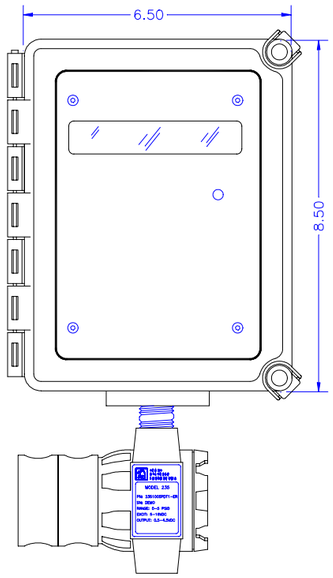
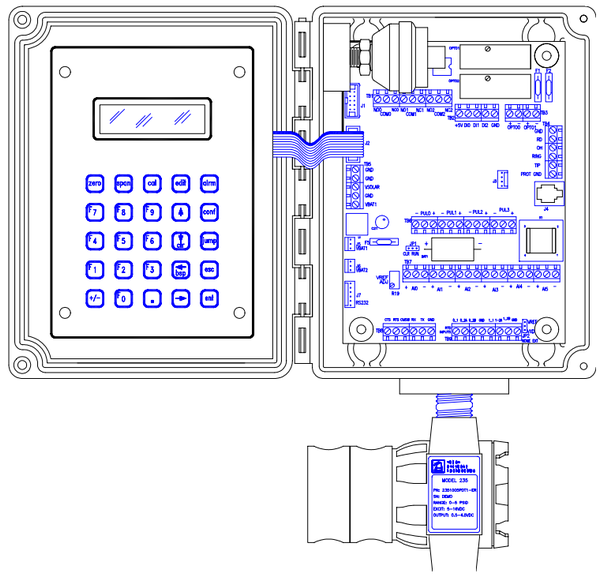
XARTU/1 – Front Exterior View



XARTU/1 Interior View w/Optional Keypad/Display



EAGLE RESEARCH CORPORATION

Product Information

PRODUCT DATA

XARTU/1 OTU – Natural Gas Flow Computer

Major Features

- Low Power CMOS Design
- Compact, Rugged, Reliable
- Full AGA-3, AGA-5, AGA-7, AGA-8 (Detail/Gross I&II), NX-19 Calculations
- Flexible Communications Options
- Integral DP and Press Transmitters
- Typical Power Configuration – 5 Watt Solar w/ 2.5 AH Internal Battery
- Multiple Run Capability
- Multitasking Operating System
- Full Remote Monitoring and Control
- Local and/or Remote Data Collection
- Two-way Calling – Call in on Alarm and/or Call in on Periodic Intervals
- UL and ULC Approvals
- Class 1, Div 2 Approved Configuration

XARTU/1 – OTU
Single Run Orifice

Product Description

The XARTU /1 Remote Terminal Unit (RTU) is a low-cost version of the XA series family of products. It is an intelligent, compact, rugged, and reliable industrial computer designed for real-time remote data acquisition and control applications. It can execute multiple processes, including tasks such as complex math functions, control algorithms, etc., without host intervention.

Flexibility and reliability were the major factors in the XARTU/1 design philosophy. It is a balanced system featuring flexible memory, I/O, power and communications schemes including support for HEXASCII, MODBUS, and various other customer protocols upon request. A harsh environment tolerance is another of the XARTU/1 strengths. The operating temperature can range from -40ºC to 70ºC, and the XARTU/1 comes in a fiberglass NEMA 4X enclosure. This allows the RTU to exist where the work must be done, eliminating costly signal conditioning or expensive long sensor runs.

The XARTU/1, normally fed with a 7-30 VDC supply, employs a low-power CMSO design. An optional 120/240 VAC unit includes an uninterruptible power supply. Should it lose power, the RTU will sense the failure, automatically switch to battery power, and continue to operate at full capacity. Other power options include solar power and thermoelectric generators for sites without conventional power.

The optional operator interface is a tow-line, 32-character liquid crystal display, and 25-key keypad with 10 user-defineable keys. This allows users to remotely examine and/or change process data and diagnose problems without a local host or terminal.

The XARTU/1 can calculate corrected volume using AGA-3, AGA-5, AGA-7, AGA-8 and NX-19 Reports and is fully compatible with Eagle Research's entire family of products. Eagle Research is committed to providing a complete solution for all gas flow and control applications.

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Reliability

- The XARTU/1 is ruggedly built to perform in a variety of industrial environments. Care is taken to maximize reliability by using a urethane conformal coating on all circuit boards, utilizing a hermetically-sealed optional keypad and display, and providing NEMA 4X packaging. Operating Temperatures from -40°C to +70°C (-40°F to +158°F).

Memory

The XARTU/1 has a minimum of 512K X 8 RAM for data and 512K X 8 Flash memory allowing easy upgrade of run-time code. With the large memory capacity, a minimum of 32,000 historical inputs with time and date stamp can be stored. You can define data type and collection period with Eagle Research's software.

Communications

One modem port and one RS-232C serial port for hand held data collector/PC are standard. Available XARTU/1 communications options are:

- Internal 2400 baud modem, supports standard CCITT V.22bis (2400 bps), Bell 212A (1200 bps), and Bell 103 (300 bps). Extension off-hook detection.
- Cellular telephone
- RS-422 and RS-485 multi-drop
- Bell 202 lease line 1200 baud modem
- Packet radio
- Point-to-point radio

User-Definable Alarms

The user can configure the XARTU/1 to activate an alarm when user-defined limits are exceeded, including low battery power. Using Eagle Research's Host software, a user can program the XARTU/1 to alarm on almost any condition, such as box intrusion, liquid levels, etc.

Audit Trail and Alarm Log

An audit trail file maintains a record of all parameter changes. A complete history of alarms is also stored in a separate file. Each entry includes the item value as well as the time and date the item entered and exited alarm status. These uneditable files may be retrieved using Eagle Research's software.

Pulse Inputs

Four programmable Form A or C pulse inputs for low or high speed applications are standard. These inputs can be used for simple pulse counters, or in more demanding applications such as card readers.

Digital Inputs / Outputs

Five multi-purpose digital I/O lines. High-level functionality including pulse inputs, PWM (pulse width modulation) outputs, and complex custom inputs/outputs. Two I/O lines are connected to field terminals through standard OPTO-22 modules. The other 3 I/O lines can be used as either Form C or A relay outputs or status inputs.

Environmental Tolerance

Operating temperature can range from -40°F to +158°F (-40°C to +70°C) with non-condensing humidity of 0 to 95%. The NEMA-4X compression-formed, fiberglass-reinforced nylon enclosure makes the unit ideal for demanding outside installations.

Hazardous Location

The XARTU/1 is designed for Class I, Division I and Class I, Division 2 hazardous location applications.

Custom XARTU/1 Products

The heart of the XARTU/1 is an intelligent, rugged, industrial computer programmable via modular processes to perform custom tasks. Eagle Research can cost-effectively supply a product tailored to your specific application. Talk to your sales representative for details.

XARTU/1 - Hardware Specifications

Features	Description
Input Power	7-30 VDC. Two battery inputs with MTA connectors. One power supply/rechargeable battery input with screw terminals. One solar power input with screw terminals.
Consumption	2.5 AH battery, 2-hr charging per day @ 250 mA charge rate (5w) 2 mA average current. Less than 100 uA sleep current.
Power Monitoring	Supply voltage monitoring through a/d with low supply voltage interrupt
Backup Battery	3.6 VDC lithium backup battery: 10 years typical backup of database and time/date during normal use.
Processor	High performance 16-bit microcontroller
Memory	512K x 8 remotely-programmable FLASH program memory 512K x 8 battery-backed RAM data memory
Real-time Clock	Battery-backed, quartz crystal controlled; +/- 1 sec/day typical accuracy; Programmable time scheduled interrupt capability
Internal Inputs	One ambient temperature input; one supply voltage input
Pulse Inputs	Four pulse inputs, software programmable for Form A or C; high or low speed. Each counter is a six-digit (0-999999) hardware counter with programmable interrupt support. Can be used for simple pulse accumulation, and for more complex applications such as card readers
Digital I/O's	Five multi-purpose, memory-mapped digital i/o lines. High-level functionality including pulse inputs, PWM (pulse width modulation) outputs, and complex custom inputs/outputs. Two I/O lines are connected to field terminals through standard OPTO-22 modules. The other 3 I/O lines can be used as either Form C or A relay outputs (solid state 100 mA max ac/dc) or status inputs (50 V max. DC only).
Analog Inputs	Six general-purpose analog inputs, 12-bit resolution, analog sampling, software Calibration. Nominal input ranges 0-5.12 VDC. A 250 ohm resistor in socket allows 4-20 mA or 0-5 VDC input for each channel. Each input has 3 screw terminals (Supply, Signal, and Ground). Supply voltage jumper selectable to connect the switched input voltage or allow connection of an external source or 5 VDC buffered reference.
RTD Inputs	Two 12-bit resolution RTD inputs; 3-wire lead compensated with ground shield Connection; four screw terminals per input
Communications	One modem port with extension off-hook detection. Speed up to 2400 baud. One RS-232 ports with RX, TX, RTS, CTS, and communication switch signals. Configurable speed up to 115,200 baud. Directly interfaces to modems, radios, etc. via 6-position MTA or screw terminals. Communication protocols selectable on a per port basis. Eagle HexASCII, Modbus, Teledyne/Geotech, Valmet, BSAP
Status LED	One software-controllable LED for various function indications
Expansion Capability	Additional connectors provide redundant termination points to allow for Configuration flexibility. Two 10-position connectors allow for expansion over the I^2C communication bus. Optional isolated analog output modules and optional serial ports
Transducers/Sensors Accuracy Specifications	
Differential Transducer	Accuracy: ±0.25% FS including all external effects over –20° F to +140° F
Pressure Transducer	Accuracy: ±0.25% FS including all external effects over –20° F to +140° F
RTD Sensor	±1°F