

Turbidity Threshold Wiring Table
CR800/850 and CR1000 Campbell Data loggers
CRBasic
TTS Version 5.X
Revised: 04/16/2007

See the wiring notes at the end of the document for details and recommendations.

Power Connection

Description	Wire	Connection	AMP Connector (optional)
12V-POWER IN	Red	Battery positive	Pin 4
G-POWER IN	Blk	Battery negative	Pin 1
Copper Ground Lug	Grn	8 ft. ground rod	

Stage Sensor

Druck 1230-1830 Pressure Transducer (without external desiccant box)

Description	Wire	Connection	AMP Connector (optional)
Signal +	Yel	DIFF 1H	Pin 1
Signal -	Blu	DIFF 1L	Pin 4
Analog Ground	Wht	⏏	Pin 2
Excitation	Red	EX1	Pin 3
Shield	Bare	⏏	

Turbidity Sensors

DTS-12

TTS program set: turbDevice = 1

Description	Wire	Connection	AMP Connector (optional)
Data	Wht	C1	
Excitation	Red	12V	
Ground	Blk	G	

Analite NEP 395

TTS program set: turbDevice = 4

Description	Wire	Connection	AMP Connector (optional)
Data	Wht	C1	
Excitation	Brn	12V	
Ground	Grn	G	
Shield	Bare	G	

OBS-3 Analog Differential Wiring

TTS program set: turbDevice = 2

Description	Wire	Connection	AMP Connector (optional)
Signal +	Wht	DIFF 2H	
Signal -	Grn	DIFF 2L	
Excitation	Red	SW12V	
Ground	Blk	G	
Shield	Bare	G	

OBS-3+ Analog Differential Wiring, 1X range (0-2000)

TTS program set: turbDevice = 2

Description	Wire	Connection	AMP Connector (optional)
Signal 1X +	Blu	DIFF 2H	
Signal 4X +	Wht	N/C insulate	
Signal -	Grn	DIFF 2L	
Excitation	Red	SW12V	
Ground	Blk	G	
Shield	Brn	G	

OBS-3+ Analog Differential Wiring, 4X range (0-4000+)

TTS program set: turbDevice = 2

Description	Wire	Connection	AMP Connector (optional)
Signal 1X +	Blu	N/C insulate	
Signal 4X +	Wht	DIFF 2H	
Signal -	Grn	DIFF 2L	
Excitation	Red	SW12V	
Ground	Blk	G	
Shield	Brn	G	

OBS-3 Analog Single-Ended Wiring

TTS program set: turbDevice = 3

Description	Wire	Connection	AMP Connector (optional)
Signal +	Wht	SE3	Pin 1
Signal -	Grn	N/C insulate	
Excitation	Red	SW12V	Pin 3
Ground	Blk	G	Pin 2
Shield	Bare	G	

Pumping Samplers

ISCO 3700 or 6712 (preferred) Direct Connection

Description	Wire	Connection	AMP Connector
Power In	Red or Wht	Battery Positive	Pin B
Ground	Blk	Battery Negative	Pin A
Flow Connector		C2	Pin C
Flow Connector		G	Pin B

Sigma 900 Direct Connection

Description	Wire	Connection	AMP Connector
Power In		Battery Positive	Pin A
Ground		Battery Negative	Pin B
Flow Connector		C2	Pin C
Flow Connector		G	Pin B

ISCO 3700, 6712, or Sigma 900 Campbell Sampler Control Cable 10164

Description	Wire	Connection	AMP Connector
Relay Control	Yel	C2	
Flow Pulse	Red	12V	
Ground	Pur	G	
Ground	Clr	G	

Optional Sensors/Samplers



Campbell 107 Water Temperature Sensor

Description	Wire	Connection	AMP Connector (optional)
Signal	Red	SE5	Pin 1
Excitation	Blk	EX2	Pin 3
Analog Ground	Pur	⏏	Pin 2
Shield	Clr	⏏	Pin 4

Campbell 107 Air Temperature Sensor

Description	Wire	Connection	AMP Connector (optional)
Signal	Red	SE6	Pin 1
Excitation	Blk	EX2	Pin 3
Analog Ground	Pur	⏏	Pin 2
Shield	Clr	⏏	Pin 4




Tipping Bucket Rain Gage (from Campbell Scientific)

Description	Wire	Connection	AMP Connector (optional)
Signal	Blk	P1	Pin 1
Signal Return	Wht		Pin 4
Shield	Clr		

ISCO 3700 or 6712 Sampler 2 Direct Connection Sample bottles 25-48

Description	Wire	Connection	AMP Connector
Power In	Red or Wht	Battery Positive	Pin B
Ground	Blk	Battery Negative	Pin A
Flow Connector		C3	Pin C
Flow Connector		G	Pin B

Wiring Details and Recommendations

- The data logger must have continuous power, including during battery exchanges, to prevent re-initialization of the program variables and flags. Use two battery-wiring harnesses to allow the discharged battery and replacement battery to be connected in parallel during the swap.
- The selection of the G and  terminals have specific recommendations from Campbell Scientific (see page OV-3 of the CR800 manual):
 - Signal Grounds () should be used for single-ended analog inputs, pulse inputs, excitation returns, and shield wires.
 - Connect analog ground wires to the  terminal closest to the SE terminal in use or to the L terminal of a differential pair.
 - Power Grounds (G) should be used for returns for 5V, SW12, 12V, and control outputs (C1-C4).
 - Always connect a 12-gage wire between the copper ground lug on the data logger and a driven 8-foot ground rod. The battery, data logger, and pumping sampler must have a common ground to earth.
- AMP connectors are either metal (e.g. the pumping sampler battery and flow connectors) or plastic connectors between the sensors or battery and the data logger. The pumping sampler connectors are required, but the sensor to data logger connectors are optional, and pin designations where shown are customary. It is highly recommended to install AMP connectors between the battery, data logger, and pumping sampler to eliminate the possibility of reversing the polarity. Battery cables should have replaceable 2-prong, 7A automotive fuses (not in-line glass fuse and yellow fuse holder that are supplied with the ISCO power cable). Alligator battery clips supplied with the ISCO power cable are not recommended because they are unreliable and often corrode.

- Always use differential wiring connections when they are available because they provide improved signal quality.
- The wording in the table “N/C insulate” means do not connect the wire but insulate the exposed conductor with electric tape or shrink tube to protect it from unwanted connections or shorting to ground. Entries in the table under the “Wire” column that are not labeled mean that the wire color may vary depending on the cable that is used. Complete the table entries once the wire colors are identified.
- Following the selection of the sensors for the gaging station, this document can be simplified for field use by removing the unused sensor tables.