



TAPCON[®] 230

VOLTAGE REGULATION HAS
NEVER BEEN SO EASY.

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THE NEW DIMENSION OF VOLTAGE REGULATION.

TAPCON® 230: The easy answer to digitalization and the energy revolution

Digital applications and dispersed energy supply are major challenges. In addition, there are also increasing regulatory restrictions and cost pressure. Voltage regulators are an important part of this environment. They make grid operation as efficient as possible – if they function reliably and securely and have simple, standardized operation.

This knowledge is the basis for the new TAPCON® 230 generation, with a new design and greatly improved hardware and software functions. The concept of the new TAPCON® 230 is designed for consistently simple handling – everywhere and in all phases of operation. **Together with users, we developed an intuitive operating process that does not require any special training.**

- > 50 years of MR voltage regulators
- > 1,000 satisfied customers
- > 100,000 units of equipment sold worldwide

New control algorithms, such as TAPCON® Dynamic Set Point Control (TDSC), are our answer to increasing dynamics in the grid.

The result: TAPCON® 230 makes voltage regulation easier than ever.

Consistently user-friendly – in all operational phases



PLANNING

- Quick product selection and configuration thanks to many setting options during operation (control-system communication, tap-position capture, assignment of inputs and outputs)
- Full flexibility for future applications
- Complete, easy-to-understand documentation (connection diagrams and operating instructions available online)



MOUNTING

- Simple flush-panel mounting
- Quick wiring on the back side of the equipment
- Optimized design of connector terminal blocks and housing
- 1:1 compatibility with previous models
- Optional IP66 outdoor housing



COMMISSIONING

- Minimal start-up times
- Access via web browser (no additional software necessary)
- Fully graphic, intuitive user interface
- TAPCON® Interactive Launch Assist (TILA) commissioning wizard
- Flexibility regarding adjustments to individual needs



OPERATION




- Clear display of current operating statuses and measured values
- Intuitive operation
- Secure access to all settings and parameters
- Consideration of applicable IT security requirements
- Future-proof: Centralized management (updates and upgrades) and document storage in the MR customer portal

Functional scope

	BASIC	PRO	EXPERT
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			■

Easy upgrades via the MR portal

Flexible communication variants

 <p>BASIC: Remote and service access</p> <ul style="list-style-type: none"> Web-based visualization for parameterization and operation without special software Simple operation, updates and downloads via secure Ethernet connection 	 <p>PRO: Parallel operation</p> <ul style="list-style-type: none"> Tap synchronization (master/follower) and circulating reactive current minimization Parallel operation with all MR voltage regulators via CAN bus 	 <p>EXPERT: Control-room connection</p> <ul style="list-style-type: none"> All interfaces available Setting during operation IEC 61850, DNP3, Modbus RTU/TCP, IEC 60870-5-101/104 Connection via copper or fiber-optic cables
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Unbeatably reliable and secure

<p>EXCEPTIONAL OPERATING SECURITY</p> <ul style="list-style-type: none"> Extensive testing of hardware and software: Optical, in-circuit and burn-in tests, function test, EMC, electrical safety External testing and certification IP54 degree of protection (front) 	<p>HIGHEST LEVEL OF IT SECURITY</p> <ul style="list-style-type: none"> Integrated user authorization and role-based user administration in accordance with NERC/BDEW requirements SSL encryption Proactive security management by the MR CERT team External auditing
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It has never been so easy.

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

TAPCON® 230 technical data

SETTING AREAS

Desired values 1 to 3	49 to 140 V
Bandwidth	0.5 to 9.0%
Switching delay T1	0 to 600 s
Switching delay T2	1 to 60 s
Switching pulse duration	0.5 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 to 1,000 kV / 57 to 135 V 5 to 9,000 A / 1 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 (Basic)	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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