TAPCON® 250

BE PART OF THE NEW VOLTAGE REGULATION GENERATION.

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TAPCON® 250 – THE NEXT GENERATION OF AUTOMATIC VOLTAGE CONTROLLERS.

Digital applications and distributed energy supply are major challenges. In addition, increasing regulatory restrictions and cost pressure is an essential and to be considered factor. Voltage regulation relays are an important part of this environment. If they function reliable, securely and have simple and standardized functionality, they make grid operation as efficient and as safe as possible. This knowledge is the basis for the new TAPCON® 250 generation, with a new design, greatly improved hardware and software functions. The concept of the new TAPCON® 250 is designed for consistently simple handling – everywhere and in all phases of operation.

Based on the market developments and user requirements, we developed an intuitive operating process that does not require any special training or special knowledge to simplify automatic voltage regulation.

New control algorithms, such as TAPCON® Dynamic Set Point Control (TDSC), are our answer for a dynamic voltage regulation in the grid.

The result: TAPCON® 250 makes voltage regulation easier than ever. Retrofitting older 90 relays including additional functions such as paralleling with older, or not anymore supported AVRs are child's play.

Voltage regulation made for the North American market

- TAPCON®: a name which is synonymous for an entirely new and ground-breaking series of voltage regulating relays uniquely designed by Maschinenfabrik Reinhausen GmbH (MR).
- The voltage regulating relays of the TAPCON® series are suitable for all applications.
- The most favorable characteristic is ease of operation, coupled with the high degree of reliability, typical for all MR products.
- The all new TAPCON® 250 generation is a state-of-the-art electronic design backed by nearly 50 years of Reinhausen expertise in voltage regulation.

A perfect solution for retrofitting

- Automatic Voltage Controllers of other manufacturers can be easily replaced by a TAPCON® 250.

Easy upgrades

- Firmware updates are simply performed via Ethernet port connections and flash programming.

Measured value memory, record function

- The time characteristic of a measuring-circuit voltage is recorded in a separate measured value memory and can be recalled either via display or via a PC, using the visualization software.

Parallel control of transformers and tap position indication

- This configuration of connection between controllers with position input also offers the choice of paralleling to be either "minimum circulating reactive current" or "master/follower". The implementation of a CAN-bus system allows parallel control without any additional control devices.
- Optional: system topology detection in a multiple bus bar system.
- Regulators will detect automatically which of the transformers are engaged in parallel operation. No need for an additional control device.
- The past CT wiring scheme in the substation for a minimized, circulating current method of paralleling is no longer required.
- Major cost savings during installation to the end-user when paralleling the TAPCON® 250 controllers directly via the CAN-bus cable.
- Tap position indication on board and available in various outputs to connect to SCADA, INCON or other indicators.
- Due to the enhanced number of output possibilities, annunciator panel can be directly connected to the alarm outputs or are no longer needed in addition.

Multiple choice of communications

- A communication interface card with RS232, RS485, Ethernet and fiber optic ports is available as an option.
- Communication protocols to all renowned manufacturers of operation control systems can be supported.

TECHNICAL DATA.

Variants	Basic, Pro, Expert
Current measurement	0,2 A In and 5A In
Number of interfaces, DIO, AIOs	2 or 4 x AO
	4 x AI
	8 x NO/NC
	16+16 x DI (24 VDC + 120 VAC)
	1 x RS232
	1 x RS485
	7 x RJ45
	1 x F-ST (Adapter on RS232)
	1 x CAN
Circuit diagram/external wiring	DI 24 VDC and DI 120 VAC have each one COMMON connection
Control interface/HMI	ETOS AVR dialogue + 5" color display (800x480) touch + hard keys
Status LEDs	3 LEDs for status and alarms
Misc.	Web-Visu
	Use of external, additional MControl possible
	Improved service concept: Modules can be exchanged separately and according to functions; functional upgrades.
Dimensions	One line installation: Pro/ Expert: 455 mm x 124 mm x 124 mm
	Two line installation (MD III): Pro/Expert:
	11,42 inch x 4,88 inch x 4,88 inch
	7,87 inch x 4,88 inch x 4,88 inch
TP input	0...10 V, 0...20 mA, 4...20 mA, 0...2 mA, 0...1 mA
	Gray code, dual code, decadic, BCD
	Resistance row input
	Keep track
	Normally closed contacts
TP output	4...20 mA
Remote voltage level setting via	0...20 mA, 4...20 mA, 0...10 V
Commissioning	Commissioning assistent
Paralleling methods	Minimum circulating current (optional with older AVRs)
	Master/follower
	Power factor parallelling
SCADA protocols	Modbus RTU, DNP3, IEC 61850 Edition 2, Modbus TCP, IEC 60870-5-101, IEC 60870-5-104

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