

XRC 6990 panel mount Remote controller



Introduction

XSeries devices, from the Totalflow division of ABB provide functionality only possible through the convergence of RTU, PLC and flow computer concepts. Representing a unique milestone in the development of remote, low power measurement and control devices, ABB Totalflow's XSeries products are available in one of two product families;

- eXtendable Flow Computers (XFC)
- eXtendable Remote Controllers (XRC)

This datasheet focuses on the XRC 6990 XSeries Remote Controller (RTU). Benefits and features of these particular products include:

- Automation, control, alarming and data logging capability
- Base IO targeted at low cost automation projects
- Local display and keypad
- Quick, easy installation
- Flexible communications
- Comprehensive custody quality math and data history
- Extendable hardware and software

With low power, accuracy and system integrity built in, these devices are proven daily on thousands of sites. Totalflow products provide users the best opportunity for successful projects – site by site or system by system.

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Description

The XRC 6990 is a full featured unit that is provided without an Integral Multivariable Transducer (XIMV). In its base configuration this unit is equipped with standard IO designed to meet the requirements of many, low cost measurement and automation projects. The base IO includes five (5) analog inputs (0-10 volts DC), 4 digital outputs and 4 digital inputs; two of which can be configured as either status inputs or pulse accumulator inputs.

	XFC flow computers	XRC remote controllers
AI	2	5
DI	2 (DI or PI)	4 (up to 2 as PIs)
DO	2	4

IO modules can be added to extend the hardware IO capability. The standard XRC 6990 accommodates up to six (6) TFIO modules. The dual controller board model accommodates up to twelve (12) TFIO modules. (six (6) TFIO modules per XRC 195 controller board)

XFC and XRC devices are based on the same software environment. Applications available in one are also available in the other, including custody transfer measurement applications. The two significant differences between XFC and XRC devices are hardware.

- XFC devices include an integral multivariable transducer and XRC devices do not.
- There are more base IO points on XRC devices than on XFC devices.

Multi-tube capability is included with each unit and is easily invoked with a few configuration changes and interface connection to external transducers, either digital or analog.

Each unit can be powered by an internal battery (12 VDC) or directly from any other 12 VDC source. Several charging options are available. The internal battery maintains operational capabilities and data logging in the event of interrupted power supply.

The XRC 6990 mounts in a standard 19 inch rack. Standard configuration includes one (1) XRC 195 board, display, keypad, and local com port. The XRC 6990 can also be ordered with two (2) XRC 195 boards, displays, keypads, and local com ports. In this configuration, there are two (2) separate RTUs, each with their own unique station name and identifier, applications, configuration, communications ports, and I/O; sharing a common enclosure and battery/power supply.

Checking and modifying configuration and calibration is accomplished with ABB Totalflow's PCCU32 laptop software running on a 32-bit Windows operating system.

In addition to the local configuration port, two communications ports are supplied with the standard unit. These ports are modular and user selectable for RS232 and/or RS485. Additional ports may be added using a TFIO Communications Module.

Hardware modularity

Hardware functionality of XSeries devices can be extended in a flexible and simple way by adding modular IO as needed. Totalflow's TFIO modules are designed to accommodate low power, harsh environments at economical cost. The system recognizes the module types automatically and configures the IO Scanner subsystem accordingly.

Supported TFIO Modules include:

- Analog In (8 channel)
- Analog Out (4 channel)
- Binary (DI, DO, PI-8 channels, software selectable)
- RTD (4 channel)
- Thermocouple (4 channel)
- Valve Control (digital or analog)
- Communications (software selectable)
- RS232,485,422-1 channel)

For more detailed information about TFIO modules contact your ABB Totalflow sales representative, or go to www.abb.com/totalflow. Request information on data sheets 2101105 through 2101112.



Software modularity

A keenly flexible and stable real time environment, this software represents significant modularization through use of object oriented design principles. Totalflow supplied objects (applications) can be instantiated in our factory or by you, one or more times on the same device. It is this framework that allows the support for multi-tube measurement.

Supported Software applications continually grow, but a sample of standard applications include:

- AGA3 Orifice Meter Run
- ISO 5167 Orifice Meter Run
- VCone Meter Run
- AGA7 Rotary/Turbine Meter Run
- Wedge Meter (liquid and gas)
- CO2 (NIST 14)
- Real-time Data Logger (trending)
- Valve Control (Feedback controller)
- RAMS (Alarming, Exception Reporting)
- Operators (simple custom math / logic)
- IEC 61131 (complex math / logic)
- Selectable Units (user selectable engineering units)
- Display / Keypad Handler
- IO subsystem Handler
- Tank Level Application
- Therms Master Application
- Therms Slave Application
- Multiple Protocols (Totalflow native low power, Modbus slave (binary/ASCII), Modbus master (binary/ASCII), LevelMaster, Btu 8000/8001, Enron Modbus, MotorSaver, ABB 267CS/269CS Multivariable, Altronic and others)

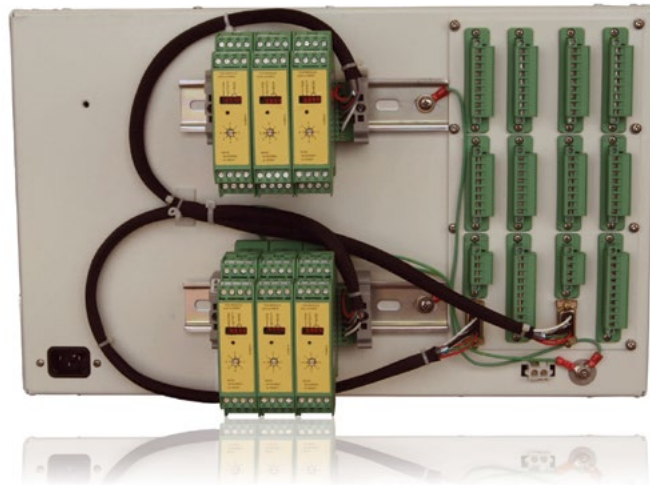
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XSeries remote controller features

- Significant hardening against over-current / transients
 - Positive Temperature Coefficient, resetting fuses and transient protection on
 - VBATT and SWVBATT outputs
 - each of the digital outputs
 - Battery Charger input
 - EMI/RFI suppression beads on all I/O points
 - Protection against reverse polarity wiring
- Base IO on each RC195 Board
 - 5 Analog Inputs
 - 4 Digital Inputs (2 can be used as hi-speed PIs)
 - 4 Digital Outputs
 - Battery Voltage
 - Charger Voltage
- Low power design operating as low as 8ma (<100 mW)
- Aluminum enclosure, powder coated
- Stable time base (accurate integration)
- Rechargeable, lead acid battery
- Solar, AC or DC charging options
- Dual level security code data protection
- Custody transfer applications
 - Monitors user limits for detection, and reporting of abnormal conditions
 - Defaults to 45 days of hourly and daily data. User configurable.
 - Defaults to 200 events. User configurable.
 - Complies with API 21.1 standard for custody transfer devices
 - Flow and energy calculations per AGA3-85, AGA3-92, ISO 5167-2003 and AGA-5
 - Super compressibility calculations per NX-19 or AGA8-92 Gross or Detail
 - Flow retention during user transducer calibration
 - Selectable 3 or 5 point user calibration of Analog Ins
 - Zero flow detection
 - Real time clock that keeps running on lithium battery
 - Advanced embedded data logger
 - Programmable alarm filtering
 - Exception reporting capability
 - Multiple protocol options including Totalflow packet protocol, various Modbus protocols and others
 - User programmable Modbus register maps
 - User programmable math and logic sequences
 - IEC 61131 Capability
 - Valve control and nominations capability

General specifications

		XRC 6990
Dimensions	Width	19.00 in. (482.600 mm) width of face plate 16.91 in. (429.514 mm) enclosure width
	Height	10.47 in. (265.938 mm)
	Depth	10.21 in. (259.334 mm) without TFIO modules 14.72 in. (373.888 mm) with TFIO modules
Weight (w/o battery)		Approx. 12 lbs. (5.44 kg)
Max IO modules		6 per XRC195 controller board (maximum of (2) XRC195 controller boards)
Max battery capacity		26/30AH
Certification		General purpose
Mounting		19 inch rack
Operating temperature (ambient)		-40°F to 140°F (-40°C to 60°C)
Humidity		0 - 95% non-condensing



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RC195 board

Dual board option will have two (2) RC195 boards installed in the same enclosure

Power	Nominal 12 VDC battery
Charger	Solar or 16-18 VDC
Memory	Data stored in 512K SRAM. (Lithium battery backup) Applications programs stored in 512K Flash. Flash loader stored in 512K PROM Registry and configuration files stored in 32K E ² PROM
Communications ports	1 - dedicated – PCCU (Local Configuration Port) 2 - RS232 or RS485 (board insertion modules)
LCD interface	Dedicated interface for 2 X 24 Liquid Crystal Display (LCD)
Keypad interface	Dedicated interface for optional ABB supplied keypad
IO expansion	I ² C Bus Interface for TFIO Modules
Security switch	Dual-Level Security Switch On-Board
Time base stability	± 7.5 ppm (parts per million)
IO scan rate	1 Time per Second
Analog inputs	5 single-ended channels, 0-10Vdc
Analog-to-digital resolution	18 Bit maximum resolution (0.00038% FS) 16 Bit nominal resolution (.00015%FS)
Digital inputs	4 inputs configurable as active or passive with optional software de-bounce
Pulse inputs	2 of the 4 digital inputs can be used as pulse inputs (up to 20KHz)
Digital outputs	4 open channel FET transistor switches

Notes

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