



ENERGY AUTOMATION PRODUCTS

Voltage Regulator 6GC65 – TAPCON 230

Description

The voltage regulator 6GC65 – TAPCON 230 keeps the output voltage of a transformer with an on-load tap changer constant.

The device compares the transformer's measured voltage (U_{actual}) with a defined reference voltage (U_{desired}). The difference between U_{actual} and U_{desired} is the control deviation dU .

The device parameters can be adjusted to the line voltage behavior to achieve a balanced control response with the on-load tap-changer only performing a small number of tap-change operations.

The voltage regulator 6GC65 – TAPCON 230 is based on the proven station automation platform SICAM A8000. It thus benefits from the continuous further development of the SICAM A8000 series, particularly in the areas of cybersecurity and communication.

Performance features

- Web-based visualization
- Automatic voltage regulation (1-3 U_{desired} values)
- Desired value setting: analog or using TDSC
- Line drop compensation:
 - R&X Kompensation: Compensation for voltage drops on the line
 - Z compensation: Compensation for voltage fluctuations in the meshed grid

- Integrated monitoring functions:
 - Current and voltage monitoring
 - Apparent, active and reactive power monitoring
 - Power factor monitoring
- Display of all measured values such as voltage, current, active power, apparent power and reactive power
- Tap position capture with different methods
- Parallel operation of up to 16 transformers in 2 groups using the following methods:
 - Master or Follower (tap synchronization)
 - Automatic tap synchronization
 - Circulating reactive current
 - Power factor
- SCADA connection with different protocols
 - IEC 60870-5-101 and -104
 - IEC 61850 Edition 2
 - Modbus RTU and TCP
 - DNP3

Benefits

- Intuitive use, no training needed
- Maximum flexibility and security in communication
- Minimal start-up time
- Remote access, management, updates, and upgrades
- Unbeatable reliability and secure for the future
- Highest IT-security

Functions

	Basic (6GC6510)	Pro (6GC6520)	Expert (6GC6530)
Regulation, control and protection of transformers	■	■	■
Intuitive user interface incl. service interface	■	■	■
Line-drop compensation functions	■	■	■
Free assignment of digital inputs and outputs	■	■	■
Free assignment of analog inputs		■	■
Tap-position capture using analog and digital signals		■	■
Parallel operation		■	■
Connection to higher-level control systems			■

Technical Data

Setting Areas	
Desired values 1 to 3	49 V to 140 V
Bandwidth	0,5 % to 9,0 %
Switching delay T1	0 s to 600 s
Switching delay T2	1 s to 60 s
Switching pulse duration	0,5 s to 10 s
Line drop compensation	R-X compensation, Z compensation
Undervoltage blocking Overvoltage blocking	Behavior of upper and lower voltage limits can be freely defined (high-speed return U+, auto blocking, auto/manual blocking)
Undercurrent blocking Overcurrent blocking	Behavior of upper and lower current limits can be freely defined (auto blocking, auto/manual blocking)
Voltage transformer Current transformer	0 kV to 1000 kV / 57 V to 135 V 5 A to 9000 A / 1 A or 5 A
Digital inputs (Basic, Pro, Expert)	16 digital inputs, 2 galvanically isolated groups, DC 110 V, ≤ 55 V (logic "0"), ≥ 82.5 V (logic "1"), auxiliary voltage supply: DC 110 V
Digital outputs (Pro, Expert)	8 relays, relay outputs DC 24 to 220 V, AC 230 V, nominal voltages: DC 24/48/60/110/220 V, AC 110/230 V
Digital outputs (Pro, Expert)	16 relays, relay outputs DC 24 to 220 V, AC 230 V, nominal voltages: DC 24/48/60/110/220 V, AC 110/230 V
Analog inputs (Pro, Expert)	4 analog inputs, galvanically isolated, 0...20 mA, 0...10 V (configurable), GPAl: free assignment of inputs, value and SI unit selectable (e.g. for tap position, temperatures, DGA)
Housing	
Width x Height	218 x 324 mm
Depth	150 mm (incl. Mating plug)

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