



**PROCESS CONTROL**  
**REMOTE MONITORING**  
**HVAC CONTROL**  
**WATER & WASTEWATER**  
**OIL & GAS**

*ScadaBridge is a unique combination of Modbus RTU and I/O Bridge for analog and discrete process signals. It's available with an internal 900MHz or 2.4GHz spread spectrum radio or standalone for use with an external radio or modem.*



Antenna not included with RTU

## ScadaBridge RTU & I/O Bridge

- **Compact Modbus RTU**
- **Analog/Discrete I/O bridge**
- **Ready to run - no programming**
- **Polled & "On Change" operation**
- **Very Low Power**
- **Sensor Power Saver Mode**
- **Available with internal radio**
- **>20mile Wireless Range**
- **Built-in radio repeater functions**
- **On-line radio net diagnostics**
- **Wide Power Range**
- **Wide Temperature Operation**
- **Built-in Analog/Discrete I/O**
  - 2 Universal (AI/DI) Inputs
  - 2 Analog Outputs
  - 4 Discrete Inputs/Outputs
- **I/O expansion via serial port**
- **3 Year Factory Warranty**

ScadaBridge™ is both a Modbus RTU and an I/O Bridge.

### As a Modbus RTU . . .

ScadaBridge™ is compatible with all popular SCADA and DCS software packages, and many PLCs and process controllers. As an RTU, ScadaBridge™ is the ideal, low-cost solution for monitoring levels and flow rates, or for controlling remote pumps.

ScadaBridge™ is also a practical alternative to alarm dialers at Lift Stations, providing real-time information and control without incurring the telephone charges.

Besides serving as remote I/O, ScadaBridges perform flow rate calculations as well as runtime and analog/pulse totalization to unburden a SCADA host.

### As an I/O Bridge . . .

ScadaBridge™ carries two pairs of analog signals and up to 4 Discrete I/Os between two or three sites, faithfully repeating the input signals at one end as outputs on the other. In this

mode, ScadaBridge™ forms a transparent replacement for copper wiring, carrying signals a few hundred feet to many miles at significantly lower installed and operating cost than hardwired or telephone line based solutions.

Since ScadaBridges "repeat" I/O signals, devices that are not capable of supporting a data link can still access sensors and control devices via radio or modem links, using conventional analog or discrete I/O.

### Optional Built-in Radio

ScadaBridges are typically used in wireless applications. To further reduce cost and complexity, ScadaBridges can be ordered with built-in Freewave<sup>(1)</sup> spread spectrum radios, forming a reliable, fully integrated, ready-to-run package; just add power and an antenna. With an internal Freewave radio, a ScadaBridge can also serve as a repeater, extending the reach of a wireless SCADA system at the same time as serving as a Modbus Slave RTU or I/O Bridge.



**Industrial Control Links**

**(800) 888-1893 [www.iclinks.com](http://www.iclinks.com)**

(1) Freewave Technologies Boulder, Colorado [www.freewave.com](http://www.freewave.com)

# ScadaBridge RTU and I/O Bridge

## ANALOG INPUTS

<b>Quantity</b>	2
<b>Analog Input Signals</b>	0 (or 4) to 20mA
<b>Resolution</b>	10 bits (1 part in 1024)
<b>Input Configuration</b>	Single-ended w/shared common
<b>Non-linearity</b>	0.5 LSB (0.05%)
<b>Input Overload Protection</b>	Self-resetting Polyfuse & Transorb
<b>Input Overload Tolerance</b>	30Vdc/100mA

## ANALOG OUTPUTS

<b>Quantity</b>	2
<b>Output Type</b>	0 (or 4) to 20mA
<b>Resolution</b>	10 bits (1 part in 1024)
<b>Output Overload Protection</b>	Self-resetting Polyfuse & Transorb
<b>Output Configuration</b>	Single-ended w/shared common, powered from RTU input power

## DISCRETE INPUTS/OUTPUTS

### Discrete Inputs

<b>Quantity</b>	Up to 4 (shared with DOs)
<b>Input type</b>	4.7K ohm pullup to RTU power
<b>Input Levels</b>	Contact Closure (2mA at 12Vdc in)
<b>Pulse Counting Rate</b>	up to 50Hz
<b>Pulse Rate Totalization</b>	4 x 10 <sup>9</sup> counts (32-bits)/gate period
<b>Pulse Rate Gate Time</b>	1 to 65,535 seconds
<b>Runtime Accumulation</b>	up to 4 x 10 <sup>9</sup> seconds (136 years)

### Discrete Outputs

<b>Quantity</b>	Up to 4 (shared with DIs)
<b>Output type</b>	Power FET, ON sinks to Common
<b>Output Voltage, nominal max.</b>	12/24 Vdc / 0 to 28 Vdc
<b>Output Type, Configuration</b>	Power FET, Sinking to Common
<b>Output Switch Current Rating</b>	.50A @20°C, derate to .25A @80°C
<b>Overvoltage / Transient Protection</b>	Transorb
<b>Overload Protection / Fault Current</b>	Self Resetting Polyfuse, 750mA

## COMMUNICATIONS

<b>Serial Ports</b>	1
<b>Serial Port Interface</b>	RS-232, 9 pin D Male
<b>Data Rates &amp; Framing</b>	2400 to 115K baud, No Parity
<b>Protocol</b>	Modbus RTU

## INTERNAL RADIO OPTION

<b>Radio Type</b>	Spread Spectrum
<b>Frequency Range</b>	902 to 928 MHz, or 2.40 to 2.4835 GHz
<b>RF Output Power</b>	User programmable Up to 1.0 watt / +30dBm (900MHz) Up to 0.5 watt / +26dBm (2.4GHz)
<b>Spreading Method</b>	Frequency Hopping
<b>Modulation</b>	Spread Spectrum GFSK
<b>Over-the-air data rates</b>	120kBs to 170kBs
<b>Data Rate</b>	up to 115K baud
<b>Format</b>	full duplex, asynchronous
<b>Error Checking</b>	32-bit CRC
<b>Antenna Connector</b>	TNC female

## ENVIRONMENTAL SPECIFICATIONS

<b>Dimensions</b>	3.5" W x 7.0" L x 1.3" D (89mm x 178mm x 33mm)
<b>Power</b>	8 to 28Vdc, regulation not required
<b>Operating Current</b>	(no sensor or output loads)
<b>Transmit</b>	200mA typical/ 650mA maximum
<b>Receive</b>	60mA typical/ 120mA maximum
<b>Power Saver Mode</b>	14mA typical/ 25mA maximum

<b>I/O &amp; Power Wiring Terminations</b>	Removable Terminal Block
<b>Wire Size</b>	#14 to #26 stranded, #12 solid

<b>Temperature</b>	
<b>Operating</b>	-40°C to 75°C (-40°F to 167°F)
<b>Storage</b>	-40°C to 100°C (-40°F to 212°F)

<b>Humidity</b>	5 to 85% Relative Humidity (non-condensing)
-----------------	--

## SOFTWARE TOOLS

<b>Configuration Software</b>	ScadaBridge Toolbox
<b>Platforms</b>	Windows 95,98, NT,2000, ME,XP

## ORDER PART NUMBERS:

### HARDWARE

<b>11-0000</b>	ScadaBridge RTU, <b>no internal communications option</b> (use with external radio or modem via RS-232 port)
<b>11-0001</b>	ScadaBridge RTU, with <b>Internal 900MHz Spread Spectrum Radio</b>
<b>11-0002</b>	ScadaBridge RTU, with <b>Internal 2.4GHz Spread Spectrum Radio</b>
<b>11-0009</b>	ScadaBridge RTU, <b>radio ready</b> (ready for user supplied Freewave internal radio)

**SOFTWARE** (Starter kits include software and documentation on CDROM and PC-to-RTU data cable)

<b>91-1001</b>	<b>ScadaBridge Starter Kit</b> RTU configuration and installation tools
----------------	---