

MODEL 50388 Real-Time Data Transmitter ALERT2/SCADA Two-Way Transmitter

General Description

The Model 50388 Real-time Data Transmitter collects, processes, and transmits analog, digital, and serial sensor data on events and timed intervals. The collection, processing, and transmission of sensor data is controlled by parameters that are programmed using the ScadaLynx Toolbox software. The sensor data can be transmitted using multiple communication paths with mixed formats and protocols.

The HydroLynx Model 50388 ScadaLynx uses dual processor architecture and the latest in embedded processor technology to minimize power usage when idle and maximize computational power and performance when awake. The main runs the main data collection, data telemetry, and control processes. The second low power collects digital status and counter data. When the main processor is idle, it is put to sleep to conserve power. The PIC I/O processor wakes up the main processor on timed intervals, when digital event thresholds are met, radio carrier is detected, or data is entered on the console communication port.

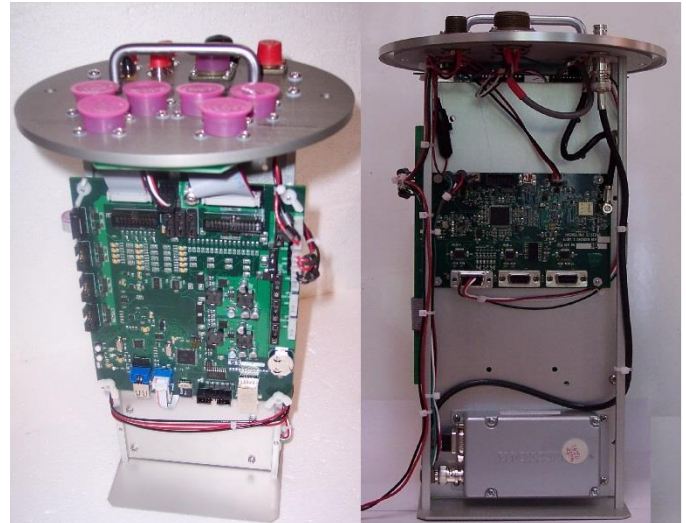
All 50388 power lines use blade fuses for easy replacement All power and I/O line are protected against over voltage, short, reverse polarity.

Standard memory on the Model 50388 consists of FLASH, Battery backed SRAM, and a battery-backed Real-time Clock (RTC). 16 MB of nonvolatile FLASH is provided for program and configuration file storage and data logging. Although stored in FLASH, the program is copied into battery backed SRAM (256 KB) for faster execution. A micro SD card up to 16 GB is provided for data logging and file storage. The contents of nonvolatile and battery-backed memory are not lost when power is removed.

The Model 50388 Data Transmitter is programmed using a Windows based ScadaLynx Toolbox software package. Transmitter programming can be done directly using the USB-B programming port or any of the four RS232 serial ports or remotely through telemetry equipment connected to these ports. The programming parameters include station identification; sensor I/O identification, scaling, sampling, computations, logging threshold, reporting threshold; alarm or control actions; communication parameters; power down settings; clock time and time zone; and data logging format and limit.

The Model 50388 Data Transmitter supports up to 16 analog inputs, 16 bit Analog to Digital converter, 8 programmable gains for ranges from 25 mV to 5VDC, 16 digital status inputs, 4 low speed up/down counter inputs, 4 high speed up only counter inputs, 8 digital outputs, and 5 SDI-12 connections. Serial data collection is possible through one or more RS232 serial ports.

Virtual sensor data can be computed from sensor inputs to compute sensor averages, maximums, minimums and runtimes. Virtual sensor data can then be tested, alarmed, logged and transmitted just like actual sensor inputs.



Model 50388 Real-Time ScadaLynx System

Eight digital outputs allow the 50388 Data Transmitter to perform local controls based on sensor upper, lower and change limits. Control resets are based on reset value and time interval limits.

Four RS232 serial ports are available for one or two-way communication or serial sensors. Communication formats include ALERT2 HDR, ScadaLynx, ASCII, and MODBUS. Communication paths can be through ALERT2 radio transceivers; SCADA radio transceivers; WIFI, GOES transmitter; direct serial connections.

One USB-A port is provided for file copies, one USB-B port is provided for programming with the ScadaLynx Toolbox, one Ethernet port is provided for TCP/IP data transfers, one micro SD card is provided for data logging.

Packaging for the Model 50388 includes the standard ALERT2 style canister, Metal panel mount, Rack mount, NEMA-4X fiberglass enclosure.

ALERT2 technology licensed from Blue Water Design LLC.

Ordering Information

- 50388-54..... Transmitter in Round Canister, 1 Precipitation Input, 1 SDI-12 Input, USB-B programming
- 50388-90..... Same as 50388-54 with 1 Precipitation Input, 1 Up/Down Counter Input, 2 Analog Inputs, 1 SDI-12 Input, USB-B programming
- 50388-81..... Same as 50388-54 with 1 Precipitation Input, 1 Up/Down Counter Input, 7 Analog Inputs, 1 Wind Input, 1 SDI-12 Input, USB-B programming
- 50388-Panel Transmitter on metal panel for metal box enclosure.
- 50388-K Transmitter in Rack Mount Enclosure
- 50388-N Transmitter in NEMA 4X Enclosure

Specifications

PCOS

Processor: Atmel AT32UC3A0512
 Clock Speed: 14.75 MHz
 Bus size: 32 bits
 Serial bus: SPI
 FLASH memory: 16 MB
 RAM memory: 256 KB
 Micro SD card: 16 GB

PIC I/O Processor

Processor ATMEGA64D3
 Clock Speed: 14.75 MHz
 Communication bus: SPI

Communications

Serial ports: 4 RS232 standard
 USB ports: 1 USB-A for data, 1 USB-B for program
 Ethernet port 1 for data transmit
 Protocols: ALERT2 HDR, ScadaLynx, ASCII, MODBUS, GOES, other protocols available

Analog Inputs

Number of external inputs: 16 (14 available, 2 reserved for on board voltage measurement)
 Resolution: 16-bits
 Input Ranges: 0 to 5 Vdc to 0 to 25 mVdc

Up/Down Counter Inputs

Number of inputs: 4
 Low speed input types: Form C, contact closure, direction line
 Maximum input rate: 100 Hz
 Input noise filtering: 200 kHz (-3 dB)

High Speed Counter Inputs

Number of inputs: 4
 High speed input types: AC, 5 Vdc
 Maximum input rate: 2 kHz
 Input noise filtering: 5 kHz (-3 dB)

Digital Inputs

Number of inputs: 16
 I/O types: Contact closure and 5 Vdc
 Input noise filtering: 15 Hz (-3 dB)

Digital Outputs

Number of outputs: 8
 I/O types: Low side, Open drain
 Output capacity: 50 Vdc and 150 mA DC continuous sink current

SDI-12 Input

Input pins: 1 on canister, 5 on terminal strip.

Power Required (not including optional hardware and/or boards)

Fully asleep: 10 to 16 Vdc, < 20 mA
 Fully awake: 10 to 16 Vdc, < 40 mA

Switched Power Supply

5 Vdc sensor power: 1 A, maximum
 12 Vdc sensor power: 1 A, maximum
 12 Vdc radio power: 10 A maximum
 12 Vdc radio power amplifier: 10 A maximum

General

Operating temperature: -40 to 85 °C
 Humidity: 0 to 95%, non-condensing

Models 50388-54, 90, 81

Enclosure: Aluminum canister
 Size: 8 in. diameter x 23 in. high
 Weight: 19 lbs with battery
 Shipping weight: 12 lbs (battery shipped separately)
 Sensor inputs: Keyed MS male connectors
 50396-54 1 Precipitation Input, 1 SDI-12 Input
 50388-90 1 Precipitation Input, 1 Up/Down Counter Input, 2 Analog Inputs, 1 SDI-12 Input
 50388-81 1 Precipitation Input, 1 Up/Down Counter Input, 7 Analog Inputs, 2 Wind Inputs, 1 SDI-12 Input
 Battery: 12 Vdc, 18 Amp-hour rechargeable gel cell
 External 12 Vdc connector: 3 pin MS male connector for solar panel or optional AC charger
 Antenna: BNC female bulkhead
 Serial ports (4): 10 pin ribbon connectors on board
 Programming port: USB-B

Models 50388-N, NZ, and N-CP, K, Panel

Enclosure: NEMA-4X fiberglass
 Size: 15.5 in. x 13.5 in. x 6.5 in.
 Weight: 16 lbs with battery
 Shipping weight: 12 lbs (battery shipped separately)
 Sensor inputs: Enclosure with 7 cable strain reliefs
 Connections:
 50388- N, Panel: Screw terminal interconnect PCB for 2 Up/Down Counter Inputs, 7 Analog Inputs, 2 High Speed Counter (wind) Inputs, 8 Digital Inputs, 4 Digital Outputs, 5 SDI-12 connectors onboard
 50388-NZ: Screw terminal interconnect PCB for 4 Up/Down Counter Inputs, 14 Analog Inputs, 4 High Speed Counter (wind) Inputs, 16 Digital Inputs, 8 Digital Outputs, 5 SDI-12 connectors onboard
 50388-N-CP, K: Keyed MS male connectors for 2 Up/Down Counter Inputs, 7 Analog Inputs, 2 Wind Inputs, 8 Digital Inputs, 4 Digital Outputs, 1 SDI-12 MS connector
 Battery: 12 Vdc, 18 Amp-hour rechargeable gel cell
 External 12 Vdc connector: 3 pin MS male connector for solar panel or optional AC charger
 Antenna: N-type female lightning arrestor
 Serial ports (4): 10 pin ribbon connectors on board
 Programming port: USB-B