71M6403

Electronic Trip Unit

The Teridian 71M6403 is an electronic trip unit (ETU) system-on-chip device for air circuit breakers (ACB), molded case circuit breakers (MCCB) and other types of intelligent switchgear. Utilizing Teridian's patented Single Converter Technology™, the 71M6403 incorporates a 22-bit delta-sigma ADC, 7 current sensor inputs, digital temperature compensation, precision voltage reference, 32-bit programmable computation engine, timers, Real Time Clock (RTC), two UARTs and an single cycle execution 8-bit MCU.

Armed with an internal digital di/dt integrator, this programmable device supports either current transformer (CT) or Rogowski-Coils for any or all input channels and provides instantaneous and delayed over current, earth-leakage, ground-fault and arc fault protection functions. Furthermore, the device may be configured to support any number of conventional or custom protection algorithms that fit specific load configurations in the field.

The 71M6403 includes a 5V LCD charge pump as well as 3V LCD support with up to 168 pixels display and up to 22 DIO pins. Easy conversion to ROM offers unprecedented cost structure for high volume MCCB applications.

A complete suite of in-circuit emulator (ICE) and development tools, a powerful real-time signal monitoring tool, programming libraries and reference designs enable rapid development of advanced switchgear.

Applications

- *Electronic Trip Unit (ETU) modules*
- *Protection Relays*
- *Air Circuit Breakers (ACB)*
- *Molded Case Circuit Breakers (MCCB)*
- *Insulated Case Circuit Breakers (ICCB)*
- *Low Voltage Switchgear*
- *Motor Circuit Protection*

Features

- 22-bit Sigma-delta converter
- Six main sensor inputs
- One auxiliary input
- Supports CT or Rogowski Coils
- Internal di/dt integrators
- <5ms startup time
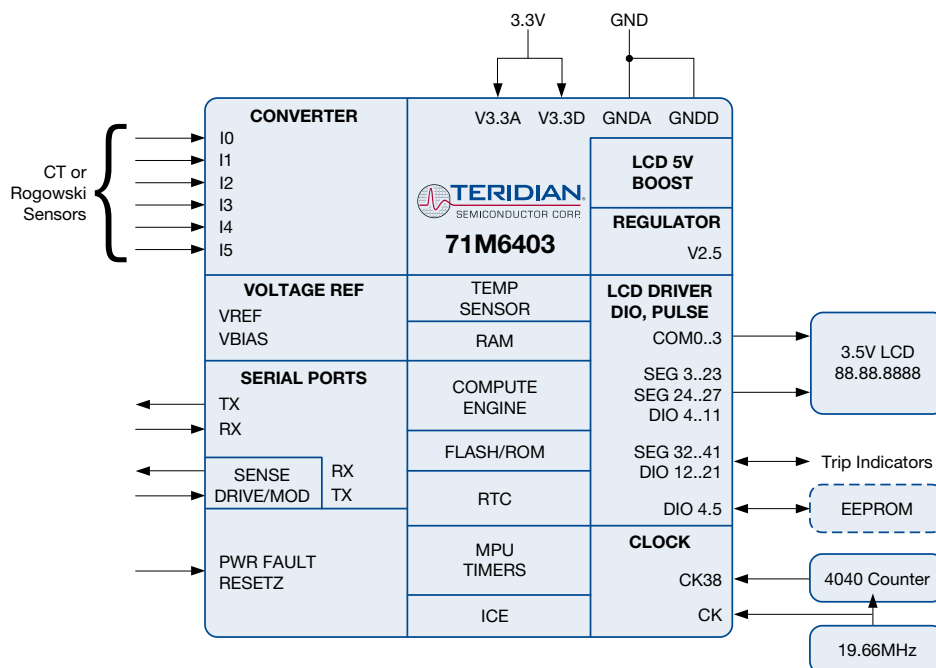- Better than 10ppm/°C accuracy
- Instantaneous and delay trip

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- Peak & RMS current measurement
- Calculated or measured GND current
- Power measurement functions option
- Internal temperature sensor
- Digital temperature compensation
- Independent 32-bit compute engine
- Two UART ports
- Two timers
- Hardware watchdog
- Internal power fault detector
- Real Time Clock (RTC)
- Battery backup (RTC, RAM)
- 8-bit MPU (80515) - 1 clock cycle per instruction (5Mhz max.)
- LCD driver (≤168 pixels)
- 5V LCD charge pump
- Up to 22 general purpose I/O pins
- High speed serial interface (SSI)
- I2C EEPROM interface
- 64KB Flash, 7KB RAM
- Flash memory security
- 30mW @ 3.3V
- 100-lead LQFP package

71M6403 Block Diagram

Ordering Information

PART DESCRIPTION	ORDERING NUMBER	PACKAGE MARKING
71M6403 Electronic Trip Unit, 100-pin LQFP	**71M6403-IGT**	**71M6403-IGT**
71M6403 Electronic Trip Unit, 100-pin LQFP, Lead Free	**71M6403-IGT/F**	**71M6403-IGTF**