



# TAPCON<sup>®</sup> 250

## DIGITAL ON-LOAD TAP-CHANGER CONTROLLER FOR VOLTAGE REGULATING TRANSFORMERS.

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# TAPCON® 250 – THE NEW GENERATION OF VOLTAGE CONTROLLERS.



For more than 40 years voltage regulators by Maschinenfabrik Reinhausen (MR) have been synonymous with reliability without compromise. The voltage regulators 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 of all MR products.



The TAPCON® 250 is a state-of-the-art electronic design backed by over 40 years of Reinhausen expertise in voltage regulation.

It offers the operator a wealth of information as he simply presses one button. The display shows vital voltage information, and the multiple LED arrangement around the display offers more information about power system conditions to the operator.

The menu structure is straightforward and divided by function into menu sub-groups such as "Parameters", "Configuration" and "Info". The depth of the menu structure is minimized to offer more horizontal or left/right movement in the specific sub-group menus. As an operator selects a function, one is quickly at a menu selection to simply move left or right to the specific item to adjust.

Four (4) levels of voltage regulation are available. The combinations of DC inputs to the controller select each level during normal and abnormal events.

The voltage settings such as bandwidth, undervoltage, over-voltage, etc. can be set in either a percentage or an absolute value of voltage.

TAPCON® 250 has an included feature of accepting an alternate external 12 V DC power supply for continuous operation during an AC power outage.

TAPCON® 250 will accept a positive tap-changer position input via either a potentiometer, 0-1 mA, or 4-20 mA input and provide a selectable 0 – 1 mA or 4 – 20 mA output for the customer's use.

Substantial cost savings are available regarding components, integration, assembly and field applications.

Additionally TAPCON® 250 is offered with an extended warranty.



*Edit menu  
(with help text)*

## Plug-and-play with NORMset

Thanks to the standard function called NORMset, a voltage level and the potential transformer ratio are the only two parameters required. The software takes care of all the rest. Needless to say, the parameters can also be set manually or via the Windows based P.C. visualization software. If needed, factory preset parameter values can be easily recalled.

## The scope of equipment delivered

### Clear and well-arranged 128 x 128 dot multi-graphic display

At a single glance multiple lines of continuous information is displayed:

- Actual voltage measured
- Set desired voltage level as reference
- Variance between the actually measured and set voltage for comparison
- Information line showing selected information with scrolling by a single push of a button
- Status line showing certain events
- Visible bar graph during timing events
- Visible graphic of actual voltage in relation to set desired voltage and its bandwidth
- Several LEDs for indication of events/mode/status and for random assignment

No need for additional displays in the switching cabinet.

### A perfect solution for retrofitting

Automatic Voltage Controllers of any other manufacturer can be easily replaced by a TAPCON® 250.

### Parallel control of transformers

- The end-user can strongly take advantage of this feature simplifying the parallel controls. It finally can be understandable and straightforward. 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 an additional control device.
- One of the options available is system topology detection in a multiple bus bar system. In that case, the regulators will detect automatically which of the transformers are engaged in parallel operation. There is no need for an additional control device.
- The past CT wiring schemes in the substation for a circulating current method of paralleling is no longer required. A major cost savings during installation is available to the end-user when paralleling the TAPCON® 250 controllers directly via the CAN-bus cable.

### Easy upgrades

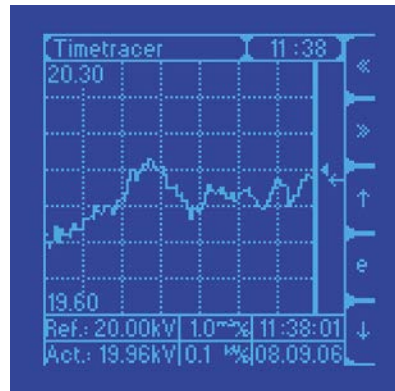
Firmware updates are simply performed via serial port connections and flash programming.

### 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.

### 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 P.C. using the visualization software.



Measured value memory (optional)



Top view of TAPCON® 250 with communication card

# TAPCON® 250

TAPCON® 250	Setting ranges
Desired voltage level 1 ... 4	100 ... 135 V
Bandwidth	±0.5 ... ±9 %
Delay time T1	1 ... 600 s
Delay time T2	1 ... 30 s
Switching pulse duration	1.5 s
LDC	Ur = 0 ... ±25 V Ux = 0 ... ±25 V
Z compensation selection	Voltage rise 0 ... 15 % of desired voltage level Limitation 0 ... 15 % of desired voltage level
Undervoltage blocking Overvoltage detection with high speed return control (interruptible)	95 ... 135 V 100 ... 140 V Pulse signal 1.5 / 1.5 s
Overcurrent blocking	50 ... 210 %
Voltage transformer	0.1 ... 999.0 kV / 120 V
Current transformer	1 ... 10,000 A / 0.2 A

TAPCON® 250	Operation elements, display
Function keys	Raise / Lower Menu keys
Display	Monochromatic display with graphics capabilities, 128 x 128 dot 1 LED lamp (green) for operating status 1 LED lamp (yellow) for signalling, "parallel operation active" status 1 LED lamp (red) each for signalling U<, U>, I> 1 LED lamp (green) for signalling "NORMset active" status 3 LED lamps (yellow) for random assignment 1 LED lamp (yellow / green / red) for random assignment RAISE command with green LED indication LOWER command with green LED indication REMOTE mode with green LED indication MANUAL mode with green LED indication AUTO mode with green LED indication
Power supply	AC 85 ... 140 V DC 12 V Power consumption approx. 12 VA
Protective housing	5.81 x 8.5 x 3.08" (W x H x D) (147.6 x 216 x 78.2 mm) Weight approx. 6.2 lbs (2.8 kgs)
Operating temperature	- 13° F ... + 158° F (- 25° C ... + 70° C)
Storage temperature	- 40° F ... + 185° F (- 40° C ... + 85° C)

**Reinhausen Manufacturing Inc.**

2549 North 9<sup>th</sup> Avenue  
Humboldt, TN 38343, USA

Phone: +1 731 784 7681

Fax: +1 731 784 7682

E-mail: [sales@reinhausen.com](mailto:sales@reinhausen.com)

**HEAD OFFICE:**

**Maschinenfabrik Reinhausen GmbH**

Falkensteinstrasse 8  
93059 Regensburg, Germany

Phone: +49 941 4090-0

Fax: +49 941 4090-7001

E-mail: [info@reinhausen.com](mailto:info@reinhausen.com)

[www.reinhausen.com](http://www.reinhausen.com)

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IN1800298/03 EN – TAPCON® 250

F0159302 – 06/17 – uw

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THE POWER BEHIND POWER.

