

RVX POWER
Speed Governor

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PR-12-02-20-03-V100R002



■ Experience

REIVAX, founded in 1987, has supplied over 1,900 systems controlling more than 145 GW of power generation. We are global leaders in speed governor systems and excitation systems.

REIVAX experience includes work on:

- Woodward Gateshaft and cabinet governors
- Pelton, Voest Alpine, Lombard and others

■ Applications



Hydroelectric
- Francis
- Kaplan/Bulb
- Pelton

The RVX POWER speed governor system can be used for all types of hydro turbines and is compatible with any existing OEM hydraulic equipment.

■ Communication Protocols

Modbus TCP
Modbus RTU
IEC 60870-5-101
IEC 60870-5-104
IEC 61850 – MMS
DNP3.0

■ Interface Synchronism Time

IRIG-B
NTP

■ Hydraulic system

The RVX POWER system can be supplied with a new hydraulic power unit or alternatively, a new pilot manifold to interface with the new digital hydro speed governor.

- Pilot Electro-Hydraulic Interface (EHI) manifold block with standard directional valves up to 375 gal/min.
- New hydraulic units with EHI and distributing valves up to 2,500 gal/min.



Modular design, scalability and a configurable software capable of meeting the most varied requirements and characteristics for each application.

Certified to meet the standards for electromagnetic compatibility and built for the most demanding applications in harsh environmental conditions.

CONTROLLER HARDWARE

The RVX POWER platform supports use of REIVAX high-speed controller utilized for excitation systems and combined systems or use of Allen Bradley ControlLogix 5580 or Schneider Modicon M580 PLC.

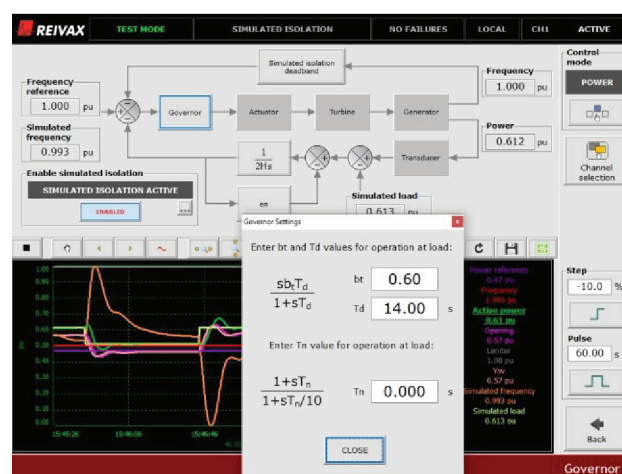
■ Redundancy Options

Redundancy provides maximum uptime of the turbine and can facilitate the replacement of certain components even with the unit in full operation. Components that are available with redundancy include:

- Control power supply
- Governor controller
- I/O module
- Transducer for runner blades position
- Transducer for wicket gate position

MAIN CONTROL FUNCTIONS

- Control Modes for Gate Opening, Frequency and Power with bumpless transfer
- Droop control
- Automatic Start / Stop with custom user configuration
- Automatic pre-load (reverse power prevention)
- Gate limit control
- PT and back-up speed sensing
- On / Off line gains
- Grid connect & isolated grid mode (with simulation)
- Power vs Wicket Gate Opening look-up table
- Creep detection
- Hydraulic power unit monitoring: Flow, temperature, level
- Integrated step response function



SPECIAL FEATURES

Kaplan / Bulb

Runner blades movement reduction feature:

- Prevents excessive oil consumption
- Avoids mechanical wear
- Reduces hours of operation of the oil pump
- Increases the life span of mechanical equipment
- Reduces maintenance shutdowns

Pelton

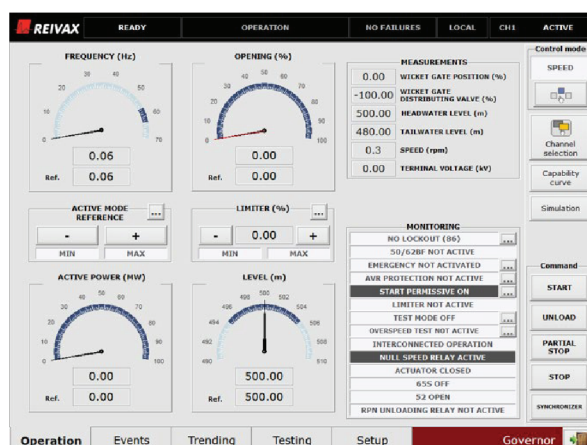
- Easy configuration for the number of operating nozzles
- Selects nozzle topologies that preserve symmetry of the jets in the runner
- Nozzle priority configuration
- Bumpless transfer between nozzle topologies

OPTIONAL FEATURES

- Level control
- Frequency matching
- Power Limiter
- Cavitation Limiter
- Unit automation features (plant customized)

HUMAN-MACHINE INTERFACE

The RVX POWER includes a user friendly operating interface with multi-level password protection that allows for advanced monitoring of the operation and the supervision of actuators and governor subsystems.



MAINTENANCE AND SUPPORT TOOLS

The RVX POWER speed governor system has intuitive support tools for maintenance and analysis:

- Test function for inputs and outputs.
- Generation of parameter list
- Verification and validation of remote communication protocols
- Datalogger recorder with selectable triggers and a large recording window.

■ Technical Assistance

Technical support is available 24 hours per day, 365 days of the year
Spare part stock in Houston, TX and Montreal, Canada

■ Turn-key services

Plant interface engineering
Removal & Installation
Training
Installation Supervision & Commissioning
Woodward legacy service and part support (Gate shaft and Cabinet governors)



EXCITATION SYSTEMS,
SPEED GOVERNORS AND
COMBINED SYSTEMS

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