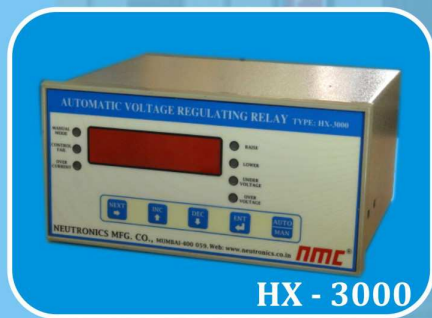
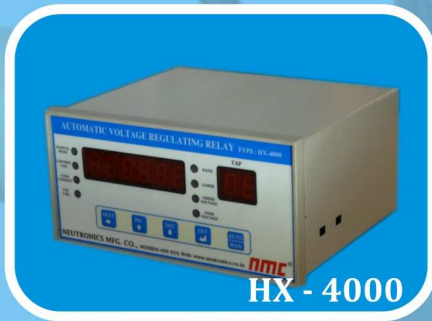


Quality - Accuracy - Reliability.

'NMC' make MICROCONTROLLER AUTOMATIC VOLTAGE REGULATING RELAYS

DESCRIPTION :

NMC's Microcontroller based Automatic Voltage Regulating Relays (AVR Relays) are latest technology based Relays used for regulating the secondary voltage of Power Transformers with On Load Tap Changer (OLTC). The Parameter settings are made through the front panel keys & are stored in NVRAM. Independent time delays can be set for first control pulse & subsequent pulses. Built-in Tap displays Tap number of Power Transformer. OLTC is blocked for UV, OV, OC, CF, Min/Max Tap Positions & Tap Fail. In manual mode, Tap Raise/Lower can be achieved through front keys. In TEST mode, Relays, Display and LED indications can be checked. A pair of contacts are available for Raise, Lower, UV, OV, Manual Mode, CF, TF & OC. There are two nos. of 5 Amps C.T.'s available, one for the Over Current blocking and L.D.C. & other for measuring the Current.



FEATURES :

- * Microcontroller based architecture with A/D Converter.
- * Password Protected.
- * Auxiliary Supply : 85V-265V AC/DC
- * Linear or Inverse Time Response.
- * Relay "ON Timer"
- * Built-in Tap Position Indicator upto 40 Taps.
- * Readout of Primary / Secondary Voltages, Current & Tap No.
- * Readout of KV / KI Voltage & Current.
- * 7 segment bright red LED Displays.
- * Independent Lower, Raise & Nominal value settings.
- * Blocking for UV, OV, OC, Control Fail, Tap Fail & Min/Max Tap No.
- * Auto / Manual Mode of Operation.
- * Test Mode & Factory Reset Mode.
- * Single pulse or Continuous pulse operation.
- * Line Drop Compensator (L.D.C.).
- * Data Logging.
- * Modbus RS 485
- * RTC
- * 4-20mA output from PT Voltage & TPI for SCADA.
- * PT display of 433V instead of 110V.
- * Over Current Blocking.
- * Additional C.T. for measuring the current
- * BLOCKING FOR MIN. & MAX. TAP NO.
- * Master / Slave Features.

TECHNICAL SPECIFICATIONS

A) Avr-V (Voltage Setting):

Nominal Voltage Setting (NS)	: 50.0 to 140.0V in Steps of 0.1V 335 to 550V for 433V PT display (Optional)
Lower Voltage Setting (LS)	: -0.5% to -9.9% of NS in steps of 0.1%
Raise Voltage Setting (RS)	: +0.5% to +9.9% of NS in steps of 0.1%
Under Voltage Blocking (UV)	: 60 to 99% of NS in steps of 0.1%
Over Voltage Blocking (OV)	: OFF Mode to 99% of NS in steps of 1%
Line Drop Compensator (Optional)	: Use Inc / Dec Keys to change the P.T. voltage upto $\pm 25\%$.
Auto / Manual mode	: Select Auto mode for automatic operation. In Manual mode Raise & Lower can be done by Inc & Dec Keys.
Primary Voltage Factor (KV)	: KV value settable.

B) Avr-C (Current Setting) Optional Features*:

Nominal Current Setting (Set-I)	: Set value of current [0.110 to 5.000A]
Over Current Blocking (OVER-I)	: OFF to 99% of set I in steps of 1%
Primary Current Factor (S-KI)	: KI value settable.

C) Timer (Time Setting):

Time Delay (T1) between Deviation & First Pulse	: 10 to 180 Seconds.
Inverse Time Response	: YES or NO. Related to Band Time.
Time Delay (T2) between Consecutive Pulses	: 2 to 30 Seconds.
Relay ON Time	: 2 To 10 Seconds (Relay will be On for the set time)
Tap Delay	: 3 to 10 Seconds
Tap Fail Time	: OFF Mode to 30 Seconds.
Control Fail Delay (CF)	: OFF Mode to 1800 Seconds. (Factory Setting : 300 Seconds)
Automatic / Manual Mode (A/M)	: Select Automatic or Manual mode of Tap Changer Op. In Manual mode Tap can be Raised / Lowered manually through INC / DEC keys.
Maximum Tap No. (MT)	: 1 to 40 Taps with 1 K Ohms Per Step Resistance.
TEST Mode (TEST)	: Relays, Display and LED can be checked.
Factory Reset Mode:	: In the stage of wrong settings & confusion you can easily reset the original setting.

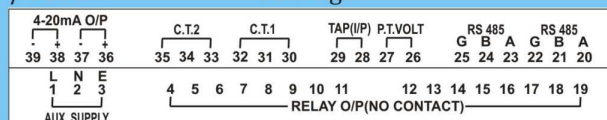
Display :

PT Voltage	: 4 Digits, 7 segment LED display (110.0V OR 433.0 V) for LV side or HV side (as per KV Setting)
Tap No.	: 1 to 40.
LED Indications	: Manual Mode, Control Fail, Over current*, Tap Fail, Lower, Raise, Under Voltage, Over Voltage.

Input & Output :

Auxiliary Supply	: 85V to 265V AC/DC
PT Supply	: 110V AC, 50Hz, 1.5VA (can be displayed as 433.0V)
TPI Input	: 1K Ω / step maximum upto 40 taps (User Defined)
Relay Output	: 1 pair of NO contacts for Manual Mode, Raise, Lower, UV, OV, CF & Tap Fail.
Contact Ratings	: 5A @ 240V AC
Relay ON Time	: 2 to 10 Seconds (Settable)
Operating Temperature	: 0°C- 45°C
Overall Size for VX-4000 / 3000	: 360mm x 135mm x 190mm (H x W x D)
Panel Cutout for VX-4000 /3000	: 330mm x 135 mm (H x W)
Approx Weight for VX-4000 / 3000	: 2.5 Kgs
Overall Size for HX-4000 / 3000	: 92mm x 192mm x 150mm (H x W x D)
Panel Cutout for HX-4000 / 3000	: 90mm x 184 mm (H x W)
Approx Weight for HX-4000 / 3000	: 1.5 Kgs

Connection Diagram :



Manufactured By :

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