



DTP to
T35, T60

Upgrade your DTP,
to the advanced T35 or T60

DTP – DIGITAL TRANSFORMER PROTECTION

The DTP is a digital relay that provides high-speed differential and backup instantaneous differential three-phase protection for power transformers with two, three or four windings.

The UR product portfolio offered by GE Multilin has more options to meet your specific application needs. To take advantage of the latest in technology and the new developments on Power Transformer Protection, consider replacing the DTP with an UR T35 or T60 system.

UR FAMILY

- T35 Cost Effective Transformer Protection System
- T60 Fully Featured Transformer Protection System

KEY BENEFITS

- Enhanced operation during external faults
- Flash memory for product field upgrade
- Multiple breakers and disconnect switches support
- Reduced installation space requirements through compact design - True convergence of protection, metering and control functions, multiple I/O options programmable pushbuttons and status LEDs, and communication interfaces
- Modular construction simplifying and reducing the stock of spare parts
- Advanced programmable logic for building customized schemes
- Embedded IEC61850 Protocol - No external protocol converters required
- Comprehensive metering - current, voltage, power, energy, frequency, phasors
- Front panel display and keypad for local direct access, with a RS232 port for local PC access
- Customize protection and control functions with Programmable logic (FlexLogic™), custom time-current curves (FlexCurves™), and custom built protection and control functions (FlexElements™)
- Multi-language support - French, Chinese, Russian option
- Networking options - Ethernet copper or fiber (optional redundancy), RS485
- Pilot channel options - Direct fiber for up to 150 km, RS422, G.703, direct to multiplexer fiber C37.94
- Multiple protocols - IEC61850, DNP 3.0 Level 2, DNP TCP/IP, Modbus RTU, Modbus TCP/IP, IEC 60870-5-104, HTTP, TFTP, SNT, EGD
- Reduced relay to relay wiring and associated installation costs through high-speed inter-relay communications
- Dependable - Globally accepted, with performance backed up by more than a decade of field experience
- Reduce copper wiring and labor cost of electrical substations through the IEC61850 Process Bus solution "HARFIBER"



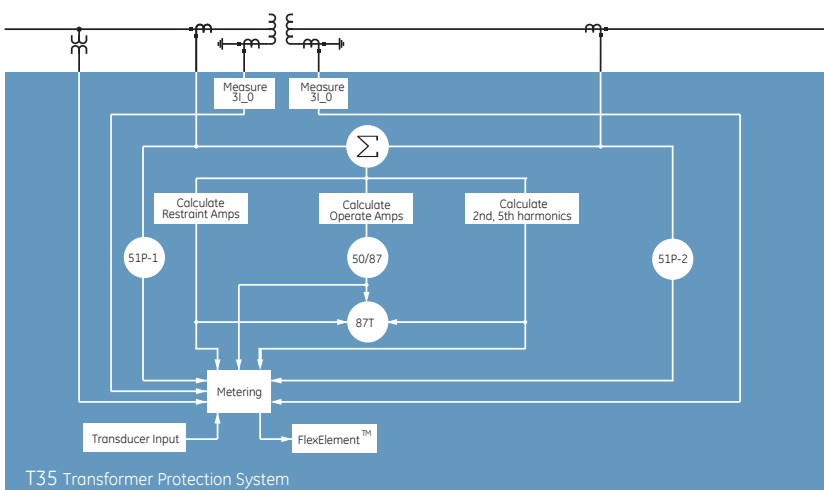
T35 Cost Effective Transformer Protection System

- Secure high-speed transformer differential protection with advanced features in a cost-effective package
- Improved security for transformer energization and inrush provided through a superior Adaptive 2nd Harmonic Restraint algorithm
- Application flexibility for transformers with up to 6 sets of CTs, with independent magnitude/phase angle compensation and grounding settings
- Robust network security enabling Critical Infrastructure Protection through user command logging, and dual permission access control
- Combined protection for transformer and small bus zone, including breaker-and-a-half and ring bus diameters
- Stand-alone or component in automated substation control system
- Complete IEC 61850 Process Bus solution providing resource optimization and minimizing total P&C life cycle costs
- Advanced fault and disturbance recording, including internal relay operating signals thus eliminating the need for redundant recording devices
- Ambient temperature monitoring with alarming when outside temperature exceeds upper thresholds
- Primary and backup protection of power transformers autotransformer, reactors, split-phase and angle regulating transformer
- Event Recorder - 1024 time tagged events with 0.5ms scan of digital inputs
- Oscillography - analog and digital parameters at 64 samples/cycle
- Data Logger - 16 channels with sampling rate up to 1 sample / cycle
- Setting Security Audit Trail for tracking changes to T35 configuration

T35 Enhanced Front Panel



Functional Block Diagram



ANSI Device Numbers & Functions

Device Number	Function
50/87	Instantaneous Differential Overcurrent
51G	Ground Time Overcurrent
51P	Phase Time Overcurrent
87T	Transformer Differential



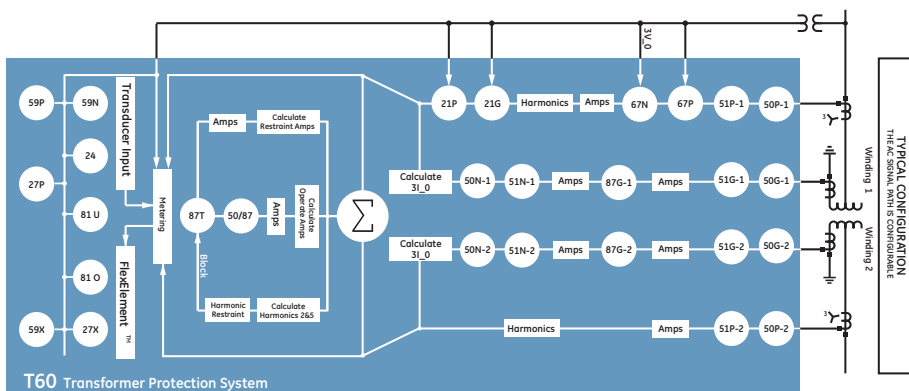
T60 Full Featured Transformer Protection System

- Secure high-speed protection for transformers, compliant with IEEE C37.91
- Complete IEC 61850 Process Bus solution providing resource optimization and minimizing total P&C life cycle costs
- Improved security for transformer energization and inrush provided through a superior Adaptive 2nd Harmonic Restraint algorithm
- Ambient temperature monitoring with alarming when outside temperature exceeds upper thresholds
- Integrated transformer thermal monitoring for asset management maintenance optimization
- Transformer asset monitoring using Hottest Spot, Loss-of-Life and Aging Factor
- Applicable for transformers with windings in a ring bus or breaker-and-a-half configuration
- Sensitive ground fault protection provides low impedance differential protection down to 5% of the winding to limit transformer damage
- Robust network security enabling Critical Infrastructure Protection through user command logging, and dual permission access control
- Advanced fault and disturbance recording, including internal relay operating signals thus eliminating the need for redundant recording devices
- Event Recorder - 1024 time tagged events with 0.5ms scan of digital inputs
- Oscillography – analog and digital parameters at 64 samples/cycle
- Data Logger - 16 channels with sampling rate up to 1 sample / cycle
- Setting Security Audit Trail for tracking changes to T60 configuration

T60 Enhanced Front Panel



Functional Block Diagram



ANSI Device Numbers & Functions

Device Number	Function
21P	Phase Distance
21G	Ground Distance
24	Volts Per Hertz
27	Phase Undervoltage
27X	Auxiliary Undervoltage
50G	Ground Instantaneous Overcurrent
50N	Neutral Instantaneous Overcurrent
50P	Phase Instantaneous Overcurrent
50/87	Instantaneous Differential Overcurrent
51G	Ground Time Overcurrent
51N	Neutral Time Overcurrent
51P	Phase Time Overcurrent
59N	Neutral Overvoltage
59P	Phase Overvoltage
59C	Auxiliary Overvoltage
67N	Neutral Directional Overcurrent
67P	Phase Directional Overcurrent
81O	Overfrequency
81U	Underfrequency
87G	Restricted Ground Fault
87T	Transformer Differential