



FEATURES

Model 18

- 8 discrete inputs (senses on/off)
- 8 control outputs

Model 18+

- 16 discrete inputs (senses on/off)
- 16 control outputs
- 4 analog inputs (0-5 VDC, 4-20 mA)
- 4 analog outputs (0-5 VDC)

Model 1801 Status Panel

- 16 status LEDs
- 16 control switches

APPLICATIONS

- Water System Monitoring and Control
- Water Tanks Monitor and Control
- Control and Monitor Remote Lift Stations
- Irrigation Monitoring and Control
- Monitor and Control Remote Sites for Temperature, Pressure, Flow, Power, Security
- Oil/Gas Refineries and Pipelines
- Food and Chemical Processing
- Industrial Wireless Process Control

REMOTE CONTROL & MONITORING

Say Goodbye to Leased Lines

Control Link is a wireless remote control and monitoring system consisting of two or more Model 18 or 18+ telemetry modules and the optional Model 1801 Status and Control Panel. When connected to conventional or trunking radios, Control Link can replace up to 20 dedicated or leased telephone lines for discrete on/off or analog monitoring and control.

Control Link provides a cost-effective wireless alternative for remote control and monitoring versus leased phone lines or dedicated wireline cable. Optional Models 1512 SentiDial and 1516 SentiVoice can provide voice alarms via phone or radio triggered from Control Link outputs.

Control Link can be configured as a point-to-point system or point-to-multi-point system. Each Control Link is bidirectional, capable of both sending and receiving data. All data transmissions are two-way and require a valid handshake response; if no handshake occurs, a communication failure alarm is generated.

OPERATION

A minimum Control Link system consists of two Model 18s connected to radios and powered by 12 VDC. Control Link #1 monitors inputs for changes and, upon detecting a change, transmits a data packet containing the input change information over the radio. The data packet is received by another radio connected to Control Link #2. Control Link #2 then reproduces the change at the corresponding output. These input and output changes can be discrete on/off or, in the case of the Control Link Model 18+, analog values that are varying voltages (0-5V) or current (4-20mA). Transmission of analog signals allows remote monitoring of transducers connected to physical parameters like temperature, pressure, power, etc.

CONTROL LINK FEATURES

Fast, Accurate Transmissions

Each data transmission has built-in error detection that assures the data will be correct. All transmissions require a handshake or they will be resent.

Multiple I/O Per Unit

The Model 18+ offers 20 bidirectional channels of discrete and analog I/O. The Model 18 has 8 discrete I/O channels.

Closed Loop Control

Each Model 18/18+ has both monitoring and control capability and can signal confirmation that a control function was executed.

Expandable

Multiple units may be used on the same radio to expand the I/O capability.

Shares Existing Radio Channels

The Model 18/18+ monitors the channel for other traffic and will send data between other transmissions.

Communication Failure Alarm

If a Model 18/18+ is unsuccessful in communicating with another Model 18/18+, it initiates a communication failure alarm.

Report by Exception

The Model 18/18+ will instantly report a change in state.

Point to Multi-point

The Model 18/18+ allows multiple remote sites to report to or be controlled by a single Model 18/18+.

Input/Outputs	Model 18	Model 18+
Discrete Inputs (senses on/off)	8	16
Open Collector Outputs	8	16
Analog Inputs (4-20mA, 0-5VDC)	--	4
Analog Outputs (0-5VDC)	--	4

Programming

The Control Link is configured by RS-232 port to allow the user to change parameters such as radio key delay.

Input/Output Constraints

1. Discrete I/O cannot link to analog I/O.
2. A single input can only control a single output and vice versa.
3. An input on one Control Link may not control an output on the same unit.

MODEL 1801 STATUS & CONTROL PANEL

Introduction

The Model 1801 Multipurpose Status and Control Panel provides status display for up to 16 points and on/off control for 16 remote operations. The Model 1801 panel comes in a standard 19" rackmount configuration. This panel can be used with a variety of existing systems to provide a user configurable display and control station.

Operation

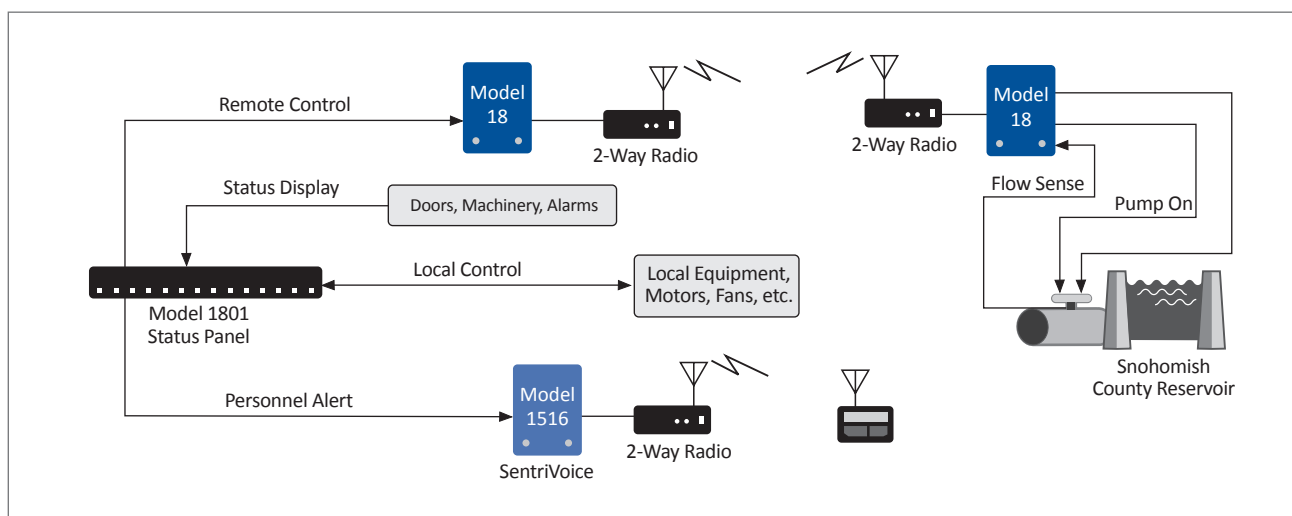
The Model 1801 can be connected to Model 18/18+ to provide a centralized status and control point.

Each of the 16 toggle switches can be connected to various motors, pumps, etc. to furnish on/off control. The 16 LEDs can be connected to points in a process such as flow sensors, level sensors, thermostats, etc. to indicate status.

General

The Model 1801 provides a cost-effective, off the shelf alternative to custom fabricating display and switch panels for different applications.

The Model 1801 will work with a variety of equipment to furnish an off the shelf control panel that is easy to use, maintain, expand and repair.



SYSTEM CONFIGURATIONS

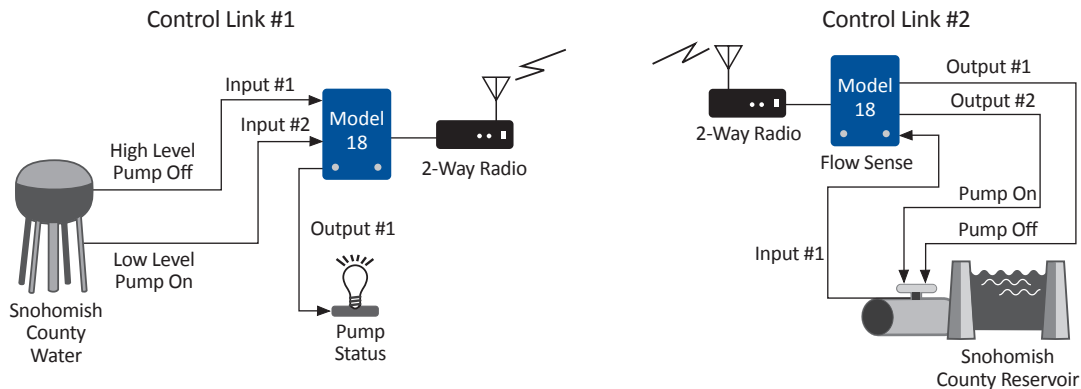
Point-to-Point Configuration

The user programs the units by mapping the inputs to the appropriate outputs.

Control Link 1, Tank High Level, Input #1.....to.....Pump Off, Output #1, Control Link 2

Control Link 1, Tank Low Level, Input #2.....to.....Pump On, Output #2, Control Link 2

Control Link 1, Pump Status Light, Output #1.....to.....Pump Flow Sense, Input #1, Control Link 2

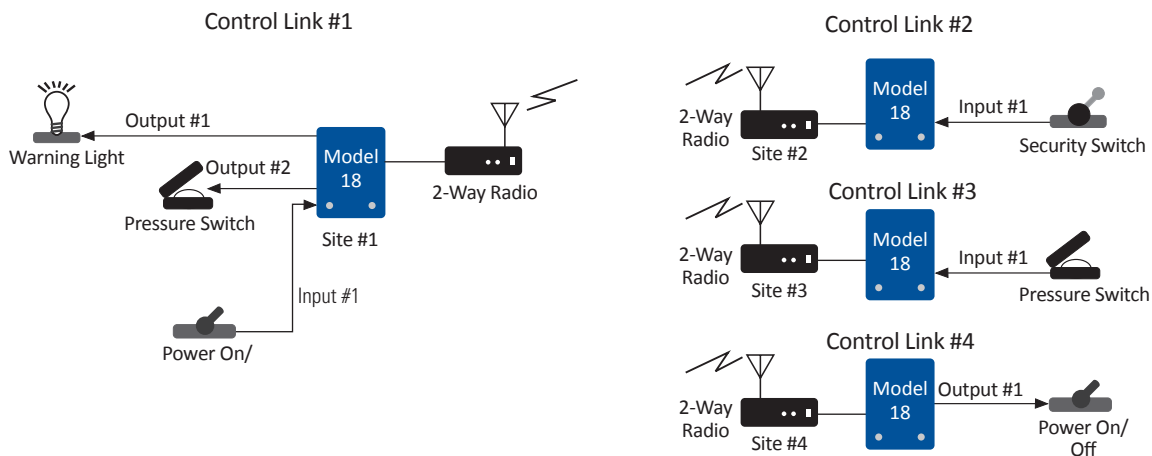


Point-to-Multipoint Configuration

Control Link 1, Warning Light On, Output #1.....to.....Security Switch On, Input #1, Control Link 2

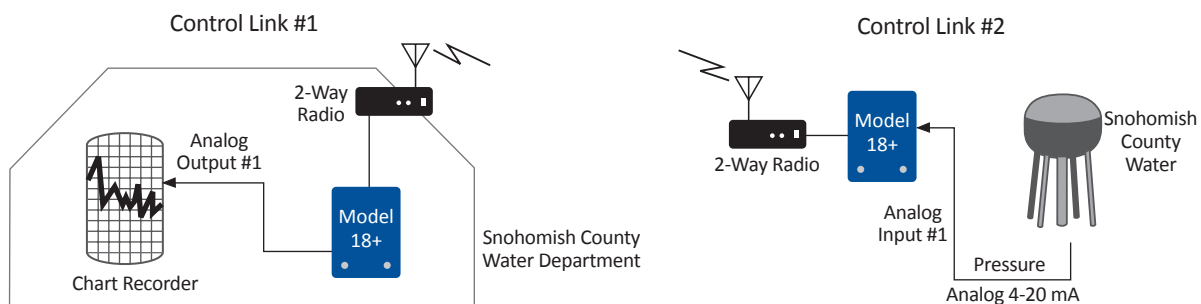
Control Link 1, Pressure Switch Off, Output #2.....to.....Pressure Switch On, Input #1, Control Link 3

Control Link 1, Power Off, Input #1.....to.....Power On, Output #1, Control Link 4



Analog Point-to-Point Configuration

Control Link 1, Water Level Value, Output #1.....to.....Water Level Value, Input #1, Control Link 2



OPTIONS

Optional Industrial Backplane

Easily integrate the 18/18+ into a metal or plastic NEMA enclosure via the Industrial Panel Kit. This option includes NEMA standard mounting plate, radio mounting hardware, battery with charger circuit or power supply, expanded I/O, and relay mounting area.

Contact Zetron's Industrial Systems Division for pricing, delivery and configuration.

CALL TODAY FOR AVAILABLE APPLICATION NOTES

- Control Link Signal Reproduction
- Water System Application Note
- Solar Engineering Your Remote Site
- Control Link Two-Wire 600 Ohm Balanced Line Interface
- Analog to Digital and Back Again
- Sources for Sensors, Software, and Relays
- NEMA Industrial Enclosure Integration

MODEL 1801 SPECIFICATIONS

Power:	10.5 to 24VDC. Max: 240mA @ 16VDC. (All indicators ON)
Size:	19"W x 1.75"H x 1.6"D, designed to fit a standard 19" equipment rack
Weight:	2 lb
Temperature:	0 to +60 degrees C
Monitoring Capacity:	16 contact closure sensors or open collector outputs to ground
Remote Control Capability:	16 SPST toggle switches to common ground
Indicator Inputs:	Max: 24VDC @ 25mA each
Toggle Switch	
Contact Closure:	Max: 50 VDC or 50 VAC @ 300mA

MODEL 18/18+ SPECIFICATIONS

PHYSICAL

Power:	13.8VDC nominal, 10.5-16 VDC
Current:	75mA typical, 150mA max. @ 16V
Temperature:	0 to +60 degrees C
Size:	7.25"W x 10.5"D x 2.25"H
Weight:	2 lb

RADIO INTERFACE

Audio Output:	20mV to 2V P-P (mic level audio), 1K ohm
Audio Input:	100mV to 4V p-p, 50K ohm.
Channel Busy Input (COR):	Low - 0-.7VDC, <100 ohms. to ground High - 3.5 to 12 VDC, >10K ohms to ground

PTT Output (Push-to-Talk):	Relay to ground, 300 mA max, normally open or closed
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Radio Modem Specifications

Data Rate	
Signaling:	1200 Baud Minimum shift keying

Signal Integrity

Required Signal Strength:	95% success at 12dB SINAD
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RS-232 INTERFACE

Baud Rate:	4800
Parity:	None
Bits:	8
Stop Bits:	1

I/O SPECIFICATIONS

External Inputs

Contact Closure Inputs:	Model 18: 8 inputs Model 18+: 16 inputs Lo<.8 volts Hi>2 volts Protected to + 48 VDC
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Analog Inputs:	Model 18+: 4 inputs 0 to 5 VDC analog sensor with 8-bit A/D input. 20mV/bit, 256 levels. Protected to + 48VDC
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External Outputs

Open Collector Outputs:	Model 18: 8 outputs Model 18+: 16 outputs, can switch up to Vcc +1V @ 100mA
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Analog Outputs:	Model 18+: 4 outputs 0 to 5VDC, 8-bit D/A, 20mV/bit, 256 levels
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