



January 2011

Subject: GE EntelliGuard TU compared to MicroVersaTrip+, MicroVersaTrip M/PM

In August 2008, the innovative EntelliGuard TU Trip Unit (GTU) was launched enabling Arc Flash mitigation without sacrificing selectivity. In addition to the powerful algorithms and hardware, the GTU has many new features as outlined below. The GTU is designed to be Plug and Play with the MVT and Power+ Trip Unit on a feature for feature basis with supporting wire harnesses if new options are desired. Since Jan 2009, The GTU has been the standard offering on Power Break II, AK/AKR, WavePro, EntelliGuard G, and Conversion Kits.

GTU Arc Flash Mitigation Capabilities

- **Waveform Recognition Instantaneous:** Instantaneous trip is based on the amount of energy and duration versus a threshold current setting (MVT). Improves coordination with current limiting devices and reduces nuisance trips by discerning whether a downstream breaker/fuse is clearing the fault. Ability to set the Instantaneous pickup below the peak let thru of a downstream current limiting device.
- **Zone Selective Interlocking – Instantaneous:** Builds on the Short Time and Ground fault interlocking by now providing the ability to overlap the Instantaneous on the Main and Feeder breakers.
- **RELT – Reduced Energy Let Through:** Two independent instantaneous settings selectable via an external switch or Modbus communications with positive indication via an output contact. Commonly referred to in the industry as an “Arc Flash Switch” or “Maintenance Switch”.
- **Flexible Time Current Curves:** 44 Long Time Shapes (I^2T and I^4T (fuse)), 3 Short Time I^2T slopes, Short Time adjustable in 55 msec increments, a Selective Ground Fault curve.

GTU User Interface, Communications, Advance features

- **Large Backlit LCD:** All three currents on one screen. Menus in plain English or many other languages. Lit 24x7 when 24VDC Power is available.
- **Status LED:** Indicates whether breaker is “Normal”, “Pick-up”, “Tripped”, “Error”.
- **10 Event Log with Date/Time Stamp:** Stores the last 10 events. Date/Time with 24VDC Power.
- **Full Metering and Relaying:** Same Metering and Relaying values as MVT.
- **WaveForm Capture:** 48 Samples/Cycle, 4 cycles prior and 4 cycles post event in COMTrade format.
- **Free Set-up Software:** Enables Trip Unit set-up offline and then loaded to each trip unit via the front of the unit or over Modbus network. Ability to have a record of all settings and compare settings overtime. Also has a Waveform Viewer and Harmonic analysis tool.
- **Thermal Memory:** Simulates cable temperature over time versus resetting to zero after a trip event.
- **I/O:** Programmable Inputs and Outputs: Example: Trip Breaker, Current Alarms, **Ground Fault Alarm**, RELT Status, Health Status, Breaker open/close.
- **Open Communication Protocols:** Modbus 485 RTU and Profibus (EntelliGuard G Breaker Only).

Replacing MVT or Power+ with EntelliGuard TU

RMS9, MVT, MVT+, Power+:

The GTU is plug and play with the RMS9, MVT, MVT+ and Power+. No rewiring is required feature for feature when upgrading/changing out a trip unit. The Breaker may require a new trip unit door to match the new layout of the GTU vs. the existing trip unit. Wiring harnesses are available when new options are selected that weren't on the existing trip units installations: Example: RELT, ZSI, Communications, etc. For more information, see DET-722B, EntelliGuard TU Conversion/Upgrade Kits.

MVT M, MVT PM, EPIC:

Prior to EntelliGuard TU, GE's trip units communicated via COMNET, a GE Proprietary communication protocol. These trip units were often daisy chained and then wired to either a FPU (Epic), a Modbus Repeater (early MVT's) or a Modbus Concentrator. The EntelliGuard TU is now open Modbus RTU and no longer requires the FPU, Repeaters, or Concentrators. When replacing an older trip unit with GTU, the Communications network and Software will require reconfiguration as well. Contact your local sales office for assistance.

Breaker Types:

- **Power Break I:** Compatible if existing has RMS9, MVT, MVT+, MVT M, MVT PM, EPIC. Order new trip unit, rating plug, RELT Harness (if required). Trip Unit Type: GTU-C with 36 Pin Connector
- **AK/AKR/Conversion Kits:** Full Line available with EntelliGuard TU and recently added most of the Allis Chalmers line. Order GTU, Rating Plug, RELT Harness (if required). Trip Unit Type: GTU-C with 36 Pin Connector.
- **WavePro/Power Break II:** Same as PBI, with the addition of a new Breaker Trip Unit Door. WavePro has options for new secondary disconnect harnesses. Trip Unit Type: GTU-D with 50 Pin Connector
- **EntelliGuard G:** Uses only an advanced GTU with a 90 Pin connector. The GTU on EntelliGuard also offers a Profibus option. EntelliGuard G is a global breaker offered in UL, ANSI, CUL, IEC.
- **Spectra MET (Micro EntelliGuard):** GE's molded case Spectra G & K Frame breakers were upgraded to the EntelliGuard TU platform in Aug 2010. The Breaker has the same foot print as the existing Spectra line with all the added benefits of the EntelliGuard TU (GF Alarm, ZSI-Inst out, Modbus, RELT, etc..)
- **IEC Breakers:** In addition to the ANSI/UL breakers offered, GE also has incorporated the GTU on most of our IEC products, including MPACT, ME07, EntelliGuard G, and will soon be available on Spectronic.

The information provided is an overview of the EntelliGuard TU product offering and is a general guideline for replacing existing trip units; RMS9, MVT, MVT+, EPIC, MVT M/PM with a GTU. There are many scenarios depending on the type and vintage of the installed equipment and the end desired state. Please contact your local field sales or field service office for assistance.

Thank You,

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