

- Multifunctional HMI
- Standard LCD and touch type screens together with mimic option
 - 24 configurable tri-state LEDs selectable red/green/yellow provided at the local human-machine interface
 - 7 programmable function keys and direct control buttons for open/close (O/I) and control authority (43R/L)
 - Standard local USB port and three signal monitoring terminals for testing purposes
 - Multi-language display

- Metering and Recording
- Measurement of V, I, P, Q, f and THM%
 - Alarms and events (each with 1,024) can be recorded with 1ms resolution
 - 8 most recent time-tagged fault records including pre-fault and fault values for currents and voltages in text format
 - Disturbance records provided using sampled data from all analog inputs and binary signals selected, recorded in COMTRADE format

- Extensive Hardware Options and Flexible Adaptation
- Comprehensive range of hardware components
 - Main Processing/computing board with enhanced processor
 - Wide variety of binary input & output combinations
 - Plug-in communication module
 - Flexible hardware combinations to meet specific applications

- Function-wise Implementation
- Library of function blocks enables wide application for protection, control, measurement and other functions
 - Protection elements and schemes
 - Control schemes
 - Metering and recording functions
 - Individual function blocks work independently
 - Easy IED customisation to add/delete particular function blocks
 - Flexible implementation of new functions and modification of specific functions

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Leading Innovation >>>

GR-200 Series
GRT 200
Transformer Protection IED



GR-200 Series — GRT 200

Transformer
Protection IED

GRT200 transformer protection is implemented on Toshiba’s next generation GR-200 series IED platform and has been designed to provide comprehensive protection and control applications for transformers in all types of network. This powerful and user-friendly IED will provide you with the flexibility to meet your application and engineering requirements in addition to offering outstanding performance, high quality and operational peace of mind.



Configuration	Analog inputs	Model
	2 x three-phase CT + 1 x one-phase VT	GRT200-1-*
	3 x three-phase CT + 3 x zero-phase CT + 1 x one-phase VT /	GRT200-2-*
	3 x three-phase CT + 3 x zero-phase CT + 1 x three-phase VT	GRT200-3-*

Configuration	Analog inputs	Model
	4 x three-phase CT + 1 x one-phase VT	GRT200-4-*
	5 x three-phase CT + 3 x zero-phase CT + 2 x three-phase VT	GRT200-5-*

Features

- Current differential protection is applied for fast and selective main protection for two-winding or three-winding power transformers, auto-transformers and generator-transformer units.
- Up to five current inputs for the phase segregated differential protection
- Restricted earth fault protection
- Comprehensive back up protections
- Bay control and monitoring functions (option)
- Communications
IEC 61850, Modbus® RTU protocol and IEC 60870-5-103.

Function Block	Description	Model GRT200-#				
		1**	2**	3**	4**	5**
DIF (87)	Current differential protection	●	●	●	●	●
REF (87N)	Low-impedance restricted earth fault protection	-	●	●	-	●
OC (50/51/67)	Non-directional overcurrent protection	●	●	●	●	●
	Directional overcurrent protection	-	-		-	
EF (50G/51G/67G)	Non-directional earth fault protection (using phase currents)	●	●	●	●	●
	Directional overcurrent protection (using phase currents)	-	-		-	
EFIn (50N/51N)	Non-directional earth fault protection (using neutral current)	-	●	●	-	●
OCN (46)	Non-directional negative- sequence overcurrent protection	●	●	●	●	●
	Directional negative- sequence overcurrent protection	-	-		-	
BCD (46BC)	Broken conductor protection	●	●	●	●	●
THM (49)	Thermal overload protection	●	●	●	●	●
ICD	Inrush current detector function	●	●	●	●	●

Function Block	Description	Model GRT200-#				
		1**	2**	3**	4**	5**
CBF (50BF)	Circuit breaker failure protection	●	●	●	●	●
UV (27)	Phase under-voltage protection	-	-	●	-	●
UVS (27S)	Phase-to-phase under-voltage protection	-	-	●	-	●
OV (59)	Phase over-voltage protection	-	-	●	-	●
OVS (59S)	Phase-to-phase over-voltage protection	-	-	●	-	●
OVG (59G)	Residual overvoltage protection	●	●	●	●	●
FRQ/DFRQ (81U/81O)	Under-frequency / Over-frequency / Rate of change of frequency protection	●	●	●	●	●
VPH (24)	Over-excitation protection	●	●	●	●	●
VTF	VT failure supervision	-	-	●	-	●
OCV (51V)	Voltage controlled overcurrent protection	-	-	●	-	●
MECH.TRIP	Trip and/or Indication of external devices	●	●	●	●	●
Control	Switching Control, Interlock function	○	○	○	○	○

●:Standard ○:Available(by integration) -: Not available