

Baker Hughes 

BRUSH™ Power Generation

PRISMIC® A3100



The most advanced solution for brushless excitation control

A low intervention upgrade process enables owners of MAVR, A30, A30-M, A32 and MicroAVR excitation systems to continue the reliable operation of their critical power generation facilities with minimal site-work and minimal interruption to production.

The PRISMIC® A3100 automatic voltage regulator (AVR) incorporates all the features required for excitation control of a brushless generator.

In this way support for owners of superseded excitation systems is maintained and an upgrade path for enhanced features is provided.



PRISMIC® A3100 Excitation Controller with dual cards

Baker Hughes provide engineering expertise to replace other OEM Brushless AVRs and provide the features and benefits of the PRISMIC® A3100 across your fleet.

PRISMIC® A3100 excitation controller

The A3100 includes two fully featured independent controllers and two independent power circuits within a single 6U enclosure, all available as removable cards (single channel option available).

Each controller channel acts as a hot standby for the other and each channel is independently controlled with automatic tracking included to enable smooth transfer from one controller to the other.

The non-operating channel can be extracted without powering down the AVR or excitation so maintaining power generation whilst changing or removing the non-operating card.

Compatibility

With most connectors completely compatible with earlier model controllers the A3100 is an easy replacement of previous AVRs such as the MAVR, MicroAVR, A30 and the A32.

PRISMIC® A3100

Benefits of AVR upgrade

- Keep critical power generation equipment running reliability
- Safeguard against unplanned outages
- Manage obsolescence of AVR components
- Maximise lifespan of mission-critical AVR
- Easy installation supported by OEM
- Enhanced functionality

Features at a glance

- Integrated power system stabilizer
- Automatic synchronizer
- R10 ground (earth) fault receiver
- Ethernet and USB connectivity
- Integrated in a single standard 19-inch rack package

“Keep mission-critical power generation equipment running reliably”



Advanced dual channel excitation control system

PRISMIC® A3100

Key benefits

Hot swappable

The A3100's dual channel feature allows a fully independent controller to be safely removed from service whilst the machine is on-load – eliminating downtime during diagnostic activities.

Redundancy

Two fully featured independent controllers and power circuits provide the system with seamless automatic monitor backup in one 19-inch integrated system.

Communication protocols

Supports all the latest major substation automation protocols for client SCADA interface for remote monitoring and control.

Trending

powerful trending capabilities, able to trend over 200 variables simultaneously in a 5kHz scaled trend – useful for accurate step responses, load swing analysis and high voltage fault diagnostics.

Negative forcing

Automated algorithm to switch the poles of the exciter field in real-time to pull energy away from the machine for faster response in high voltage fault scenarios, protecting upstream equipment.

Low Intervention Upgrade Process

- Removal of the original equipment plate at site
- Installation of the new equipment plate and reconnection of control cubicle cables to identical terminals on the new plate
- Site static testing (with generator at standstill) is performed to confirm plant wiring
- Site dynamic testing (with generator running) is performed to confirm full operation
- Upgraded system brought back online

Excitation control system evolution

	MAVR	MicroAVR	PRISMIC A30 & A30-M	PRISMIC A32	PRISMIC A3100
Dual redundant high integrity system	●	●	●	●	●
Hot swap of control cards	Possible on some special systems	●	●	●	●
Hot swap of power module	●	●	●	●	●
Flux limiter	●	●	●	●	●
Intelligent standby channel with limiters	●	●	●	●	●
Synchronizer included	●	●	●	●	●
Voltage/PF control	●	●	●	●	●
Detection of rotating diode failure	●	●	●	●	●
Over & under excitation limiters/monitors	●	●	●	●	●
Remote communications	●	●	Modbus serial only	●	●
Data logging	●	●	Very basic	●	●
Stator current limiter	●	●	●	●	●
Rotor earth fault indication	●	●	●	●	●
Integrated power system stabilizer	External unit possible (older systems no longer allowed in WECC)	External unit possible (older systems no longer allowed in WECC)	External unit possible (older systems no longer allowed in WECC)	●	●
Negative field forcing	Special	●	A30-M only	●	●
Remote setpoints	Motorised potentiometer	Via digital input	Via digital input	●	●
Operator console panel computer	●	●	●	Built-in operator console	Optional operator console panel computer
Commissioning HMI software for commissioning laptop	●	Use Psion Series 2 of terminal application	Windows software included	Windows software included	Windows software included
VT Sensing	1 or 3 phases	1 or 3 phases	1 or 3 phases	1 or 3 phases	1 or 3 phases
Maximum continuous field current	20 amps	20 amps	20 amps	25 amps	20 amps
VRef control accuracy	+/- 0.5%	+/- 0.5%	+/- 0.5%	+/- 0.25%	+/- 0.20%



BRUSH™ Power Generation