



## MultiSensor Interface Assignments Application Note #1

### Overview

The MultiSensor Interface is designed to configure the connection between the switching leads of one or more multiplexers and the wiring panel of the CR10 or CR10X datalogger. In addition to configuring the physical connection the interface provides a variety of power supply options, input signal conditioning and termination or completion components.

The Interface has (6) 8-bit configuration codes, these codes are loaded into the Interface prior to each measurement for each active channel of the multiplexer. Normally the loading of codes is accomplished by the program generated by MultiLogger, users wishing to utilize the Interface in programs written “from scratch” should contact Canary Systems for guidelines regarding program construct.

The code is derived by summing the binary values of each bit position as shown in the table below.

Position	1	2	3	4	5	6	7	8
Bit Value	1	2	4	8	16	32	64	128

For example, if switches 1, 4 and 5 are activated then the sum of the binary values is  $1+8+16=25$ .

In the code listings the switched leads of the multiplexer are designated with the prefix **Mux**, i.e. **Mux 1H**, **Mux 1L**, **Mux 2H** and **Mux 2L**. The MultiSensor Interface may be used with multiplexers with 2 switched leads, such would be common with devices such as thermocouples, thermistors, etc. The control module wiring panel connections are designated with the prefix **CR10**, i.e. **CR10 1H**, **CR10 1L**, etc.

### Configuration Code #1

Position	Value	Description
1	1	Connect Mux 1H to CR10 1H
2	2	Connect Mux 1L to CR10 1L
3	4	Connect 125ohm shunt resistor across Mux 1H & Mux 1L
4	8	Connect Mux 1L to CR10 AG
5	16	Connect Mux 1L to CR10 AG through 5K termination resistor
6	32	Connect Mux 1H & Mux 1L to AVW1 C+ & C-, respectively
7	64	Not Assigned
8	128	Not Assigned

### Configuration Code #2

Position	Value	Description
1	1	Connect Mux 2H to CR10 2H
2	2	Connect Mux 2L to CR10 2L
3	4	Connect Mux 2L to CR10 AG
4	8	Connect Mux 2L to CR10 AG through 5K termination resistor
5	16	Connect CR10 1L to CR10 AG
6	32	Connect CR10 2L to CR10 AG
7	64	Not Assigned
8	128	Not Assigned

### Configuration Code #3

Position	Value	Description
1	1	DC/DC Converter – Connect +12V to Mux 1H
2	2	DC/DC Converter – Connect +12V to Mux 2H
3	4	DC/DC Converter – Connect Ground to CR10 G
4	8	DC/DC Converter – Connect –12V to CR10 G (for 24V output with Pos 1 & 2)
5	16	DC/DC Converter – Connect –12V to Mux 2L
6	32	Not Assigned
7	64	Not Assigned
8	128	Not Assigned

### Configuration Code #4

Position	Value	Description
1	1	Connect Ex Output to Mux 2H (default is Mux 1H)
2	2	Connect Ex Amplifier to Mux 1H (or Mux 2H, see Pos 1)
3	4	Connect CR10 Ex1 to Mux 1H (or Mux 2H, see Pos 1) with 1K resistor
4	8	Connect CR10 Ex1 to Mux 1H (or Mux 2H, see Pos 1) with 10K resistor
5	16	Connect CR10 Ex1 to Mux 1H (or Mux 2H, see Pos 1) directly
6	32	Not Assigned
7	64	Connect 5V Power to AVW1 Vx (default is 12V)
8	128	Connect AVW1 F output to CR10 1H

### Configuration Code #5

Position	Value	Description
1	1	Connect Mux 1H to Input Attenuation Circuit (see Code #6)
2	2	Connect Mux 1L to Input Attenuation Circuit (see Code #6)
3	4	Connect Mux 2H to Input Attenuation Circuit (see Code #6)
4	8	Connect Mux 2L to Input Attenuation Circuit (see Code #6)
5	16	Not Assigned
6	32	Activate Ex Amplifier with factor of 1 (i.e. $2.5V \times 1 = 2.5V$ Ex), 50 mA max
7	64	Activate Ex Amplifier with factor of 2 (i.e. $2.5V \times 2 = 5V$ Ex), 50 mA max
8	128	Activate Ex Amplifier with factor of 4 (i.e. $2.5V \times 4 = 10V$ Ex), 50 mA max

### Configuration Code #6

Position	Value	Description
1	1	Connect Input Attenuation Circuit output to CR10 1H, attenuation factor = 2
2	2	Connect Input Attenuation Circuit output to CR10 1H, attenuation factor = 4
3	4	Connect Input Attenuation Circuit output to CR10 1L, attenuation factor = 2
4	8	Connect Input Attenuation Circuit output to CR10 1L, attenuation factor = 4
5	16	Connect Input Attenuation Circuit output to CR10 2H, attenuation factor = 2
6	32	Connect Input Attenuation Circuit output to CR10 2H, attenuation factor = 4
7	64	Connect Input Attenuation Circuit output to CR10 2L, attenuation factor = 2
8	128	Connect Input Attenuation Circuit output to CR10 2L, attenuation factor = 4

### **MultiLogger**

The MultiSensor types are defined in the MultiLogger setup file, multilogger.ini This file is edited by pressing the Setup button on the upper toolbar of MultiLogger. Locate the keyword “MultiSensor Types” in the setup file. The codes are listed left to right, code #1 to #6, respectively, separated by commas.

**Type#1=32,10,0,133,0,0**