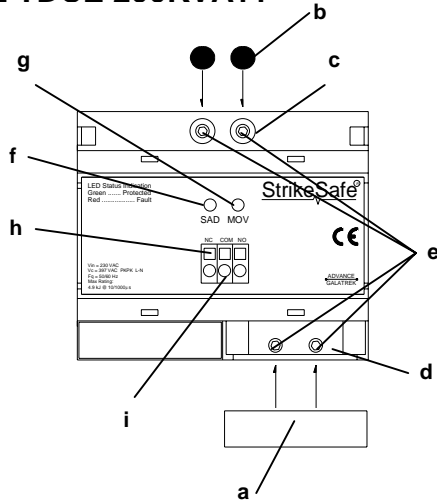
Each module has two LEDs (fig 2 overleaf), normally green, one for the SAD section and one for the MOV section.

If either or both of the LEDs glow RED a fault has occurred and the level of protection provided by the module has reduced partially or totally.

## 5. Total Protection

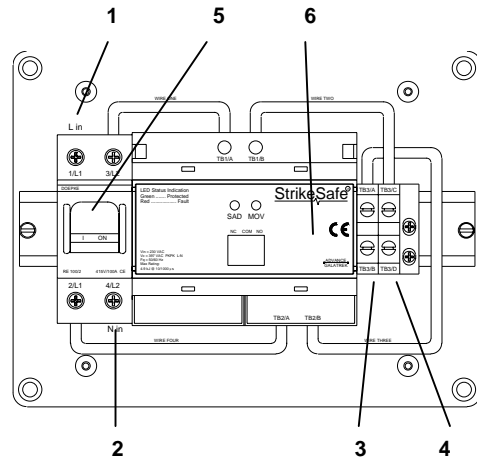
For complete protection the TDC should be used as part of a graduated protection system. This can be achieved through the use of devices giving different levels of protection positioned throughout your distribution system i.e. TDC, TSB & TDA series. Using this technique your equipment will be protected against both externally and internally generated transients.

**Fig 2 TDCE 200KA11**

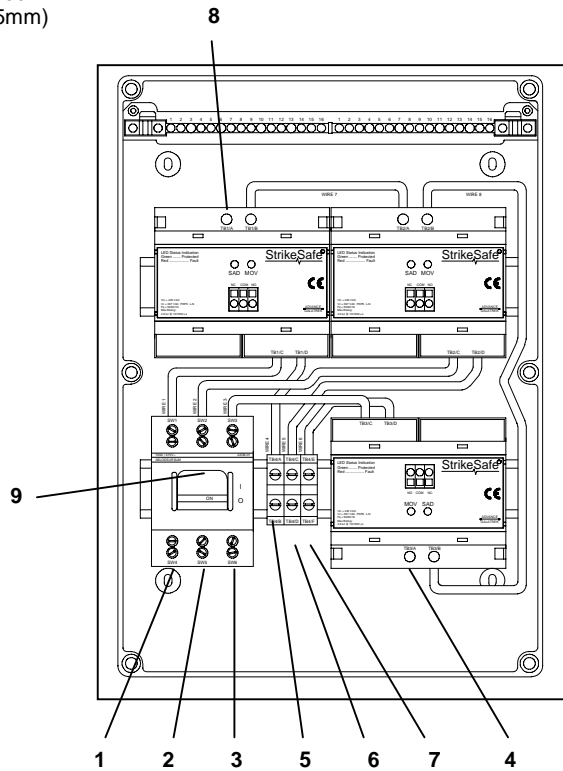


- a) Neutral terminal cover
- b) Live terminal grommets
- c) Phase connection block
- d) Neutral connection block
- e) Allen screws (A/F 2.5mm)
- f) SAD LED indicator
- g) MOV LED indicator
- h) Alarm contacts
- i) Wire clamp release

**Fig 3 TDCE 200KA11**



- 1) Phase in
- 2) Neutral in
- 3) Phase out
- 4) Neutral out
- 5) Isolation switch
- 6) TDC 200kA11



**Fig 4 TDCE 200KA33**

- 1) Phase A in
- 2) Phase B in
- 3) Phase C in
- 4) Neutral IN
- 5) Phase A out
- 6) Phase B out
- 7) Phase C out
- 8) Neutral out
- 9) Isolation switch

**6. Specification**

	SAD	MOV	
<b>Nominal Clamping Voltage</b>	400Vpk	460Vpk	
<b>Maximum Clamping Voltage</b>	560Vpk	710Vpk	
<b>Peak Pulse current (8x20uS)/ph</b>	724A	208kA	
<b>Protection:</b>	Internal thermal & wire fuses		
<b>Isolation Switch rating</b>	<b>TDC 200KA11</b>	<b>TDCE 200KA11</b>	<b>TDCE 200KA33</b>
		100A	100A
<b>Fixing:</b>	Din rail mounting.		
	Wall mounted, screw fixing.		
<b>Nett. Dimensions:</b>	W110x74Dx90Hmm	W220x115Dx170Hmm	W255x230Dx360Hmm
<b>Nett Weight:</b>	390g	1.45kg	3.71kg
<b>Local Indicators:</b>	Bi-coloured LEDs, Green ok, RED fault indication.		
<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.		