INSTRUCTION MANUAL

CSI Model 10164-L Sampler Control Cable for use with Isco and Sigma Autosamplers

1/99

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CSI MODEL 10164-L SAMPLER CONTROL CABLE
FOR USE WITH ISCO AND SIGMA AUTOSAMPLERS

The 10164-L sampler control cable enables a datalogger to trigger an Isco, American Sigma, or connector-compatible autosampler. Through this cable, the datalogger can inhibit the sampler from running its programmed sampling routine and sense and record when the sampler indicates that it has taken a sample. The following examples illustrate its use. Each of these functions are independent of the others and you may combine functions as desired. You should insulate and tuck out of the way any unused wires.

Trigger Sampler

Wire color	CR10	21X	BDR320
purple	G	Ground	GND
yellow	C2	Control 2	C2
red	12V	+12	12V
clear	G	Ground	GND

To trigger the sampler, pulse port 2 using a set of instructions such as follows:

Do (P86)
1:	42	Set Port 2 High

; Note: The 50 in the third parameter keeps the
; port high for 0.5 seconds. Some users have
; reported using a delay of 1 sec (100 in
; parameter 3) to ensure reliable triggering of
; the sampler.

Excitation with Delay (P22)
1:	1	Ex Channel
2:	0	Delay W/Ex (units = 0.01 sec)
3:	50	Delay After Ex (units = 0.01 sec)
4:	0	mV Excitation

Do (P86)
1:	52	Set Port 2 Low

For the CR10 and the 21X, you can also supply the trigger signal from switched excitation if no control ports are available. In this case, connect the yellow cable to the desired excitation channel (say E3) and pulse the channel using Instruction 22 as follows:

Excitation with Delay (P22)
1:	3	EX Chan (or the channel you select)
2:	50	Delay w/EX (units=0.01sec)
3:	0	Delay after EX (units=0.01sec)
4:	2500	mV Excitation

Sense Sampler Event Markers

Pulse port method:

Wire color	CR10	21X	BDR320
purple	G	Ground	GND
orange	P1	Pulse 1	P1
clear	G	Ground	GND

To sense sampler events, use Instruction 3 with a configuration code of 0 (no configuration code or Reps are required for the BDR320):

Pulse (P3)
1:	1	Reps
2:	1	Pulse Input Chan
3:	0	High frequency (configuration code)
4:	2	Loc [:EVENTS]
5:	1	Mult
6:	0	Offset

To record the events in the datalogger's final storage area, remember to totalize the events temporarily stored in Input Location 2 in this example.

CR10 control port interrupt method:

For the CR10, there is another useful method for sensing and recording sampler events. This method uses the control port 8/subroutine 98 interrupt feature of the CR10. Each time the sampler reports an event, the CR10 records the sample number with a time stamp in final storage. In this example, sampler events will show up as output arrays with an array ID of 400.

Wire color	CR10
purple	G
orange	C8
clear	G

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CR10 Program (Subroutine 98 in Program Table 3)

    *   3   Table 3 Subroutines

1: Beginning of Subroutine (P85)
   1:     98   Subroutine Number

2: Z=Z+1 (P32)
   1:     10   Z Loc [Sample_No]

3: Do (P86)
   1:     10   Set high Flag 0 (output flag)

4: Set Active Storage Area (P80)
   1:     1   Final Storage Area 1
   2:    400   Array ID or location

5: Real Time (P77)
   1:   1110   Year,Day,Hour-Minute

6: Sample (P70)
   1:     1   Reps
   2:     10   Loc [Sample_No]

7: End (P95) ;of Subroutine Number 98

End Table 3

Inhibit Sampler's Program

Wire color	CR10	21X	BDR320
purple	G	Ground	GND
(Isco) green	C1	Control 1	C1
(Sigma) brown	C1	Control 1	C1
clear	G	Ground	GND

To *inhibit* an Isco sampler from running its own program, set control port 1 low using a program control instruction such as Instruction 86. To allow the sampler to run its program, set it high.

> **NOTE:** The logic for Sigma samplers is just the opposite. A high signal inhibits the sampler.

Example for inhibiting an Isco sampler's program:

Do (P86)
   1:     51   Set Port 1 low ;(41 would set it high)

Technical details of cable design:

Wire color	Via	Connector pin
brown	direct	D
green	direct	F
purple	direct	B
yellow	solid state relay circuit	none (controls C)
red	solid state relay circuit	C
orange	20Kohm resistor	E
clear	cable shield	no connection

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