

MULTILIN T35



Cost-Effective Differential Protection for Transformers With Up To 6 Sets of CTs

The Multilin™ T35 transformer protection system is a three-phase transformer relay designed to protect power transformers with up to six windings/restraints. The T35 provides for automatic or user-definable magnitude reference winding selection for CT ratio matching.

The T35 performs automatic phase shift compensation for all types of transformer winding connections. The T35 algorithm allows the user to enable the removal of the zero-sequence current even for delta connected transformer windings, accommodating transformers with a variety of grounding configurations.

Key Benefits

- Secure, high-speed protection for transformers, compliant with IEEE® C37.91 for maximum asset life
- Improved security for transformer energization and inrush provided through an 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
- Advanced automation capabilities to enable customized protection & control solutions
- An integrated large, full color display, provides real-time visualization and control of the protected bay, via a bay mimic as well as annunciator functionality and graphical visualization of phasors
- Advanced IEC 61850 Ed. 1 and Ed. 2 certified implementation, complete settings via SCL files and comprehensive process bus support (IEC 61850-9-2LE or IEC 61869 or IEC 61850-9-2 Hardfiber) ensures interoperability, device managing optimization and reduced cost of ownership
- Routable GOOSE (R-GOOSE) enables customer to send GOOSE messages beyond the substation, which enables WAPC and more cost effective communication architectures for wide area applications
- Increased network availability via failover time reduced to zero through IEC® 62439-3 "PRP" support
- Supports IEEE C37.111-1999/2013, IEC 60255-24 Ed 2.0 COMTRADE standard

Applications

- Combined protection for transformers and small bus zone, including breaker-and-a-half and ring bus diameters
- Stand-alone or component in automated substation control systems
- Primary & backup protection of power transformers, autotransformers, reactors, split-phase and angle regulating transformers

Protection & Control

- Percent restrained and unrestrained differential protection
- 2nd Harmonic inrush inhibit, overexcitation inhibit and Inter-turn fault detection
- Transducer I/Os (RTD & dcmA)
- FlexElements & FlexCurves
- Protection and control functionality in one box, reducing the number of devices
- High density inputs/outputs to support the control of many switchyard assets – all from one powerful device
- Integrated large, full color display, for real-time visualization and control of the protected bay

Advanced Communications

- Support industry standard protocols with 3 independent Ethernet ports for simultaneous & dedicated connection with IEEE 1588 support
- Direct I/O for secure, high-speed exchange of data between URs for DTT & pilot-aided schemes
- IEC 61850-9-2LE/IEC 61869 networked or IEC61850-9-2 Hardfiber process bus support

Cyber Security

- CyberSentry™ provides high-end cyber security aligned to industry standards and services (NERC® CIP, AAA, Radius, RBAC, Syslog)

Monitoring & Metering

- Advanced recording capabilities with high capacity event recorder, configurable and extended waveform capture and data logger
- Metering: current, voltage, power, energy, frequency, and harmonics
- Embedded IEEE C57.109 through fault transformer monitoring



GE VERNOVA

Protection and Control

The T35 transformer protection system is a three-phase transformer relay designed to protect power transformers with up to six windings/restraints.

As part of the Universal Relay (UR) Family, the T35 provides cost-effective solutions and superior protection and control.

Multi-CT Configurations

The T35 can be used to protect transformer differential zones with up to 6 three-phase current inputs (six restraints), making it possible to include multiple breakers and small buses in the differential zone.

Percent Differential Protection

The percent differential element is based on a configurable dual-breakpoint/dual-slope differential restraint characteristic with inrush and overexcitation inhibits. The maximum winding current is used as a restraint signal for better through-fault stability under CT saturation conditions.

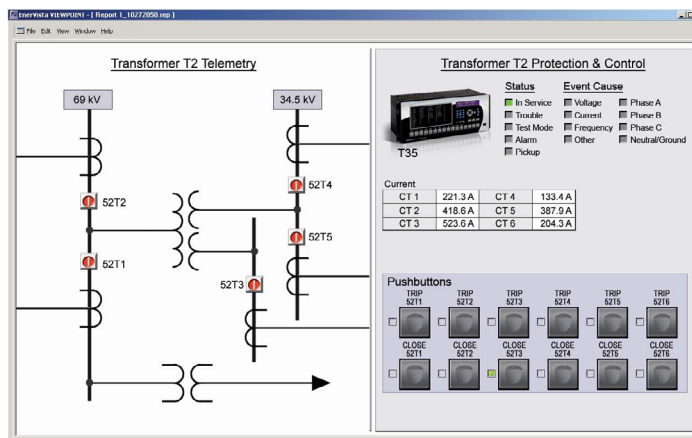
Advanced CT saturation and failure detection algorithms maintain immunity to high current AC and low current DC saturation conditions that may occur due to external disturbances, such as transformer inrush or near generator faults, without sacrificing speed or sensitivity.

Inrush Inhibit

The 2nd harmonic inhibit function is selectable in order to cover the energization of different types of transformers, and can be set to either traditional or adaptive mode.

The adaptive mode maximizes dependability on internal faults and ensures security during inrush conditions even with weak second harmonics. It reduces the sensitivity of magnitude comparison, by biasing

T35 - Protection, Metering, Monitoring and Control



The T35 is the single point for protection, control, metering, and monitoring in one integrated device that can easily be connected directly into DCS or SCADA monitoring and control systems like Viewpoint Monitoring as shown.

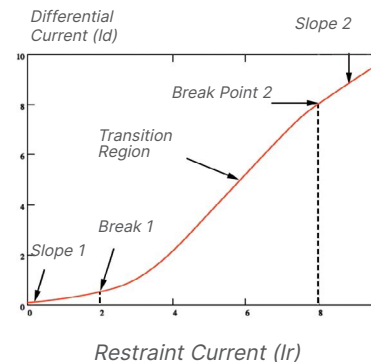
towards security, based on an angular relationship. Dependability is maintained by applying the restraint signal only for a period of time, dependent on the magnitude ratio.

Harmonic/Inrush detection

A separate Harmonic detection element monitors the selected 2nd to 5th harmonic or Total Harmonics Distortion (THD), which is present in the phase currents. The relay provides six identical Harmonic detection elements.

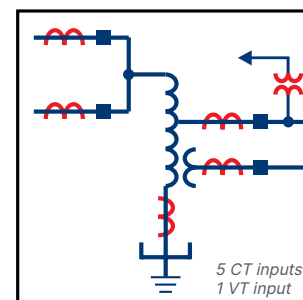
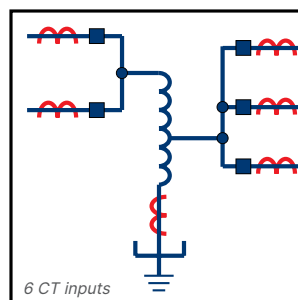
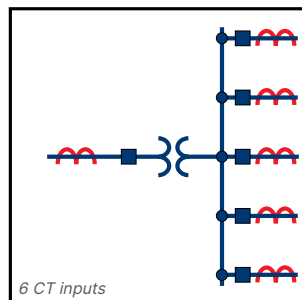
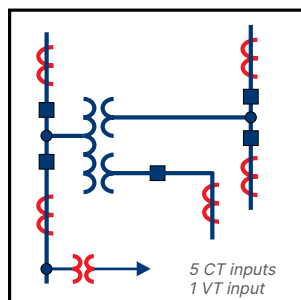
During transformer energization or motor starts, the inrush current present in phase currents can impact some sensitive elements, such as negative sequence overcurrent. Therefore, the ratio of the second harmonic to the fundamental magnitude per phase is monitored, while exceeding the settable pickup level, an operand is asserted, which can be used to block such sensitive elements.

Differential vs. Restraint Characteristic (Id vs. Ir)



The settings for the dual-slope, dual-breakpoint characteristic provides higher flexibility for shaping up the characteristic and achieving better sensitivity and security.

Multi-CT Configurations



Examples of T35 applications for transformers and autotransformers connected to more than two breakers.

Overexcitation Inhibit

An increase in transformer voltage or decrease in system frequency may result in the transformer becoming overexcited. It is often desirable to prevent differential element operation in these cases, therefore, a fifth harmonic inhibit is integrated into the percent differential element to cater to overexcitation conditions resulting from an increased V/Hz ratio.

Unrestrained Differential

An unrestrained differential element is provided for fast tripping on heavy internal faults to limit catastrophic damage to the transformer and minimize risks to the rest of the power system.

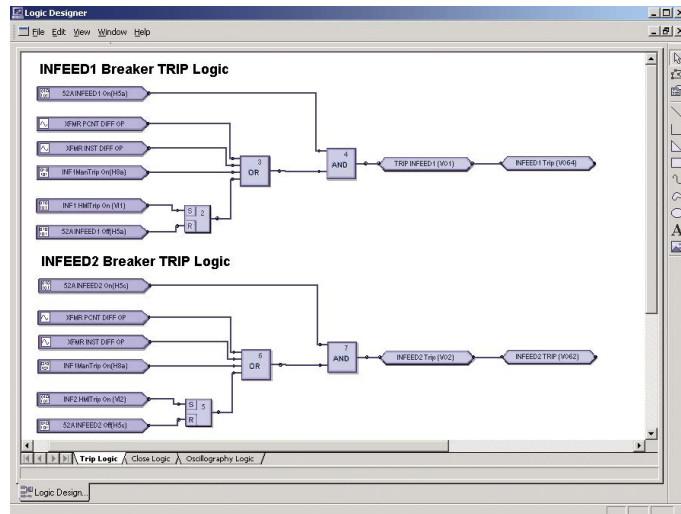
Inter-turn fault detection

This element is a complement to the percent differential function. It detects interturn fault conditions using voltage compensated differential currents. The voltage-based compensation term cancels out steady state differential current of each phase. The resulting compensated differential current is sensitive enough to pick up turn-to-turn faults.

Overcurrent Functions

T35 provides thermal overload, time overcurrent elements for phase, neutral, and ground, which can run in parallel with primary differential protection or can be programmed to provide primary protection

FlexLogic™ Designer



FlexLogic allows for customizing the T35 to operate and control the breakers and other auxiliary devices needed to fit most transformer protection schemes and applications.

under conditions when other protection elements are unavailable.

TGDF

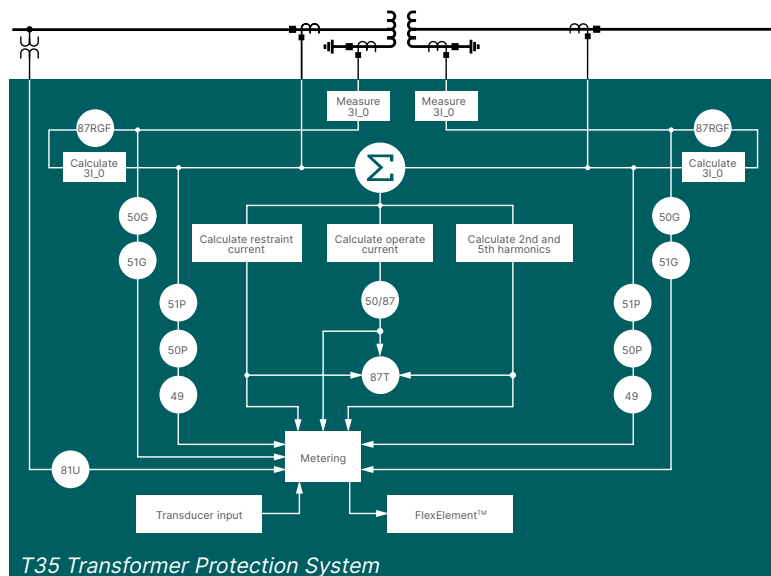
The Transient Ground Fault Detection (TGFD) function, sometimes referred to as Transient Earth Fault Detection (TEFD), is a technique used to detect the direction of a ground fault in three different grounding systems: ungrounded, resistance grounded, and compensated/ resonant ground (i.e. Peterson coil grounded). The advantage of an ungrounded or

compensated ground system is that the most common single phase-to-ground fault does not cause fault current to flow, and therefore the system remains operational, enhancing network reliability.

User-Definable Protection Functions

Sixteen user-definable protection functions (FlexElements) can be programmed to respond to any quantity measured or computed by the relay (phase, ground and sequence currents and voltages, power, frequency, power factor, etc.).

Functional Block Diagram



ANSI® Device Numbers & Functions

DEVICE	FUNCTION
49	Thermal Overload Protection
50/87	Instantaneous Differential Overcurrent
50G	Ground Instantaneous Overcurrent
50P	Phase Instantaneous Overcurrent
51G	Ground Time Overcurrent
51P	Phase Time Overcurrent
81U	Underfrequency
87RGF	Restricted Ground Fault
87T	Transformer Differential
87TF	Inter-turn transformer protection
TGFD	Transient ground fault detection

Applications could include overvoltage, overpower, low power factor, temperature differential, and more.

IEC 61869 and 61850-9-2LE Process Bus

Three UR process bus modules enable communicating to Merging Units "MU" that comply to either IEC 61869 standard or IEC 61850-9-2LE technical report. MUs connect to the primary asset and translate analog signals and digital status/commands to standard sample values "SV" data and GOOSE messages.

Flexibility for connecting to different network size and topology is granted through 100Mbps and/or 1Gbps Ethernet port support, plus IEC 62439 PRP or HSR standard redundancy, plus Star, Ring and Point-to-point network support.

For time synchronization purposes, this Process bus module can become an IEEE 1588 slave clock (61850-9-3 profile) or a 1588 Grand Master clock which removes the need of external time sources connected to the process bus network.

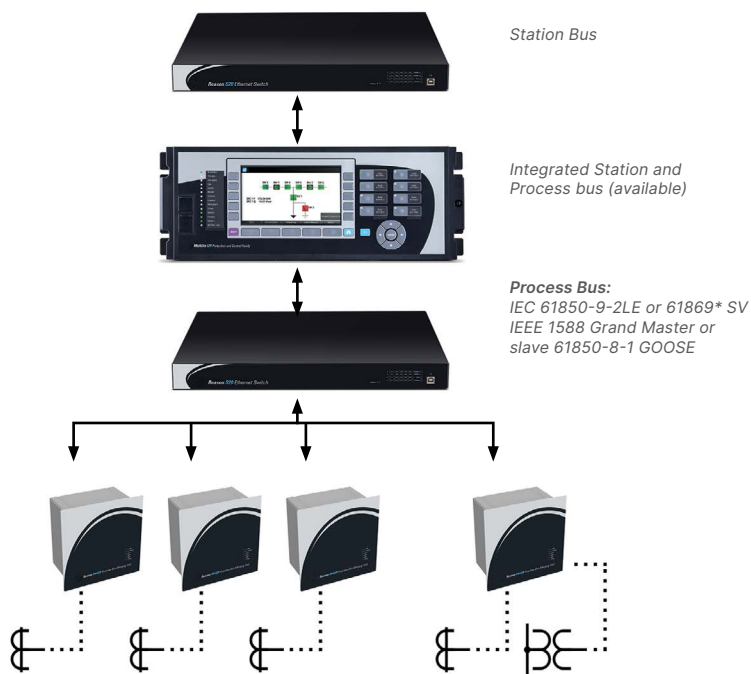
Customers who may not be using GE Vernova MU devices, could use MU from other vendors. Interoperability with MU from other vendors is expected when they comply to the mentioned standards.

Topologies:
PRP Star
Hot-Standby

Topologies:
HSR Ring
PRP Star
P-2-P Process Bus

Merging units

Conventional or Optical CT/VTs



IEC 61850-9-2 HardFiber Process Bus

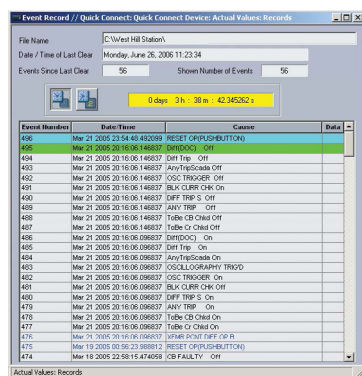
The IEC 61850 Process Bus module is designed to interface with the Multilin HardFiber System, allowing bi-directional IEC 61850 fiber optic communications. The HardFiber System is designed to integrate seamlessly with existing UR applications, including protection functions, FlexLogic, metering and communications.

The Multilin HardFiber System offers the following benefits:

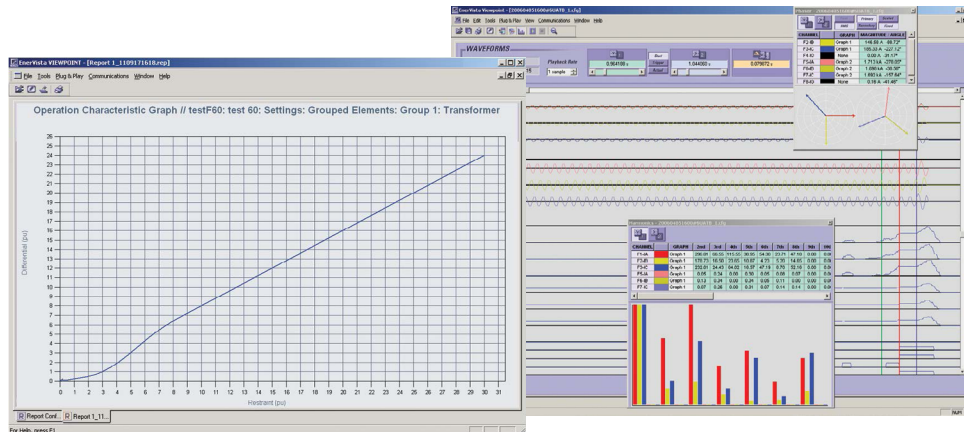
- Communicates using open standard IEC 61850 messaging
- Drastically reduces P&C design, installation and testing labor by eliminating individual copper terminations
- Integrates with existing T35's by replacing traditional CT/VT inputs with the IEC 61850 Process Bus module

Power System Troubleshooting

The T35 contains many tools and reports that simplify and reduce the amount of time required for troubleshooting power system events.



Record the operation of the internal T35 elements and external connected devices with 1ms time-stamped accuracy to identify the Sequence of Operation of station devices during transformer faults and disturbances.



Visualization of differential characteristics allows for setting verification and operation troubleshooting.

Analyze transformer faults using both analog and digital power system quantities that are measured and recorded up to a rate of 64 samples per cycle.

- Does not introduce new cyber security concerns

Visit the HardFiber System product page on the Grid Solution web site for more details

Advanced Automation

The T35 incorporates advanced automation features including powerful FlexLogic programmable logic, communication, and SCADA capabilities that far surpass what is found in the average transformer relay. The T35 integrates seamlessly with other UR relays for complete system protection.

FlexLogic

FlexLogic is the powerful UR-platform programming logic engine that provides the ability to create customized protection and control schemes, minimizing the need and associated costs of, auxiliary components and wiring. With 1024 lines of FlexLogic, the T35 can be programmed to provide the required tripping logic along with custom scheme logic for transformer breaker control (including interlocking with external synchronizers), transfer tripping schemes for remote breakers and dynamic setting group changes.

Scalable Hardware

The T35 is available with a multitude of I/O configurations to suit the most demanding application needs. The expandable modular design allows for easy configuration and future upgrades.

- Multiple CT/VT configurations allow for

the implementation of many different schemes, including multi-winding transformer differential protection

- Flexible, modular high density I/O covering a broad range of input signals and tripping schemes
- Types of digital outputs include trip-rated Form-A and Solid State Relay (SSR) mechanically latching, and Form-C outputs
- Form-A and SSR outputs available with optional circuit continuity monitoring and current detection to verify continuity and health of the associated circuitry
- Mechanically latching outputs can be used to develop secure interlocking applications and replace electromechanical lockout relays
- RTDs and DCmA inputs are available to monitor equipment parameters such as temperature and pressure

Monitoring and Metering

The T35 includes high accuracy metering and recording for all AC signals. Voltage, current, and power metering are built into the relay as a standard feature. Current and voltage parameters are available as total RMS magnitude, and as fundamental frequency magnitude and angle.

Fault and Disturbance Recording

The advanced disturbance and event recording features within the T35 can significantly reduce the time needed for postmortem analysis of power system events and the creation of regulatory

reports. Recording functions include:

- Sequence of Event (SOE)
 - 1024 time stamped events
- Oscillography
 - Supports IEEE C37.111-1999/2013,
- IEC 60255-24 Ed 2.0 COMTRADE standard
 - 128 digital & up to 56 analog channels
 - Events with up to 45s length
- Data Logger and Disturbance Recording
 - 16 channels up to 1 sample/cycle/channel
- Fault Reports
 - Powerful summary report of pre-fault and fault values

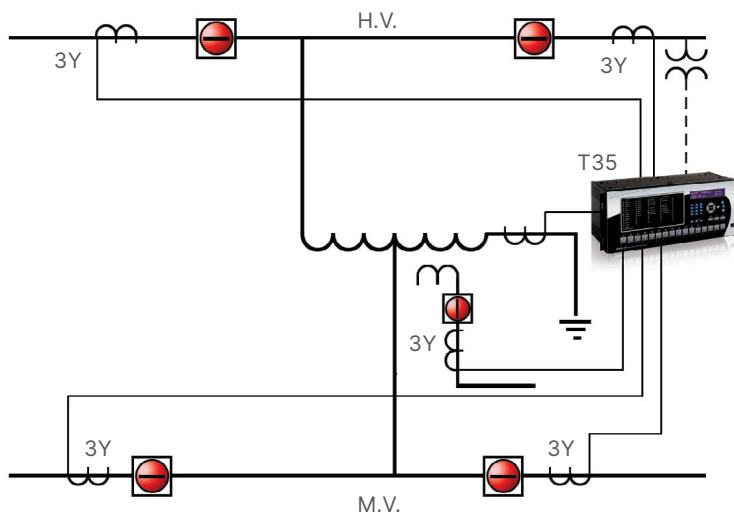
The very high sampling rate and large amount of storage space available for data recording in the T35 can eliminate the need for installing costly stand-alone recording equipment.

Advanced Device Health Diagnostics

The T35 performs comprehensive device health diagnostic tests at startup and continuously during run-time to test its own major functions and critical hardware. These diagnostic tests monitor for conditions that could impact security and availability of protection, and present device status via SCADA communications and front panel display. Providing continuous monitoring and early detection of possible issues help improve system uptime.

- Comprehensive device health diagnostic performed at startup
- Monitors the CT/VT input circuitry to validate the integrity of all signals

Cost Effective Solution



Auto-transformer with breaker-and-a-half on both sides and loaded tertiary.

Transformer Through Fault Monitoring

Magnitude and duration of fault currents determine the mechanical and thermal damage of the faults to power transformers. This element monitors impacts of external fault currents passing through the transformer to provide a measure of those damages in accordance to IEEE C57.109. This element helps to better planning of transformer maintenance.

Cyber Security – CyberSentry UR

CyberSentry™ is a software option that delivers wide range of cyber security features that help customers to comply with NERC CIP, NIST® IR 7628, IEC 62351 and IEC 62443 cyber security requirements and standards. Additionally

secure FW upgrade is granted through UR Setup's digital signature validation capabilities. This software option delivers the following core features:

AAA Server Support (Radius/LDAP)

Enables integration with centrally managed authentication and accounting of all user activities and uses modern industry best practices and standards that meet and exceed NERC CIP requirements for authentication and password management.

Role Based Access Control (RBAC)

Efficiently administrate users and roles within UR devices. The new and advanced access functions allow users to configure up to five roles for up to eight configurable users with independent passwords. The standard "Remote Authentication Dial In User Service" (Radius) is used for authentication.

Event Recorder (Syslog for SEM)

Capture all cyber security related events within a SOE element (login, logout, invalid password attempts, remote/local access, user in session, settings change, FW update, etc), and then serve and classify data by security level using standard Syslog data format. This will enable integration with established SEM (Security Event Management) systems.

Communications

The T35 provides advanced communications technologies for remote data and engineering access, making it easy and flexible to use and integrate into new and existing infrastructures. Direct support for fiber optic Ethernet provides high-bandwidth communications allowing for low-latency controls and high-speed file transfers of relay fault and event record information. The available three independent Ethernet ports, redundant Ethernet option and the embedded managed Ethernet switch provide the means to create fault tolerant communication architectures in an easy, cost-effective manner without the need for intermediary communication hardware. The T35 supports the most popular industry standard protocols enabling easy, direct integration into DCS and SCADA systems.

- IEC 61850 Ed. 1 and Ed. 2 Station Bus, IEC 61850-2-2LE / IEC 61869 networked or IEC 61850-9-2 HardFiber Process Bus
- DNP 3.0 (serial & TCP/IP)

- Ethernet Global Data (EGD)
- IEC 60870-5-103 and IEC 60870-5-104
- Modbus RTU, Modbus TCP/IP
- HTTP, TFTP, SFTP and MMS file transfer
- IEEE 1588 and redundant SNTP for time synchronization
- PRP as per IEC 62439-3
- IEC61850 GOOSE, Routable GOOSE and legacy UCA fixed GOOSE

Interoperability with Embedded IEC 61850 Ed. 1 and Ed. 2

The new IEC 61850 implementation in the UR Family positions GE Vernova as an industry leader in this standard.

- Implements, user selectable, Ed. 1 and Ed. 2 of the standard across the entire UR Family
- Provides full relay setting management via standard SCL files (ICD, CID and IID)
- Enables automated relay setting management using 3rd party tools through standard file transfer services (MMS and SFTP)
- Increases the number of Logical Devices and data mapped to them, GOOSE messages from up to 64 remote devices, and reports to support different organizational needs for data transfer and reduce dependency on generic logical nodes
- Configures GE Vernova Systems based on IEC 61850 using universal 3rd party tools
- R-GOOSE enable customer to send GOOSE messages beyond the substation, which enables WAPC and more cost effective communication architectures for wide area applications

Direct I/O Messaging

Direct I/O allows for the sharing of high-speed digital information between multiple UR relays via direct back-to-back connections or multiplexed through a standard DS0 multiplexer channel bank. Regardless of the connection method, direct I/O provides continuous real-time channel monitoring that supplies diagnostics information on channel health.

Direct I/O provides superior relay-to-relay communications that can be used in advanced interlocking, generation rejection and other special protection schemes.

- Communication with up to 16 UR relays in single or redundant rings rather

than strictly limited to simplistic point-to-point configurations between two devices

- Connect to standard DS0 channel banks through standard RS422, G.703 or IEEE C37.94 interfaces or via direct fiber optic connections
- No external or handheld tester required to provide channel diagnostic information

LAN Redundancy

Substation LAN redundancy has been traditionally accomplished by reconfiguring the active network topology in case of failure. Regardless of the type of LAN architecture (tree, mesh, etc), reconfiguring the active LAN requires time to switchover, during which the LAN is unavailable. UR devices deliver redundancy as specified by PRP-IEC 62439-3, which eliminates the dependency on LAN reconfiguration and the associated switchover time. The UR becomes a dual attached node that transmits data packets over both main and redundant networks simultaneously, so in case of failure, one of the data packets will reach the receiving device with no time delay.

Multi-Language

UR devices support multiple languages: English, French, Russian, Chinese, Turkish, German, Polish and Japanese. These language options are available on the front panel, in the EnerVista setup software, and in the product manuals. Easily switch between English and an additional language on the local displays without uploading new firmware.

EnerVista Software

The EnerVista suite is an industry-leading set of software programs that simplifies every aspect of using the T35 relay. The EnerVista suite provides all the tools to monitor the status of the protected asset, maintain the relay, and integrate information measured by the T35 into DCS or SCADA monitoring systems. Convenient COMTRADE and SOE viewers are an integral part of the UR setup software included with every UR relay, to carry out postmortem event analysis and ensure proper protection system operation. UR Setup also provides an export/import setting file tool which allows customer to transfer specific settings from one file to another. This tool also provides comprehensive setting file comparison.

These features, together with UR single setting file, help users to simplify their setting file management experience.

EnerVista Launchpad

EnerVista Launchpad is a powerful software package that provides users with all of the setup and support tools needed for configuring and maintaining Multilin products. The setup software within Launchpad allows for the configuration of devices in real-time by communicating using serial, Ethernet, or modem connections, or offline by creating setting files to be sent to devices at a later time.

Included in Launchpad is a document

archiving and management system that ensures critical documentation is up-to-date and available when needed. Documents made available include:

- Manuals
- Application Notes
- Guideform Specifications
- Brochures & Presentations
- Wiring Diagrams
- FAQ's
- Service Bulletins

Viewpoint Monitoring

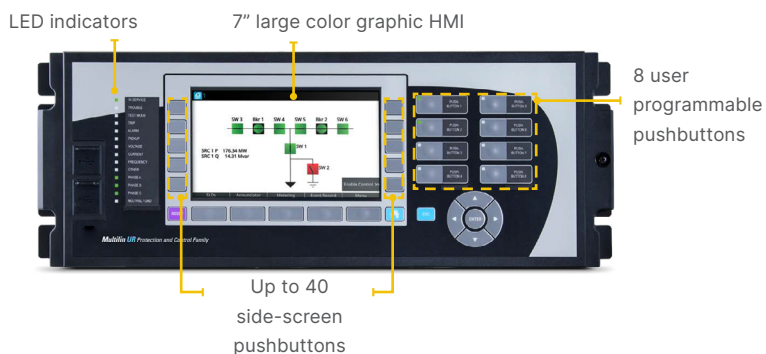
Viewpoint Monitoring is a simple-to-use and full-featured monitoring and data recording software package for small systems. Viewpoint Monitoring provides a complete HMI package with the following functionality:

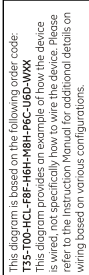
- Plug-&-Play Device Monitoring
- System Single-Line Monitoring & Control
- Annunciator Alarm Screens
- Trending Reports
- Automatic Event Retrieval
- Automatic Waveform Retrieval

User Interface

The T35 front panel provides extensive local HMI capabilities. The local display is used for monitoring, status messaging, fault diagnosis, and device configuration. User-configurable messages that combine text with live data can be displayed when user-defined conditions are met.

A 7" color, graphic HMI is optionally available that allows users to have customizable bay diagrams with local monitoring of status, values and control functionality. The alarm annunciator panel provides the configuration of up to 96 signals (alarms and status) with full text description.





Ordering

	T35	-	*	**	-	H	*	*	-	F**	-	H**	-	M**	-	P**	-	U**	-	W**	For full sized horizontal mount
Base Unit	T35																				Base Unit
CPU		T																			RS485 + three multimode SFP LC 100BaseFX RS485 + two multimode SFP LC 100BaseFX + one SFP RJ45 100BaseT RS485 + three SFP RJ45 100BaseT RS485 + two 100BaseFx Eth, Multimode ST + one 10/100BaseT Eth, RJ-45 ³
		U																			
		V																			No Software Options
		W																			Ethernet Global Data (EGD)
Software Options ¹			00																		IEC 61850
			01																		Ethernet Global Data (EGD) + IEC 61850
			03																		CyberSentry UR Lvl 1
			04																		IEEE 1588
			A0																		PRP
			B0																		IEEE 1588 + CyberSentry
			C0																		
			D0																		
Mount					H																Horizontal (19" rack) - Standard
					A																Horizontal (19" rack) - Harsh Chemical Environment Option
					V																Vertical (3/4 size) - Standard
					B																Vertical (3/4 size) - Harsh Chemical Environment Option
User Interface					E																7" Graphical display, USB front port & programmable pushbuttons
						F															- Multi-Language (FW 7.6x or higher)
						I															Vertical Front Panel with English Display
						J															Enhanced German Front Panel
						K															Enhanced German Front Panel with User-Programmable Pushbuttons
						L															Enhanced English Front Panel
						M															Enhanced English Front Panel with User-Programmable Pushbuttons
						N															Enhanced French Front Panel
						O															Enhanced French Front Panel with User-Programmable Pushbuttons
						Q															Enhanced Russian Front Panel
						T															Enhanced Russian Front Panel with User-Programmable Pushbuttons
						U															Enhanced Chinese Front Panel
						V															Enhanced Chinese Front Panel with User-Programmable Pushbuttons
						W															Enhanced Turkish Front Panel
						Y															Enhanced Turkish Front Panel with User-Programmable Pushbuttons
						H															Enhanced Polish Front Panel ³
						O															Enhanced Polish Front Panel with User-Programmable Pushbuttons ³
						Z															Enhanced Japanese Front Panel ³
						X															Enhanced Japanese Front Panel with User-Programmable Pushbuttons ³
Power Supply ²					H																125 / 250 V AC/DC
					H																125/250 V AC/DC with redundant 125/250 V AC/DC power supply
					L																24 - 48 V (DC only)
CT/VT DSP										8L				8L							Standard 4CT/4VT w/ enhanced diagnostics
										8M				8M							Sensitive Ground 4CT/4VT w/ enhanced diagnostics
										8N				8N							Standard 8CT w/ enhanced diagnostics
										8R				8R							Sensitive Ground 2CT/6VT w/ enhanced diagnostics
IEC 61850 Process Bus ^{4, 5}																					8 Port IEC 61850 Process Bus Module
																					-9-2LE & 61869 Process Bus, 2 × 1000BaseF
																					-9-2LE & 61869 Process Bus, 4 × 1000BaseF + 4 × 100BaseFx
																					-9-2LE & 61869 Process Bus, 4 × 100BaseFx
Digital I/O										XX				XX							No module
										4A				4A							4 Solid State (No Monitoring) MOSFET Outputs
										4C				4C							4 Solid State (Current w/opt Voltage) MOSFET Outputs
										4L				4L							14 Form-A (No Monitoring) Latchable Outputs
										67				67							8 Form-A (No Monitoring) Outputs
										6C				6C							8 Form-C Outputs
										6D				6D							16 Digital Inputs
										6E				6E							4 Form-C Outputs, 8 Digital Inputs
										6F				6F							8 Fast Form-C Outputs
										6K				6K							4 Form-C & 4 Fast Form-C Outputs
										6L				6L							2 Form-A (Current w/ opt Voltage) & 2 Form-C Outputs, 8 Digital Inputs
										6M				6M							2 Form-A (Current w/ opt Voltage) & 4 Form-C Outputs, 4 Digital Inputs
										6N				6N							4 Form-A (Current w/ opt Voltage) Outputs, 8 Digital Inputs
										6P				6P							6 Form-A (Current w/ opt Voltage) Outputs, 4 Digital Inputs
										6R				6R							2 Form-A (No Monitoring) & 2 Form-C Outputs, 8 Digital Inputs
										6S				6S							2 Form-A (No Monitoring) & 4 Form-C Outputs, 4 Digital Inputs
										6T				6T							4 Form-A (No Monitoring) Outputs, 8 Digital Inputs
										6U				6U							6 Form-A (No Monitoring) Outputs, 4 Digital Inputs
										6V				6V							2 Form-A (Cur w/ opt Volt) 1 Form-C Output, 2 Latching Outputs, 8 Digital Inputs
										6W				6W							30 Contact Inputs - Pin Terminals ³
										6X				6X							18 Form-A (No Monitoring) Outputs - Pin Terminals ³
Transducer I/O										5A				5A							4 dcma inputs, 4 dcma outputs
										5C				5C							8 RTD Inputs
										5E				5E							4 dcma Inputs, 4 RTD Inputs
										5F				5F							8 dcma Inputs
Inter - Relay Communications																					7B 1300 nm, multimode, LED, 1 Channel
																					7C 1300 nm, singlemode, ELED, 1 Channel
																					7H 820 nm, multimode, LED, 2 Channels
																					7I 1300 nm, multimode, LED, 2 Channels
																					7J 1300 nm, singlemode, ELED, 2 Channels
																					7S G.703, 2 Channels
																					7W RS422, 2 Channels
																					77 IEEE C37.94, 820 nm, multimode, LED, 2 Channel

Notes:

1. To view all the options available for T35, please visit GE Vernova's On-Line Store
<http://store.gedigitalenergy.com/viewprod.asp?model=T35>
2. Redundant power supply only available in horizontal unit. If redundant is chosen, must be same type. Maximum 2 per chassis.
3. Option available soon
4. Process bus module requires empty slots next to it.
5. Conventional DSP and Process Bus modules cannot run simultaneously

For more information, visit
gevernova.com/grid-solutions

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