01 / Identity and technical scope

ABB

3BHE014557R0003 UN1000B-Z,V3

Voltage Regulator

Product role

ABB 3BHE014557R0003 UN1000B-Z,V3 is a UNITROL voltage regulator for synchronous-machine excitation control. Match the complete unit marking and installed control configuration.

Machine measurements
Voltage and current

>

UNITROL base control
Configured excitation

>

Exciter
Machine field

Product type
Voltage regulator

Platform
UNITROL 1000-15 excitation control

Applicability
UNITROL 1000-15 base-design functions are described separately from the supplied V3 marking. Match hardware, control software and enabled options to the installed machine.

02 / Functional architecture

System relationship

The UNITROL 1000-15 base design combines microprocessor control with an IGBT power stage to regulate excitation in synchronous generators and synchronous motors. Auxiliary power for the control electronics and power for the excitation stage are separate circuit functions. Machine-voltage and machine-current measurements supply the control system, while the regulated field output acts on the exciter. The supplied 3BHE014557R0003 UN1000B-Z,V3 identity must remain tied to its actual hardware and control-software configuration.

Machine measurements
Voltage and current

>

UNITROL base control
Configured excitation

>

Exciter
Machine field

Circuit or component	Technical relationship
Auxiliary circuit	Power for control electronics
Excitation circuit	Power for the IGBT output stage
Measurement circuit	Machine-voltage and machine-current inputs
Field output	Regulated excitation output to the exciter

03 / Design facts and interface selection

Item	Verified design fact
Reference platform	UNITROL 1000-15
Machine application, base design	Synchronous generators and synchronous motors
Power-stage principle, base design	Microprocessor-controlled IGBT excitation stage
Supply architecture, base design	Separate auxiliary and excitation-power circuits
Measurement functions, base design	Machine voltage and machine current
Commissioning interface, base design	RS-232 connection for CMT 1000
Load-sharing interface, base design	RS-485
Expansion interface, base design	CAN bus

Selection boundary

UNITROL 1000-15 base-design functions are described separately from the supplied V3 marking. Match hardware, control software and enabled options to the installed machine.

04 / Configuration and integration

Operating arrangement

At platform level, automatic voltage, power-factor and reactive-power regulation use PID control, while manual excitation-current regulation uses PI control. Reactive-current droop supports operation in parallel with a network; voltage droop compensation uses communication between regulators for reactive-load sharing in island operation. Soft start and bumpless transfers form part of the base control concept. Enabled modes, machine settings and limiter behavior must match the installed software and excitation design.

Interfaces and system integration

The base architecture provides RS-232 communication for the CMT 1000 commissioning tool, RS-485 for reactive-load sharing and CAN communication for local expansion. Digital and analogue interfaces connect external commands, measurements and status signals. Automatic synchronizing and rotating-diode monitoring are separately configured functions; they must not be inferred from the voltage-regulator role or treated as included accessories. Preserve the installed parameter set and confirm the actual V3 interfaces before replacement.

Assembly control

Keep 3BHE014557R0003 UN1000B-Z,V3, the actual serial label and control-software identity together. A similar UNITROL family name does not establish version equivalence.

05 / Engineering review and references

What is the role of this UNITROL unit?

It is offered as a voltage regulator for synchronous-machine excitation control. The full 3BHE014557R0003 UN1000B-Z,V3 marking identifies the item; the installed hardware and control software determine the applicable configuration.

Reference basis

ABB UNITROL 1000-15 / UNITROL 1000-40 technical presentation, 11 December 2008.

Apter Power technical summary, not an ABB-issued manual. UNITROL 1000-15 base-design functions are described separately from the supplied V3 marking. Match hardware, control software and enabled options to the installed machine.

Related ABB products

Navigation only; no substitution or compatibility claim.

ABB 3BHE035301R1002 UNS0121 A-Z,V1

ABB HIEE205010R0003 UNS3020A-Z V3

Discuss your installed configuration

Send the full unit marking and connection details.

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