# TEXMATE

# DI-602AE & DI-602AT5C

**TIGER FAMILY**

CE

c **UL** us
LISTED
E469078

## Programmable Meter Controllers
## Tiger 320 Series PMCs
## Two 6 Digit 0.39"
## Alphanumeric LED Displays
## in a 1/8 DIN Case

**A powerful, intelligent, 16-digit Programmable Meter Controller (PMC) with modular outputs, input signal conditioning and advanced software features for monitoring, measurement, control and communication applications.**

## General Features

- The Tiger 320 Operating System supports an easy to use PC based Configuration Utility Program (which can be downloaded FREE from the Texmate website) and programming from front panel buttons.

- The T Version supports custom macro programs that can be easily produced with the Tiger 320 Macro Development System (available FREE on the Texmate website). The Development System enables programs to be written in BASIC, which can utilize any combination of the hundreds of functions and thousands of registers embedded in the Tiger 320 Operating System.

- Red, green, or red/green 14-segment, 0.39" high LEDs with full support for 14-segment alphanumeric text.

- Brightness control of LED display from front panel buttons.

- Modular construction with more than 120 interchangeable input signal conditioners and more than 25 interchangeable I/O modules.

- Up to 4 input channels with cross channel math for multi-channel processing.

- For applications where sensor excitation is required, modules are provided with 5V, 10V or 24 V DC voltage outputs.

- On demand tare, calibration and compensation can be initiated by the front panel program button.

- Autozero maintenance for super stable zero reading is provided for use in weighing applications.

- Programmable input averaging and smart digital filtering for quick response to input signal changes.

- Display text editing. Customize display text for OEM applications.

- Scrolling display text messaging on T meters with macros.

- Auto-sensing high voltage or optional low voltage AC / DC power supply.

- Serial output options include RS-232, RS-485, ModBus, Ethernet, or direct meter-to-meter communications.

- Single or dual 16-bit Isolated Analog Outputs. Programmable 0~4 to 20mA or 0 to 10V for retransmission, 4-20mA loops to drive valve actuators, remote controllers & displays, multi-loop feedback and PID output. Scalable from 1 count to full scale.

- Dual independent totalizers to integrate input signals.

- 6 super smart, independently programmable setpoints with 8 selectable functions, including latching, deviation, hysteresis, register resetting, tracking and dual PID. Plus 7 programmable timer modes on all 6 setpoints.

- Setpoint tracking, setpoint latching and manual relay reset.

- Setpoints activated from any input, any register in the meter or from any digital input.

- Plug-in I/O modules include electromechanical or solid state relays, logic outputs or open collector outputs. 6 inputs & 16 outputs of opto-isolated I/O can be connected to an external DIN Rail terminal block module.

- Internal program safety lockout switch to prevent tampering.

- Peak & valley (max & min) with front panel recall and reset.

- Real time clock with 15 year Lithium battery backup.

- Data logging with SD Card with date/time stamp.

- Optional NEMA-4 front cover.

- UL Listed

## Input Module Compatibility

☑ **TIGER FAMILY**: More than 120 different Plug-in I-Series Input Signal Conditioners are approved for the Tiger Family of meters.

# Display

**Digital Display:** 14-segment alphanumeric, 0.39" (10 mm) LEDs.

**Display Color:** Red (std) and/or Green (optional).

**Digital Display Range:** -199999 to 999999

**Update Rate:** 3 to 10 times per second

**Display Dimming:** 8 brightness levels. Front Panel selectable

**Scrolling Display Text Messaging:** Full alphanumeric text characters supported on T Version with macros.

**Polarity:** Assumed positive. Displays - negative

**Decimal Point:** Front panel, user selectable to five positions.

**Annunciators:** 6 red LEDs on front panel; one per setpoint.

**Overrange Indication:** `OVER`
**Underrange Indication:** `UNDER`

**Front Panel Controls:** PROGRAM, UP and DOWN (F1 and F2 available on T version only).

# Operating System (Tiger 320)

**Processor:** 32 bit with floating point maths (18.4 MHz).

**Flash Memory:** 64k, 4k for use by custom macros.

**RAM:** 1.25k and FeRAM 4k.

**EEPROM:** E Version 4k standard, T Version 32k standard. Memory upgrades available to 32k for LIN Tables and 1MB for Data Logging and custom macros.

**Registers:** 6144 registers comprised of 8, 16 or 32 bit signed, unsigned or floating point registers, implemented in a combination of RAM, FeRAM, Flash and EEPROM.

**Internal communication BUS:** 32 bit $I^2C$ BUS

**Real Time Clock (option):** Year:Month:Date:Hour:Minute:Second with 15 yr Lithium battery backup.

**Configuration:** Supports Front Panel Programming Codes and a PC-based Configuration Utility Program, which may be downloaded free from our website. T Version also supports custom macros.

# Development System for Custom Macros

The Tiger 320 Macro Development System, which may be downloaded free from our website, can be used to create powerful macro software that allows Tiger 320 T Versions to be easily customized to suit any proprietary OEM application.

# Installed Application Software Includes

**Counter Functions:** Two built-in counters. UP counters, DOWN counters, UP/DOWN counters and high speed quadrature counters.

**Data Logging:** Logging with a date/time stamp, initiated at timed intervals, by activation of a setpoint, or manually. Data stored in internal 1MB EEPROM or in a removable 4 to 128M Flash Card Memory Module. Endless loop recording is supported.

**Input Compensation:** Provides compensation to the primary input channel (CH1) via channels 2, 3 or 4.

**Linearization:** 4 selectable 32 point or one 125 point flexible linearization tables are provided.

**Logic I/O:** 28 Macro programmable I/O ports supported.

**Manual Loader:** Front panel adjustable, 4 to 20mA or 0 to 10V isolated analog output.

**Math Functions:** Cross channel math functions to calculate the sum, difference, ratio or the product of two inputs.

**On Demand Functions:** Tare, compensation and calibration.

**Peak and Valley:** The meter can retain peak and valley (min/max) information and recall this on the front panel.

**Remote Setpoint Input:** Remote setpoint input via channel 2.

**Serial Output Protocols:** Selectable communication modes include ASCII, Modbus (RTU), Master Mode (for meter to meter communication) and an Epson compatible printer driver. An Ethernet optional output carrier board is also supported.

**Setpoint Functions:** Six super smart setpoints with fully configurable hysteresis, on and off delays, one shot, pulse and repeat timers, latching, dual PID, setpoint tracking, resetting of registers, initiating of logging and printing.

**Signal Conditioning Functions:** Averaging, smart filter, rounding, square root,auto zero maintenance.

**Timer:** Timer functions supported in either time-up, time-down, or real-time clock modes.

**Totalizer:** Two totalizers for running total and batch totals of a process signal that can be accumulated over time.

# Inputs

**Inputs Available:** More than 120 single, dual, triple and quad input signal conditioners available covering all types of analog, digital and mixed input signals.

**Accuracy:** Tiger 320 PMCs enable the user to establish any degree of system accuracy required. Built-in compensation and linearization functions enable system accuracies of the order of ±0.0001% of reading for analog inputs. Stop -Start time resolution from ±1sec to ±0.7nsec. Digital input and pulse counts ±1 count.

**A/D Convertors:** A Dual Slope, bipolar 17 bit A/D is provided as standard on the main board. SMART modules can have 24 bit or 16 bit Delta-Sigma A/D convertors that utilize the internal $I^2C$ BUS.

**Temperature Coefficient:** Typically 30ppm/˚C. Compensation can be utilized to achieve system temperature coefficients of 1ppm.

**Warm Up Time:** Up to 10 minutes, depending on input module.

**Conversion Rate:** Typically 10 samples per second. However, SMART input modules are available that can convert at 60, 240, 480 or 960 samples per second.

**Control Output Rate:** Can be selected for 100msec or 10msec. Some SMART modules have SSR outputs that react within 1.2msec.

**Excitation Voltage:** Depends on input module selected. Typically, 5V, 10V or 24VDC is provided.

# Outputs

**Two Optional Plug-in Carrier Boards:** Provide three different serial outputs or no serial output, support single or dual analog outputs, and accept any one of seven different plug-in I/O modules.

**1. Standard Carrier Board:** Is available without a serial output, or with either an isolated RS-232 or an isolated RS-485 (RJ-6 socket).

**2. Ethernet Carrier Board:** 10/100Base-T Ethernet (RJ-45 socket).

**Two Isolated Analog Output Options:** Mounted on any carrier board.

**1. Single Analog Output:** Fully scalable from 4 to 20mA or 0 to 20mA (or reverse) and selectable for 0 to 10VDC (or reverse).

**2. Dual Analog Output:** Fully scalable from 4 to 20mA or 0 to 20mA (or reverse) and selectable for 0 to 10VDC (or reverse).

# Outputs continued

**Analog Output Specifications:** Accuracy: 0.02% FS. Resolution: 16-bit Delta-Sigma D/A provides 0.4µA on current scaling, 250µV on voltage scaling. Compliance: 500Ω maximum for current output. 500Ω minimum for voltage output. Update Rate: Typical 7 per second. Step Response: Typical 6msec to a display change. Scalable: From 1 count to full scale.

**Seven I/O Modules:** Plug into any carrier board from rear.

**1. Four Relay Module:** Available in six combinations from one relay up to a total of two 9/10A Form C Relays* and two 4/5A Form A Relays**.

**2. Four Relay Module:** Available with one to four 5A Form A Relays**.

**3. Six Relay Module:** Available with five or six 4A Form A Relays**.

    ***Form C Relay Specifications:** 9/10A 240VAC~1/2 HP, 8A 24VDC. Isolation 3000V. UL and CSA listed.

    ****Form A Relay Specifications:** 4/5A 240VAC, 4A 24VDC. Isolation 3000V. UL and CSA listed.

**4. Four Solid State Relay (SSR) Module:** Available with one to four independent (210mA DC only) SSRs (300V max).

**5. Six Output 5VDC / TTL or Open Collector:** Available with 0 to 5VDC (50 mA) or 0 to V+ (50VDC max, 100 mA).

**6. Opto Isolated I/O Module:** Available in either 6 Outputs & 6 Inputs, or 16 Outputs and 6 Inputs. For connection to an external breakout box.

**7. Flash Card Memory Module:** Available with SD Card.

**Power Supplies**

Auto sensing AC/DC (DC to 400Hz) hi volts std, low volts optional.

**PS1 (standard):** 85-265VAC / 95-300VDC @ 2W nominal.

**PS2 (optional):** 14-48VAC / 10-72 VDC @ 2W nominal.

**Environmental** (See Rear page for IP-65 & NEMA-4 options)

**Operating Temperature:** 0 to 50 ˚C (32 ˚F to 122 ˚F).

**Storage Temperature:** -20 ˚C to 70 ˚C (-4 ˚F to 158 ˚F).

**Relative Humidity:** 95% (non-condensing) at 40 ˚C (104 ˚F).

**Mechanical** (See Rear page for more details)

**Case Dimensions:** 1/8 DIN, 96x48mm (3.78" x 1.89")

**Case Material:** 94V-0 UL rated self-extinguishing polycarbonate.

**Weight:** 11.5 oz (0.79 lbs), 14 oz (0.96 lbs) when packed.

**Approvals**

**CE:** As per EN-61000-3/4/6 and EN-61010-1.

**UL:** E469078