



**Vibration equipment division**

# **How to replace T1-45 with CUBE**

**Summary guide**



Via Risorgimento, 9 – Post office box 220 – 23826 Mandello del Lario (LC) - Italy

Tel. +39 0341 706111 - Telefax +39 0341 706299

[www.cemb.com](http://www.cemb.com) e-mail: [stm@cemb.com](mailto:stm@cemb.com)

# 1 T1-45 OVERVIEW



T1-45 is a Vibration Switch manufactured by CEMB that offers a configurable PNP/NPN output. Main info:

**Power supply: 24Vdc.**  
**Cable: 5mt black**  
**Thread: M10x1.5**  
**Bandwith: 10-700 Hz (single axis)**

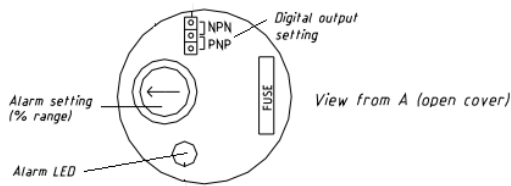
T1-45 is offered in 3 different vibration ranges:

- T1-45/1: 10mm/s
- T1-45/2: 30mm/s
- T1-45/3: 100mm/s

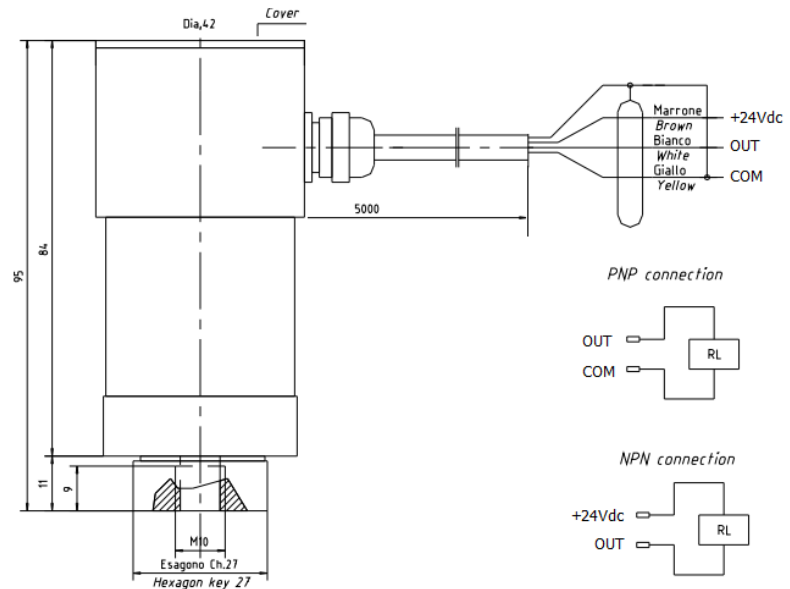
T1-45 is delivered with the following default settings:

- OUT: PNP, Normally not active
- Threshold: 50% of the range

The threshold setting can be adjusted in field by opening the cover and manually adjusting the trimmer.



Connection diagram of T1-45:



T1-45 is a very old vibration switch technology and it has been obsoleted and it is out of production since 2016. Indeed, many applications still adopts T1-45.

In case T1-45 need to be replaced in field, CEMB offers the alternative based on CUBE vibration switch.

This document describes how to replace T1-45 with CUBE vibration switch.

For more information about CUBE we invite you to look at CUBE Manual document.

## 2 CUBE OVERVIEW



CUBE is an advanced triaxial vibration switch/transmitter with ethernet communication. It offers 2 outputs:

**Out1: 4-20mA output**

**Out2: On-Off Binary output**

Additional Main Info of Cube:

**Power supply: 24Vdc.**

**Bandwith: 1Hz-5Khz (triaxial)**

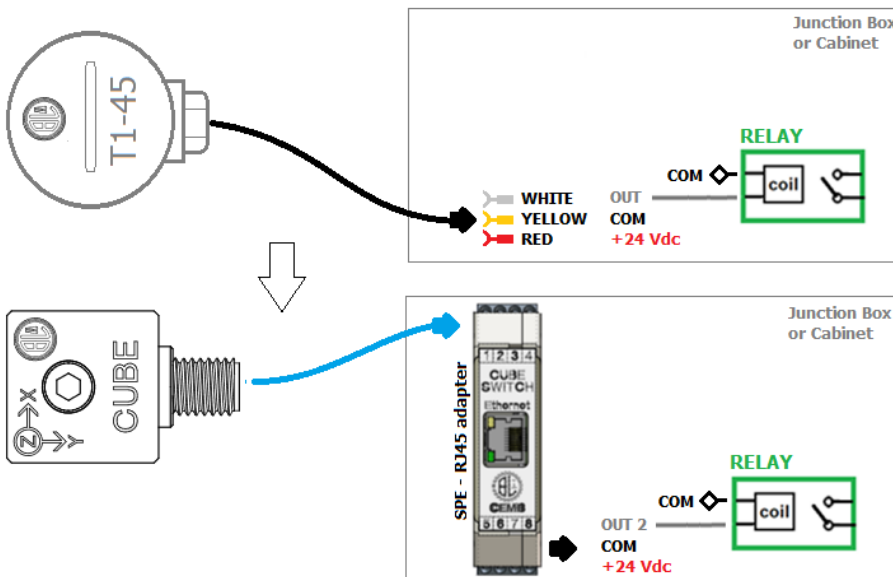
CUBE is fully configurable, and it can be delivered with preloaded settings that exactly match the same default configurations of T1-45:

- CUBE/3/0/0/0 con configurazione T1451PNP (for T1-45/1)
- CUBE/3/0/0/0 con configurazione T1452PNP (for T1-45/2)
- CUBE/3/0/0/0 con configurazione T1453PNP (for T1-45/3)

In case the threshold settings need to be adjusted in field, It is safely done by connecting a laptop and running CUBE MANAGER Software, which is delivered free of charge together with Cube.

## 3 T1-45 VS CUBE CONNECTIONS

The diagrams below show how to connect Cube in Place of T1-45.



**Note:**

The diagram shows the installation of the SPE-RJ45 ethernet adapter inside the JP or cabinet.

This component is required to connect the laptop to modify the threshold settings in case the default ones required to be adjusted

the diagram above shows the connection to a Relay (or PLC input, which is the same) of the output configured as PNP (default setting of T1-45 and Cube): this covers the vast majority of applications.

In case T1-45 is configured as NPN, Cube must be set to work as NPN by modifying its configuration via CUBE MANAGER Software.

## 4 HOW TO ORDER CUBE TO REPLACE T1-45

The table below lists the items that need to be ordered to replace T1-45 with Cube and correctly install it.

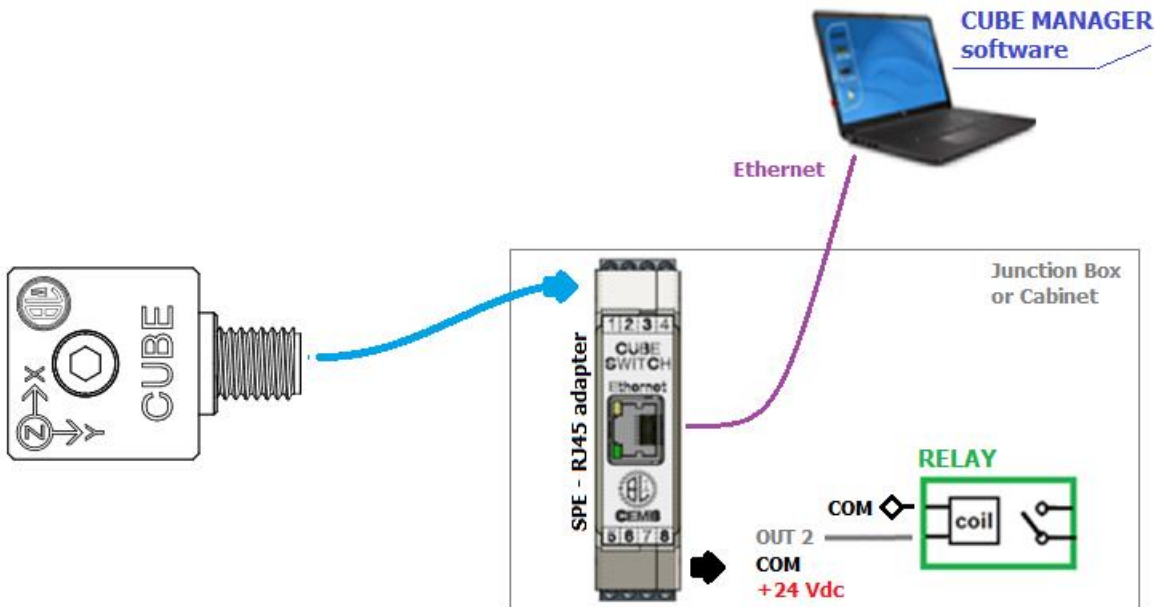
Device to Replace	Replace with a kit composed by:		
	Item	CEMB ordering code	Note
<b>T1-45/1</b>	sensor	<b>Cube/3/0/0/0-T1451PNP</b>	Special configuration <b>T1451PNP</b> : Out2 setting: PNP-na; Range: 10mm/s; Out2 delay: 3s threshold: 4.5 mm/s
	5m cable	<b>6503000045</b>	Required because the cable was integrated in T1-45, while CUBE is native with M12 male connector.  See Cube Manual, Chapter 11.4
	Thread adapter	<b>440A056946</b>	Required because T1-45 has M10x1.5 thread, while the thread of Cube is M6x1.  See Cube Manual, Chapter 10.2
	SPE-RJ45 adapter	<b>39IN056741</b>	Optional, it is required to allow Cube configuration in Field in case the default configuration should be modified.  See next chapter.
<b>T1-45/2</b>	sensor	<b>Cube/3/0/0/0-T1452PNP</b>	Special configuration <b>T1452PNP</b> : Out2 setting: PNP-na; Range: 30mm/s; Out2 delay: 3s threshold: 9 mm/s
	5m cable	<b>6503000045</b>	Required because the cable was integrated in T1-45, while CUBE is native with M12 male connector.  See Cube Manual, Chapter 11.4
	Thread adapter	<b>440A056946</b>	Required because T1-45 has M10x1.5 thread, while the thread of Cube is M6x1.  See Cube Manual, Chapter 10.2
	SPE-RJ45 adapter	<b>39IN056741</b>	Optional, it is required to allow Cube configuration in Field in case the default configuration should be modified.  See next chapter.
<b>T1-45/3</b>	sensor	<b>Cube/3/0/0/0-T1453PNP</b>	Special configuration <b>T1453PNP (*)</b> : Out2 setting: PNP-na; Range: 50mm/s; Out2 delay: 3s threshold: 35 mm/s
	5m cable	<b>6503000045</b>	Required because the cable was integrated in T1-45, while CUBE is native with M12 male connector.  See Cube Manual, Chapter 11.4
	Thread adapter	<b>440A056946</b>	Required because T1-45 has M10x1.5 thread, while the thread of Cube is M6x1.  See Cube Manual, Chapter 10.2
	SPE-RJ45 adapter	<b>39IN056741</b>	Optional, it is required to allow Cube configuration in Field in case the default configuration should be modified.  See next chapter.

Non essendo disponibile per Cube un range di 100mm/s, si opta per una configurazione di 50mm/s (settaggio massimo gestibile da Cube) con setting di soglia impostato a 35mms/s che dovrebbe essere adeguato a sostituire il T1-45/3.

## 5 HOW TO CONFIGURE CUBE IN FIELD

In all the installations where Cube is connected to Ethernet SPE switch or SPE-RJ45 adapter, it is always possible to connect a Laptop to the ethernet port and configure Cube via Cube Manager Software, which is available free of charge.

The diagram below describes this situation; this is the safest, fastest and simplest way to configure Cube in field.



For any additional information, see the manual of CUBE.