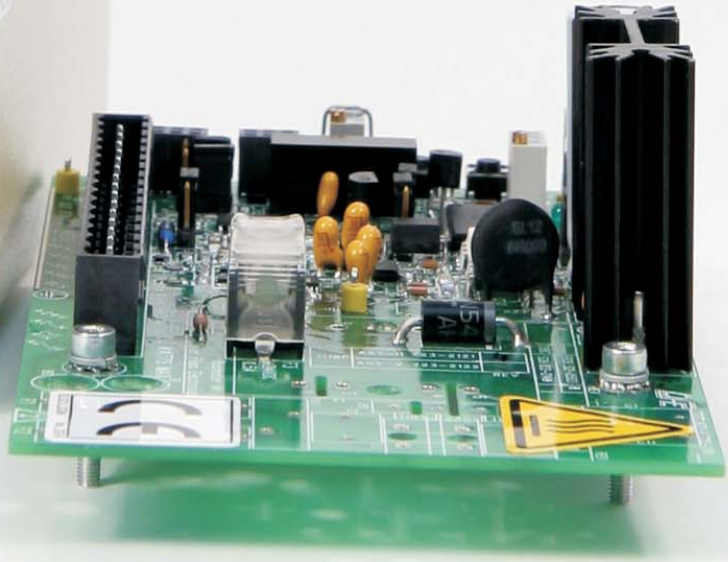
DOVER FLEXO ELECTRONICS, INC.
ISO 9001 CERTIFIED

# TRUETENSION™
# TENSION INDICATOR
## Models Ti17C and Ti18C
### with Quik-Cal™


Model Ti17CV
in Vertical Mounting Bracket


Model Ti18CV-COV
in Vertical Mounting Bracket with Cover



Model Ti18CH
Horizontal Card

5 YEAR WARRANTY

# TrueTension™ INDICATOR
## Models Ti17C and Ti18C

The **TrueTension**™ Ti17C indicator with Quik-Cal™ push-button zero and calibration is a versatile single-channel tension transducer interface (amplifier) for monitoring tension in any zone on web or filament processing machinery.

The Ti17C indicator powers a tension transducer (or pair of shaft-end mounted transducers) installed in the web path, then adapts the transducer's output signal to provide an isolated 0 to 10Vdc (or optional 4 to 20 mA) signal proportional to tension for a drive, controller or PLC.

The base unit for the Ti17C is a 3.2" x 5.5" (8.2cm x 14cm) circuit card with no enclosure. This is available in a horizontal mounting (H) configuration including mounting hardware. The vertical (V) configuration includes the card in a semi-enclosed mounting bracket available with or without a DIN-rail clip. An optional cover is available for the V configuration to provide a complete enclosure.

CE-marking, integrated electrical isolation, package options, ease-of-installation, ease-of-use, and low cost make the Ti17C indicator a natural choice for the OEM or end user seeking value in web tension monitoring or control applications.

The only difference between the Ti17C and the Ti18C indicators is their power input requirements. The Ti17C operates on 115Vac 60Hz (230Vac 50Hz optional) and the Ti18C operates on 24Vdc, power supplied separately.

The Ti17C is CE-marked in its vertical (V) configuration with cover. The Ti18C is CE-marked in all configurations. These units have been thoroughly tested and meet European low voltage and EMC (CE mark) directives.

## BENEFITS

- **Ti17C/Ti18C improves machine operation and productivity** by making it easier to run proper tension, gain a higher level of process control and reductions of waste, web breaks, and other web problems.
- **Ti17C/Ti18C is a low-cost amplifier** for a transducer-based tension measurement or control system.
- **Unparalleled Output Stability**. Drift-free performance even over wide temperature swings make the Ti17C and Ti18C the most stable transducer interfaces on the market.
- **Safe and reliable performance**. Integrated Isolation and Circuit stabilization–including built-in noise and surge protection, short-circuit protection, and active current-limiting on the transducer excitation signal.
- **Backwards compatible**. Packaging matches dimensional footprint of previous Ti17B and Ti18B Tension Indicator designs. This allows direct, easy replacement if necessary. Has compatible electrical connector and pinout with Ti17B / Ti18B.

## FEATURES

- **120/240 Vac 50/60 Hz power input** (Ti17C) or **24 Vdc** (Ti18C).
- **0 to 10 Vdc isolated output** proportional to tension. Integrated isolation from chassis and transducer ground.
- **0 to 1mA signal output** for a tension meter.
- **CE-marked**. Robust design with high-precision components for noise and surge protection in the most demanding industrial environments. The Ti17C in its full enclosure, and the Ti18C in all configurations, conform to the stringent EN 61010-1:2001 Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use. Some competitors to DFE offer electronics that conform to less stringent CE safety requirements.
- **Quik-Cal**™ push-button zero and calibration eliminates pot adjustments to make calibrating simple and fast.
- **Meter Damping Adjustment**. Minimizes meter fluctuation (Used with optional tension meter).
- **50:1 calibration range**.
- **Dual Calibration**. Allows settings for two transducer calibration ranges.
- **Auto Zero on power up** (jumper selectable).
- **10% Calibration Weight Ratio**. A 15 lb. calibration weight allows full meter-scale output at 150 lbs. tension
- **UL-Listed**. The Ti17C and Ti18C are UL/cUL Listed in the V version with the Cover (COV) option.

## OPTIONS

- **0-100 Microamp Output (100M).** Used to drive a 0-100 microamp tension meter. Jumper selectable.
- **25% Calibration Weight (25CW).** Used when 25% of full scale calibration weight is desired instead of the standard 10% calibration weight. Jumper selectable.
- **230 Volt Input (230).** 230Volt 50/60 Hz Ac power input. Ti17C only.
- **4 to 20mA Output (I420).** 4 to 20 mA output instead of 0-10V output on output terminals. Isolated from chassis and transducer ground. Jumper selectable.
- **Auto Zero (AZ)**. Unit will auto zero the output on each power up. Jumper selected on or off.
- **DIN Rail Clip (DRC)**. To be used with 35mm DIN rail. V version only.
- **Cover (COV).** Cover restricts access to board and provides complete enclosure. V version only. Required for Ti17C CE mark and Ti17C and Ti18C UL Listing.
- **Extended Range (XRE).** Extends the tension sensing range of XR equipped transducers to effectively increase the transducer sensitivity for very low web tensions. Transducers must have the XR option. Jumper selectable.
- **Tension Limit Switch (TLS).** An open collector output (max. current of 250mA) actuates at a pre-set adjustable tension trip point. Can be used as a web break detector.

## SPECIFICATIONS:

**Power Input:**

Ti17C:

Voltage:120/240 Vac ±10%, 50/60 Hz

Typical Current:

120 Vac, 50/60 Hz = 0.102/0.047 Amp AC

240 Vac, 50/60 Hz = 0.053/0.025 Amp AC

Maximum Current:

120/230 Vac = 0.160/0.080 Amp AC

Ti18C:

Voltage: 24 Vdc ±10%. Current: 0.058 Amp DC

Typical Current: 0.058 Amp DC

Maximum Current: 0.50 Amp DC

**Tension Output:**

0 to 10 Vdc @ 5 mA, OR 4 to 20 mA (optional), jumper selectable, isolated

0 to 1mA damped, for optional tension meter, isolated

**Output Response Time:**

~ 4 milliseconds (4.13ms)

**Transducer Voltage Supply:**

5 Vdc regulated (10Vdc for XRE), jumper selectable

**Transducer Input Signal:**

500 mVdc at rated load (1.00 Vdc for XRE)

**Zero Range:** Minium 95% of transducer rating

**Calibration Range:** Minimum 50:1

**Ambient Temperature Range:**

32° F to 104° F (0° C to 40° C)

**Weight:**

0.5 lbs to 2.0 lbs (0.23 kg to 0.91 kg) depending on configuration

**Optional Tension Meter**

Analog, 1 mA, 3.5" (DFE P/N 722-1385) or meter in enclosure if CE mark is needed (DFE P/N 723-2682)

**Standard Scales for Optional Remote Tension Meter:**

0 to 1, 5, 10, 25, 50, 100, 150, 250, 500, 1000

## ACCESSORIES

- **Tension Meter**. Analog, 1 mA, Must be installed by user. DFE Part# 722-1385. This meter also available in its own enclosure if CE mark is needed (DFE Part # 723-2682) and requires a separate cable (DFE Part # 721-0967). Standard scales are listed above. Any other meter scale can be made for an additional charge.

## ORDERING INFORMATION

You may order the Ti17C or the Ti18C by description or by specifying the code below by matching each labeled digit with your choice.

***Examples:*** **Ti17CV - DRC, Ti18CH - I420**

**Ti17C or Ti18C** **X** **-** **OPTIONS (Separated by commas)**

Mounting Style

H = Horizontal Card only

V = Vertical Card in semi-enclosure mounting bracket.

100M = 100 Microamp [5]

230 = 230Vac Input [1]

25CW = 25% Calibration Weight [5]

AZ = Auto Zero [5]

COV = Cover [2, 4]

DRC = Din Rail Clip [2]

I420 = Isolated 4 to 20mA Output [5]

TLS = Tension Limit Switch

XRE = Extended Range [3, 5]

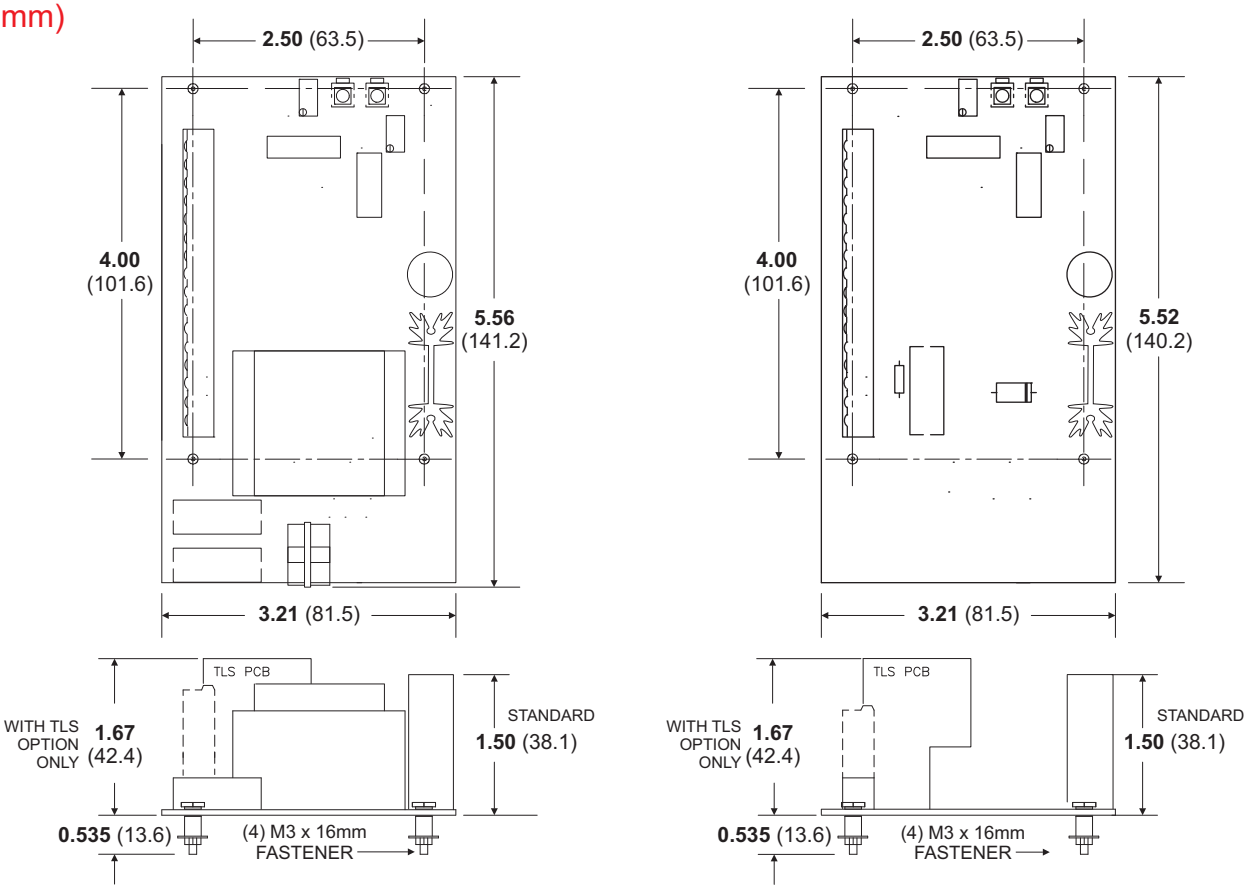
Z = Special (SPR)

**NOTES:**

1. Ti17C only.
2. V version only.
3. XRE option requires that transducers have XR option.
4. Ti17C is CE marked and UL/cUL Listed only in V version with cover.
5. Selected by jumper.

## DIMENSIONS
**inches** (mm)

## HORIZONTAL MOUNTING

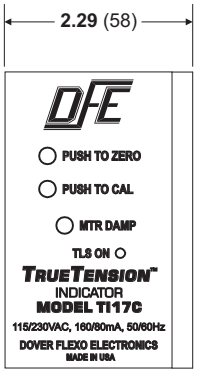



**TI17C H CONFIGURATION**

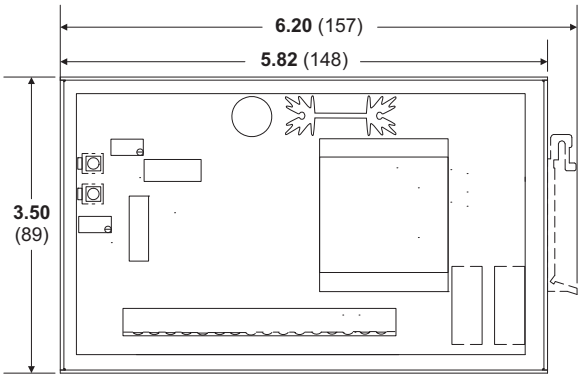
**TI18C H CONFIGURATION**

## VERTICAL MOUNTING

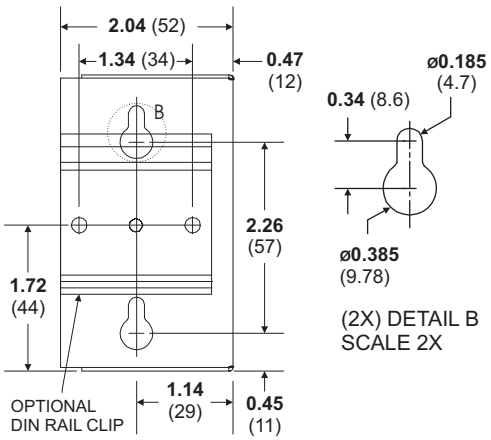
**FRONT WITH COVER ***




**SIDE WITH DIN RAIL CLIP**




**BACK WITHOUT COVER**




TI17C and TI18C V VERSIONS (dimensions are the same for both)

* The TI17C is CE marked in its vertical configuration with cover.

The TI18C is CE marked in all configurations.

The TI17C and TI18C are **UL/cUL LISTED** in their vertical configuration with cover.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