INWATER MONITORING & CONTROL SYSTEMS

REMOTE INTERFACE UNIT MONITOR & CONTROL

Built on proven Point4 technology, the InWater RIU3 (Remote Interface Unit) is a versatile and reliable monitoring transmitter. The RIU3 displays and transmits data as well as provides the ability to control devices via two internal relay outputs. The RIU can be used as a single stand-alone unit, or as part of a larger monitoring system. When networking multiple RIU3s, the capabilities of the RIUs are enhanced by connecting to either:

- Our LC3 main control panel for data logging, alarming and remote viewing
- Our PT4 Sync Software for communication with your PC
- Your SCADA system

The RIU3 accepts analog and digital input signals, which allow operators to monitor water quality parameters as well as flowmeters, level switches, etc. The internal relays can be programed to trigger alarms or control devices.

A key feature of the RIU3 is tank-side probe calibration, which is easily performed using the weatherproof four button keypad. Probe calibration can now be done by just one operator, allowing the user to service the probe and adjust values all at the probe location.

The multi-link RS485 network layout minimizes data and probe cable lengths since the RIU3 can be located tank-side and all units connect to the same data bus. This makes the system easily expandable as the facility grows or budgets become available.

RIU – REMOTE INTERFACE UNIT

Weatherproof Enclosure:
NEMA 4x
IP65 Rated

Easy to Read:
Large Font
Backlit Display

Outputs:
Two user programmable relays

Probe Calibration:
One- or two-point calibration modes

RS485 MODBUS Communications:
Network multiple units

	RIU3	Point4 Sync Software	LC3 (7” Screen)	LC3 (10” Screen)
Alarm Output	✓	-	✓	✓
Email Alarming	-	-	✓	✓
Viewing on Local PC	-	✓	✓	✓
Remote Viewing on PC/phone/tablet	-	✓	✓	✓
Remote Control	-	✓	✓	✓
Max number of RIUs	-	40	24	48
Data Logging	-	✓	✓	✓
Graphing	-	✓	✓	✓
Cost	$	$$	$$$	$$$$

RELATED PRODUCTS

NEMA 4X Enclosure	RIU3 mounted inside NEMA 4X enclosure for harsh environments.
Solenoid valve and flow meter assembly	Oxygen ready solenoid valve and flow meter combination installed alongside an RIU3 either on PVC panel or in NEMA 4X enclosure.
LC3 control panel	The LC3 is the main control unit of the Point4 monitoring system and allows for alarm outputs, remote monitoring/control, data logging and graphing. LC3 is available in a 7” screen for up to 24 RIUs, or in a 10” screen for up to 48 RIUs.
PT4 Sync	PT4 Sync is Microsoft Windows based software that allows for viewing of networked RIUs on a PC, where data can be logged in CSV files.
Remote HOA Power Supply	A simple, plug and play controller with a Hand/On/Auto selector, allowing you to run your 120 VAC pump in manual mode, or automated mode controlled by setpoints programed at the RIU.
Float Switch Assembly	High or low water level protection using a float switch assembly which is easily installed and wired into the RIU for alarming purposes.

RIU SPECIFICATIONS

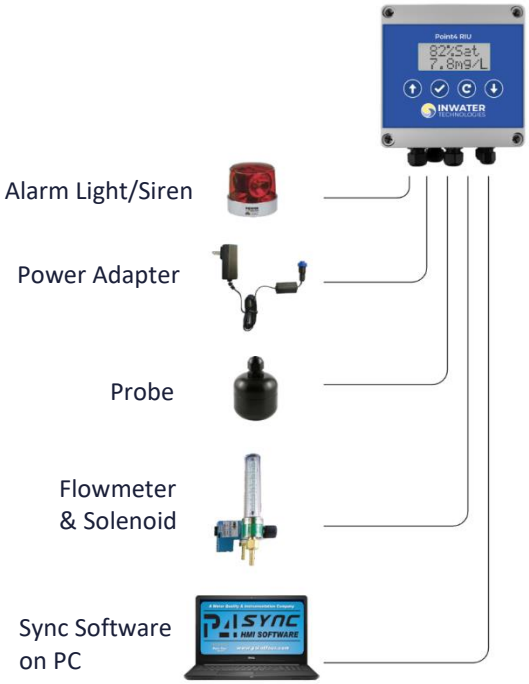
Power	12 - 36 VDC, 250 mA @ 12 VDC max.
Sensor Power	Onboard isolated 24VDC loop power supply
Input	Probe input (optically isolated) (4-20mA, 0-5V, digital on/off, MODBUS RS-485)
Display	8x2 Character, Large Font, LED Backlit
Relay Output	Two SPDT 10 Amp relay-user configurable, LCD/LED Alarm Indicator
Digital Output	MODBUS RTU RS485 communication port, Network addressable
Environmental	NEMA 4X / IP65, Sealed Cable Grips
Temperature	-5 °C to +60 °C - Operation/Storage -10 °C to +60 °C - Storage
Relative Humidity	5% to 85% RH at up to +40 °C – Operation; 5% to 40% RH above +40 °C up to +60 °C - Storage
Altitude	Up to 3,000 meters (10,000 feet) - Operation/Storage
Dimensions	125mm x 145mm x 75mm (4.9” x 5.7” x 3”)
Weight	457 grams (1 lbs)
Enclosure Material	Polycarbonate
Accessories	Wall mount bracket

PROBE OPTIONS

OxyGuard Commander	Galvanic Dissolved Oxygen and Temperature (%Saturation, mg/L, and °C)
OxyGuard Stationary	Galvanic Dissolved Oxygen (Configurable for %Saturation or mg/L)
InWater Optical DO	Optical Dissolved Oxygen and Temperature (%Saturation, mg/L, and °C)
Sensorex pH	Process pH Sensor (pH)
Sensorex ORP	Process ORP Sensor (mV)
OxyGuard Salinity	Salinity (ppt)
OxyGuard CO2	Dissolved CO2 probe and transmitter (mg/L)
Temperature	Temperature (°C)
Level Switch	High/Low level switch
Analog Input	Configurable to work with most 4-20mA or mV analog sensors
Discrete Input	Configurable to work with most discrete output sensors or switches

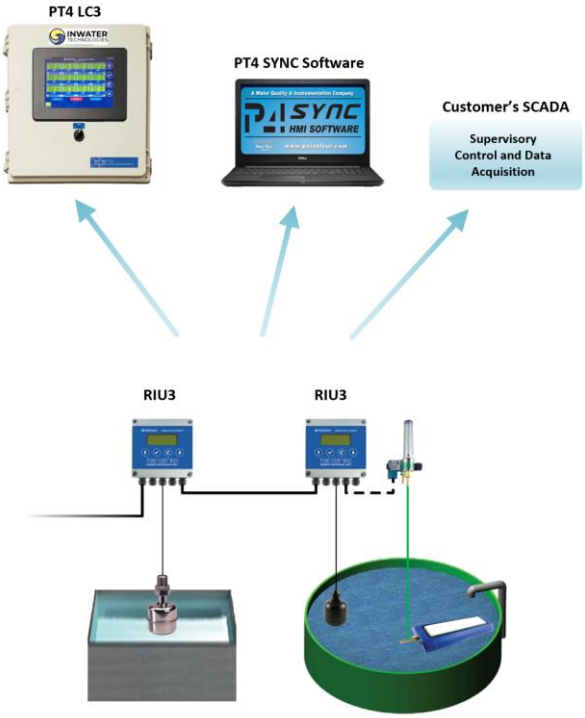
SYSTEM CONFIGURATION

SINGLE RIU SYSTEMS



Signal Input	Analog signals from probes (4-20 mA or 0-5 VDC); or digital signals (on/off); or MODBUS data
Relay Control Output	Each relay can be programmed for control functions to turn on/off devices. For example, a solenoid for oxygen dosing, or a dosing pump for pH control
Relay Alarm Output	Each relay can be programed for alarm functions to initiate alarm lights and/or siren
Power Supply	24 VDC Adapter
Connection	PT4 Sync software on a PC for remote viewing and datalogging SCADA system via RS-485 MODBUS

MULTI-LINKED RIU NETWORK



Multi-Linked Network	Connect multiple RIUs in an RS485 modbus network to either PT4 LC3 controller PT4 Sync software on a PC SCADA system
Centralized Data	Data from all linked units is visible in one place
Trends and Datalogging	View data trends and log data to CSV file when using an PT4 LC3 controller or Sync software
Centralized Alarming	Alarm outputs for Siren/Strobe, Auto-dialer, etc. when using an PT4 LC3 controller
Alarms	Receive an email when an alarm condition exists when using an PT4 LC3 controller
Remote Access	View and control remotely from PC or iOS/ Android device, when using PT4 LC3 controller

RIU MODBUS MAP

The available registers are PV1, 2, and 3, which correspond to the real-time value of the respective process variable as displayed on the RIU screen, and the Relay Status (0 = relay off, 1 = relay on).
Use MODBUS RTU Protocol

Parameters:
Baud: 9600; Byte Size: 8; Parity: Even; Stop Bits: 1; Timeout: 500 ms; Flow Control: None
Data must be interpreted using reversed words (e.g. 'Read Holding Float R Words' command or similar).
This requests 2 words from registers 1000 and 1001. It then reverses the order of the words before interpreting them as a float.

Read Registers:

Data Name	Data Register	Data Size	Data Type
PV1	1000	Double word	Float
PV2	1002	Double word	Float
PV3	1004	Double word	Float
Relay Status	20511	Double word	Float

Notes:
- PV1, 2 and 3 correspond to the 3 parameters displayed by an RIU (e.g. %Sat, mg/L, degC).
- If there is only 1 display parameter for the RIU, just use PV1 (e.g. %Sat).
- The data registers are given as an offset from 40001.