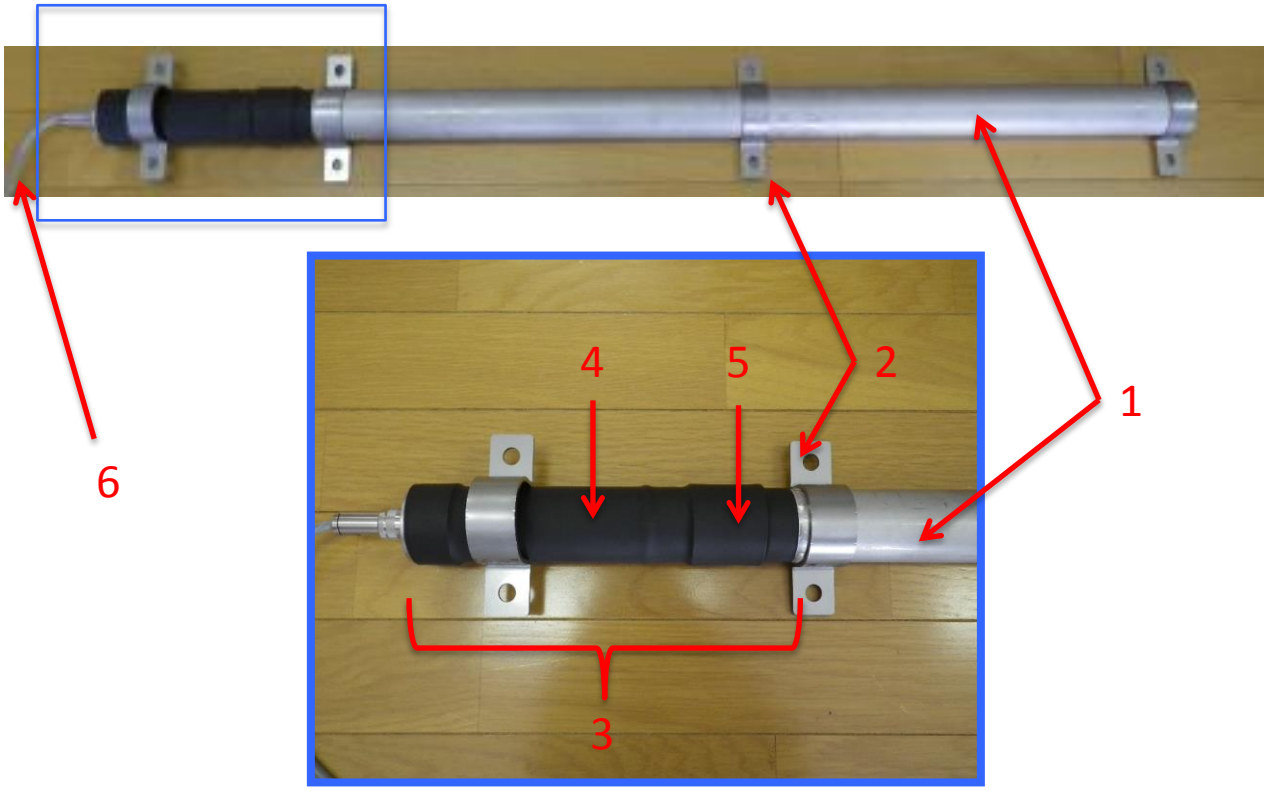
Installation manual for Hydrophone

Ver. 3.0

July, 2016

Hydrotech Corporation

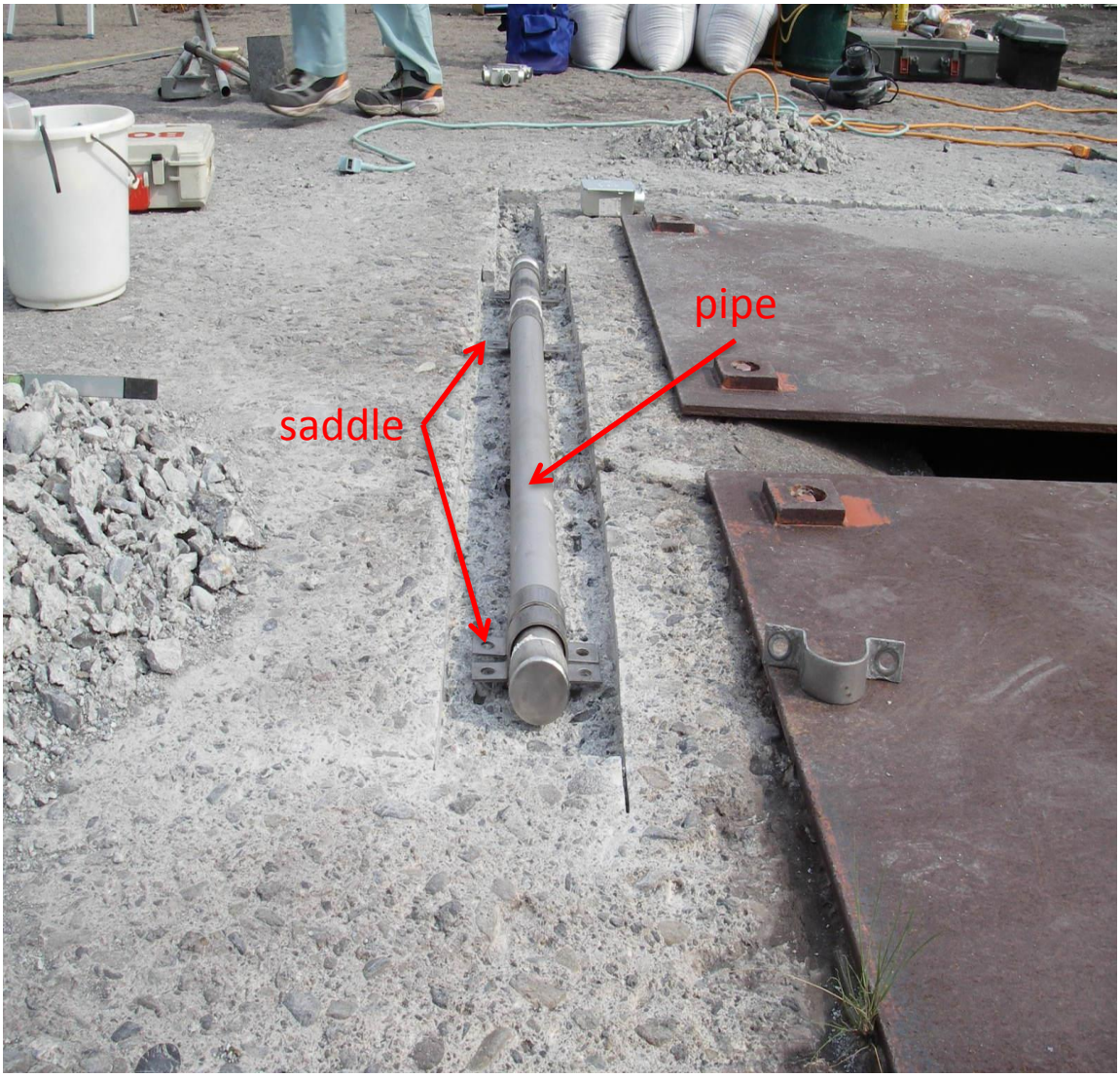
1. Pipe Hydrophone



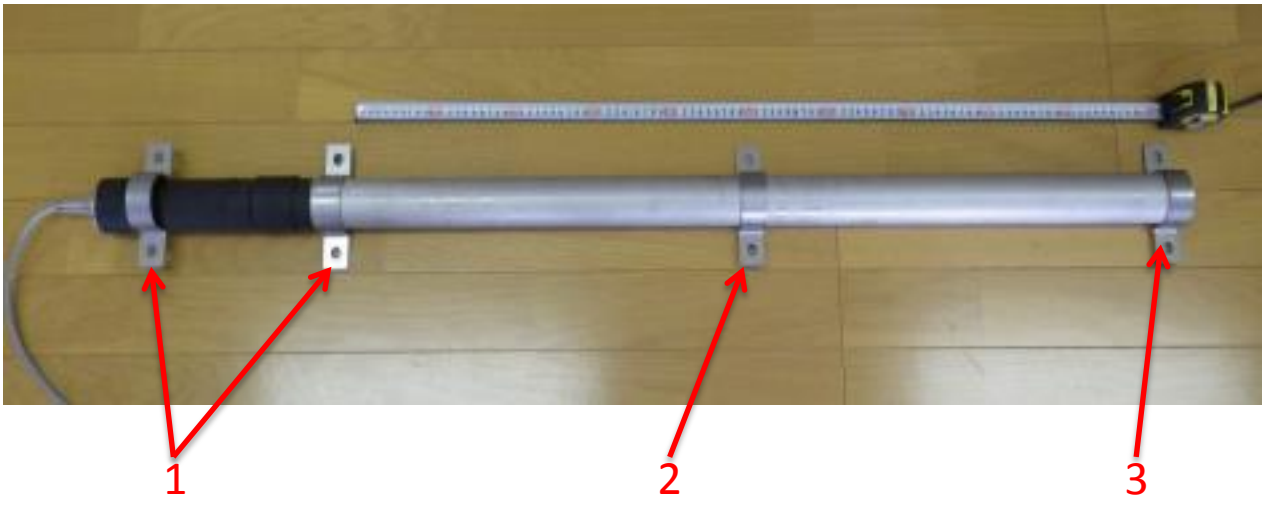
1. pipe (2 m, 1m, 0.5m)
2. Saddle
3. Socket parts
4. Preamplifier
5. Microphone
6. Cable (standard length : 30m)

Prepare for installation

1. A ditch should be dug for hydrophone. Depth is 2-2.5cm.
2. Saddle is fixed with anchor.



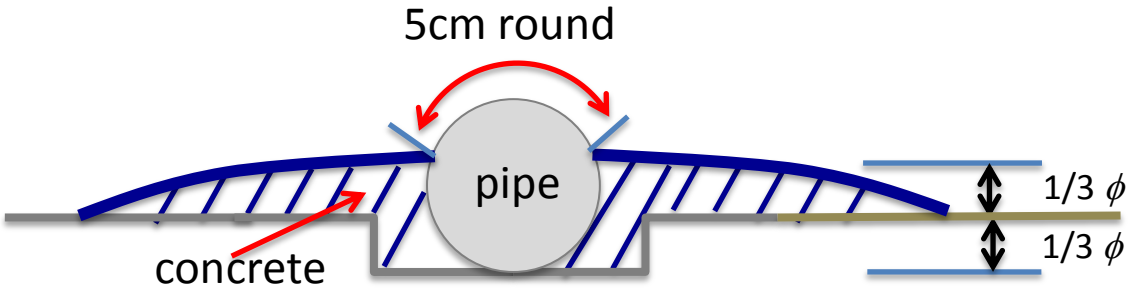
Saddle position



1. Socket part should be fixed by two saddle. However saddle is tight to the pipe of hydrophone, saddle should be fixed.
2. For 2m and 1m pipe length version, a saddle is fixed at the center of hydrophone pipe depending on site situation. For 0.5m pipe length, you should not use a saddle at the center of hydrophone pipe.
3. To fix the hydrophone pipe tenaciously, two saddle should be used at the end of pipe.

Construction

1. Hydrophone pipe is covered with concrete. 5cm round of pipe should not be covered.
2. The each end of pipe (red circle on picture) including a saddle should be covered with concrete.



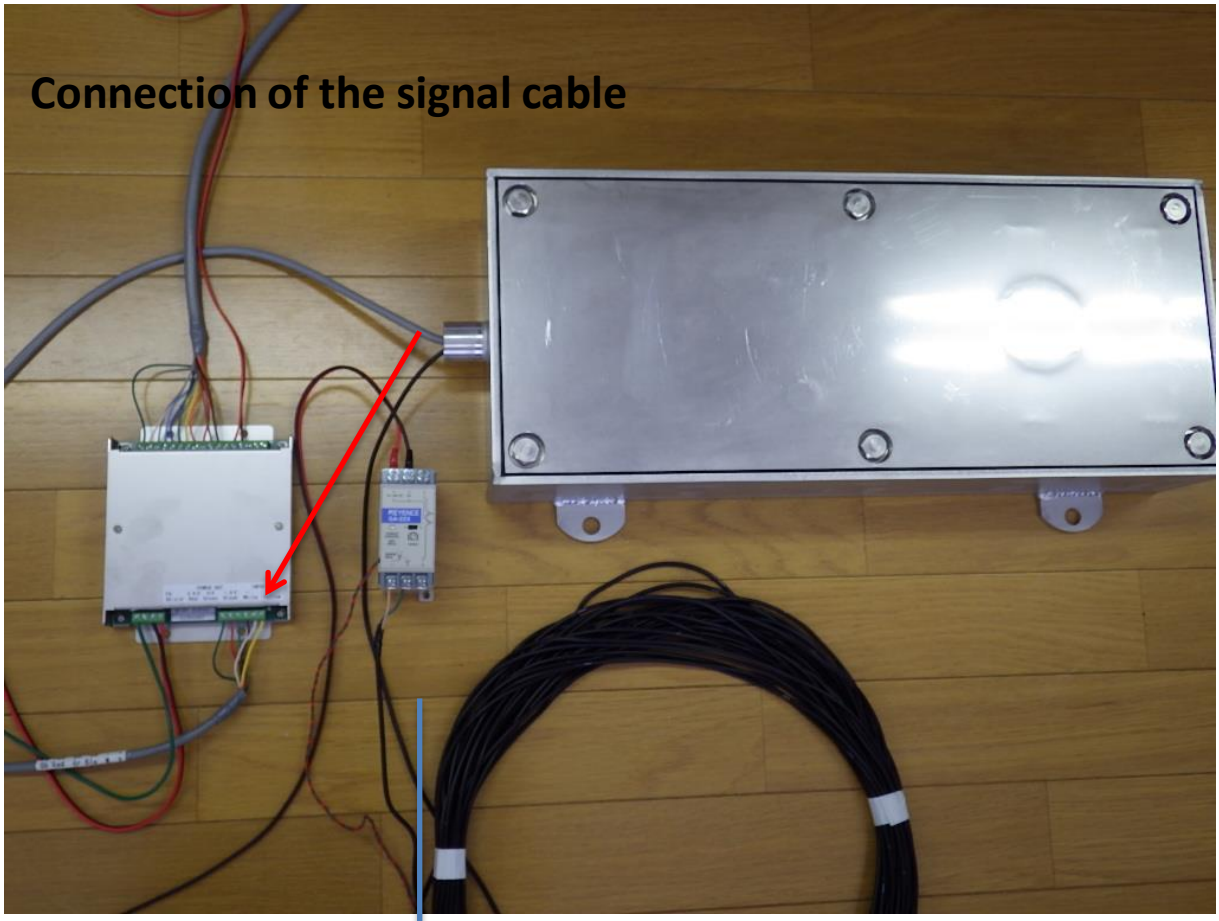
2. Plate Hydrophone

The concrete of river bed is removed at the size of the hydrophone. The body of hydrophone should be fixed with four anchors.

The plate face of the hydrophone and the face of river bed should be installed at approximately the same height.

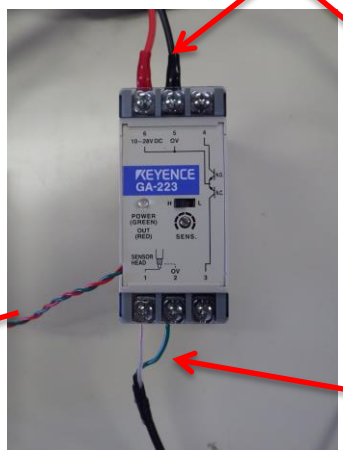
Hard concrete should be filled a gap between the hydrophone and the concrete of the river bed.

The cable connection of the plate hydrophone



The vibration sensor is an option.

Vibration converter



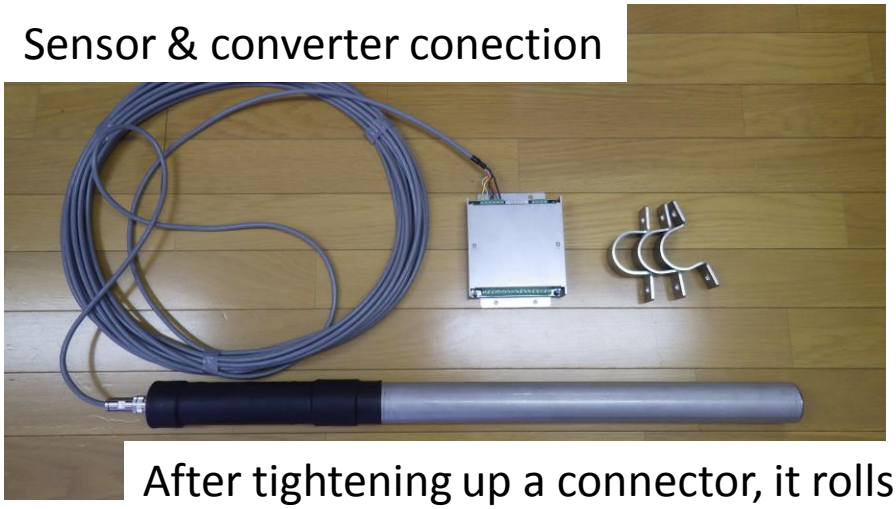
The power cable
from the datalogger

Output

The signal cable
from the plate hydrophone

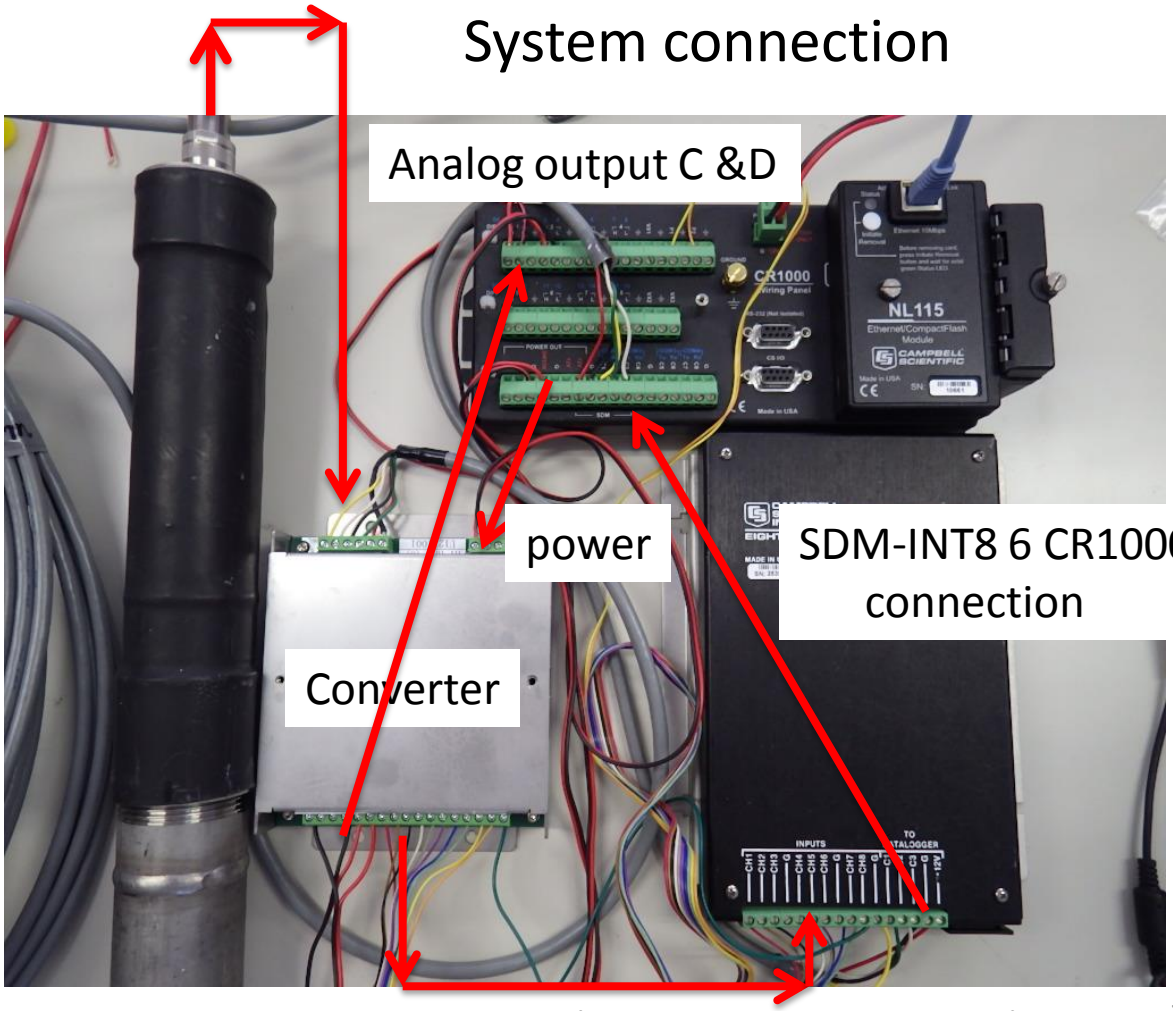
E. Cable connection

Sensor & converter conection

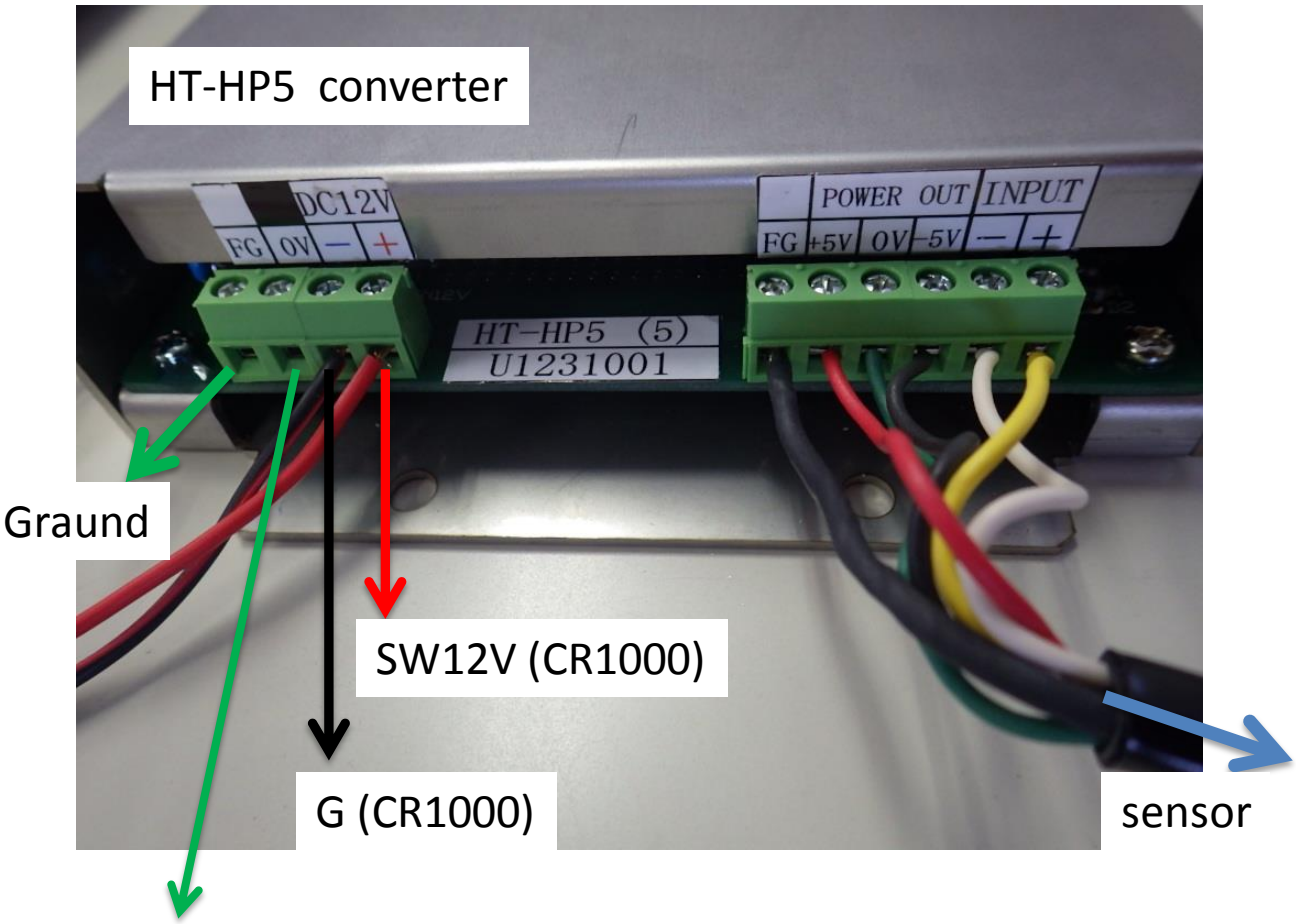


After tightening up a connector, it rolls up a masking tape.

System connection



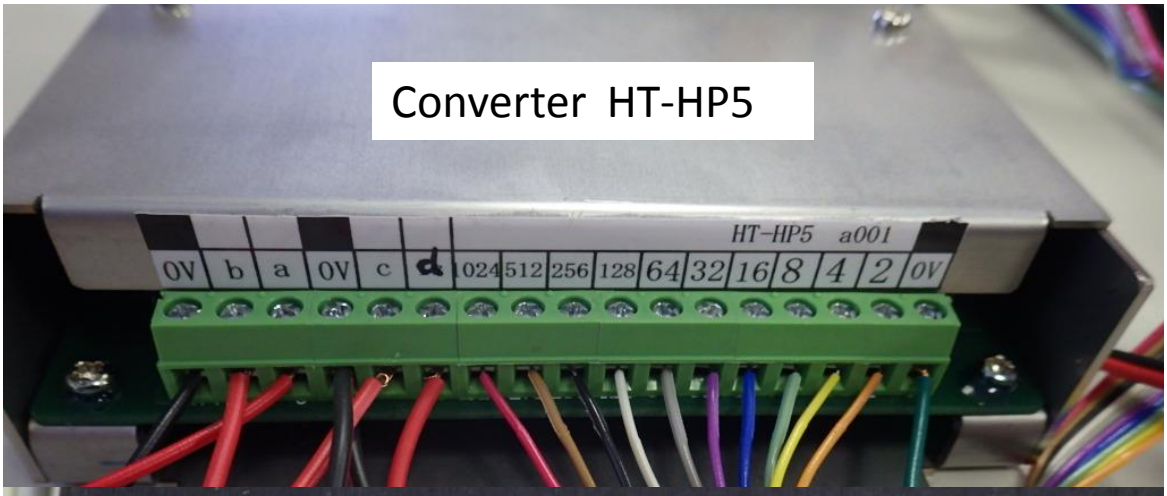
Converter connection

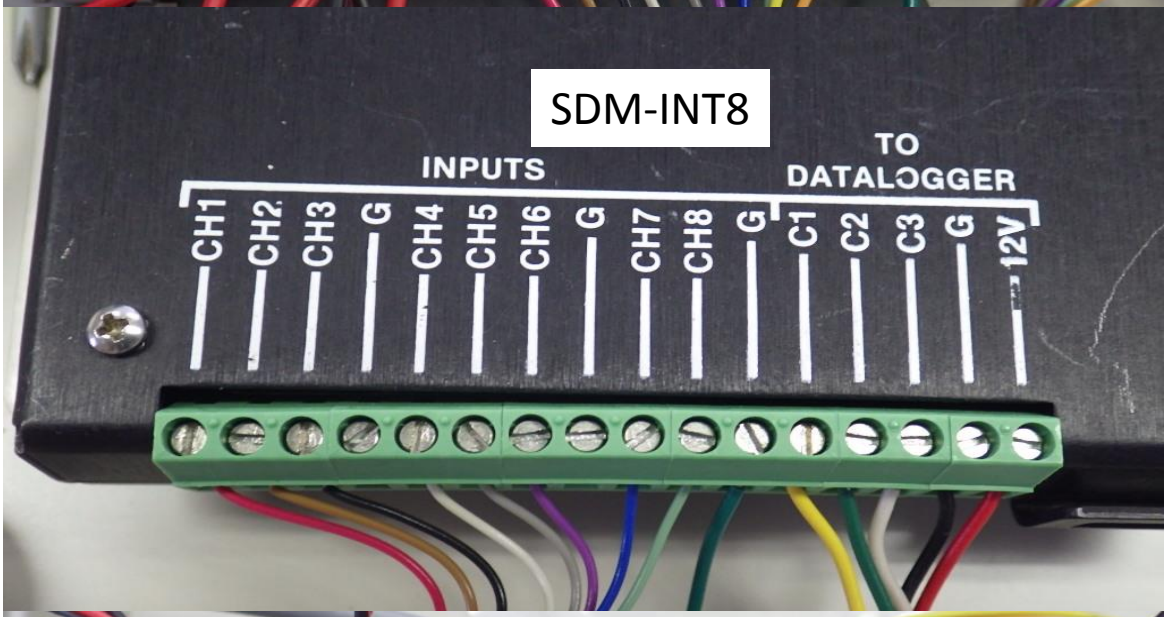


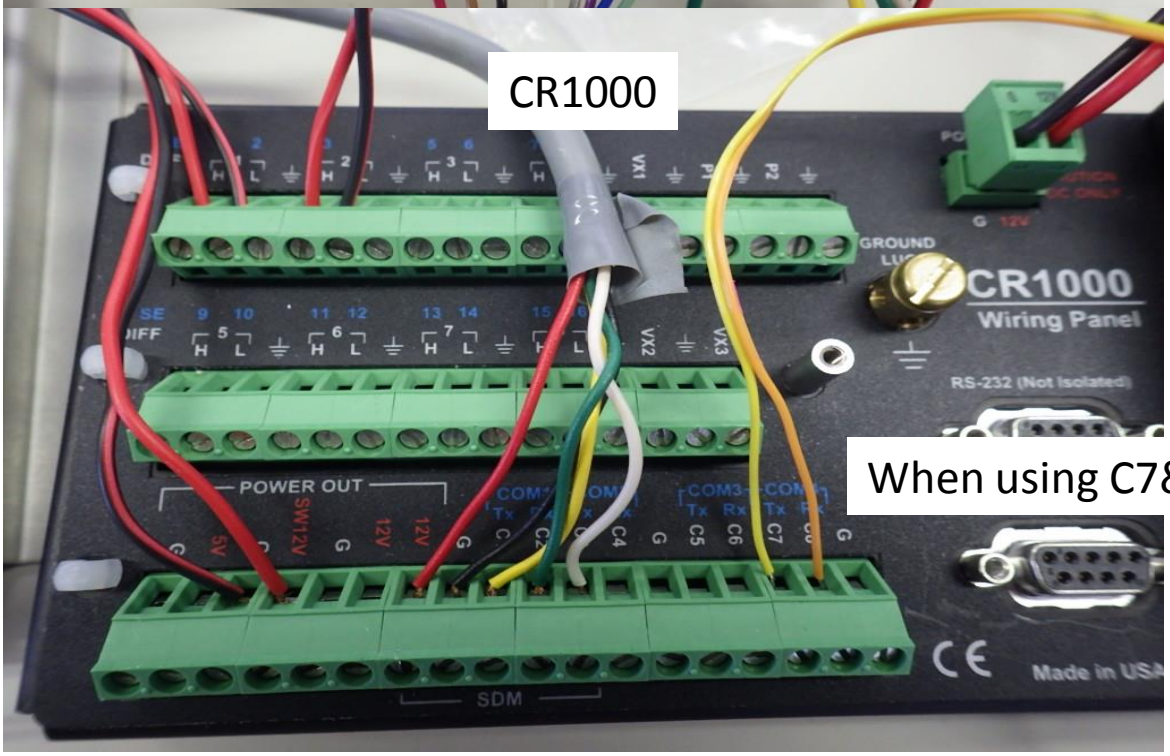
If you think that the noise is big level ,
you should test the short circuit of 0 V and FG.

sensor cable

	FG	: shield
power	+5V	: red
Power	0V	: green
power	-5V	: black
intput	-	: white
input	+	: yellow







When using C7&C8

cable connection

Converter	CR1000	SDM-INT8
0V		
b		
a		

It uses when recording the wave of the sound.
It is necessary about 50kHz sampling frequency.

0V	DIFF 1L , 2L	
c	DIFF 1H	
d	DIFF 2H	
1024		CH1
512		CH2
256		CH3
128		CH4
64		CH5
32		CH6
16		CH7
8		CH8
4	P1 or C7 (It adjusts with the program)	
2	P2 or C8 (It adjusts with the program)	
0V		G

SDM 12V	12V
SDM G	G
SDM C1	C1
SDM C2	C2
SDM C3	C3

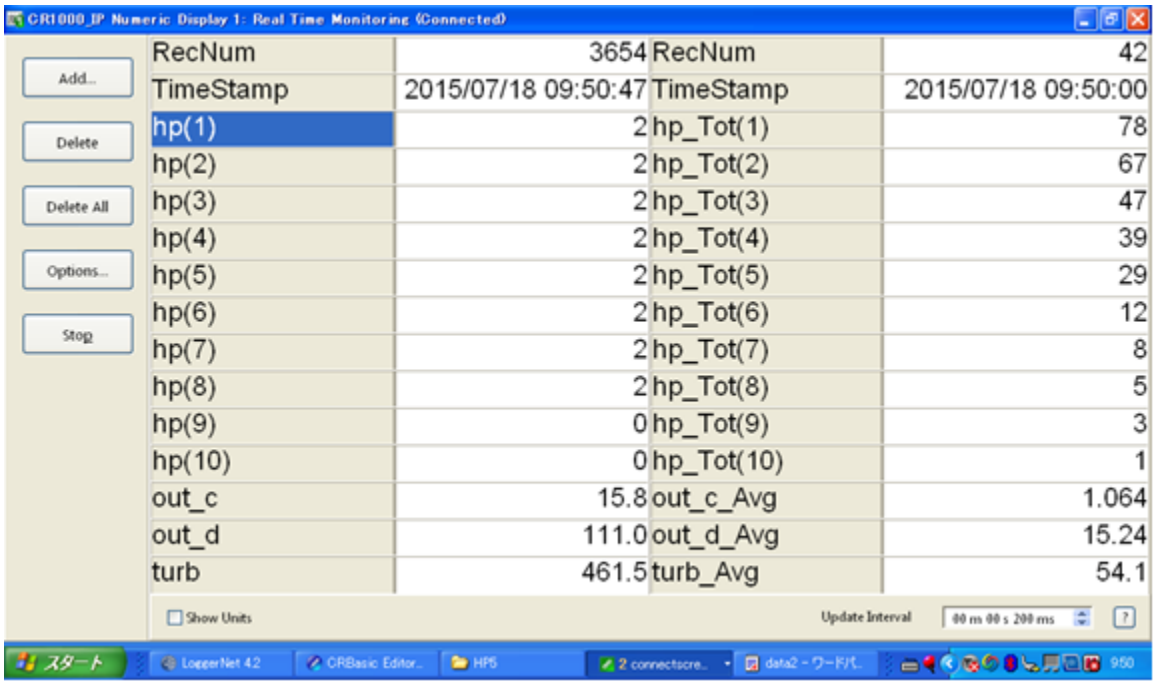
The explanation of the output

0V	signal graund	
b	after passing a band path filter (10times of gain)	
a	preamplifier output	
0V	signal graund	
c	sound pressure output (same as HP4)	
d	sound pressure output (add in HP5)	
	*It emphasizes a big signal	
	*The signal of the long mean time	
1024	pulse output of	*1024ch (same as HP4)
512		*512ch (add in HP5)
256		*256ch (same as HP4)
128		*128ch (add in HP5)
64		*64ch (same as HP4)
32		*32ch (add in HP5)
16		*16ch (same as HP4)
8		*8ch (add in HP5)
4		*4ch (same as HP4)
2		*2ch (same as HP4)
0V	signal graund	

Pulse output

The big magnification ch is higher sensitivity.
Then, it measures the hit of the smaller sediment.

The data sample



hp_Tot(1)	1024 times ch pulse count
hp_Tot(2)	512 times ch pulse count
hp_Tot(3)	256 times ch pulse count
hp_Tot(4)	128 times ch pulse count
hp_Tot(5)	64 times ch pulse count
hp_Tot(6)	32 times ch pulse count
hp_Tot(7)	16 times ch pulse count
hp_Tot(8)	8 times ch pulse count
hp_Tot(9)	4 times ch pulse count
hp_Tot(10)	2 times ch pulse count
out_c_Avg	averages for 1 minute of out_c
out_d_Avg	averages for 1 minute of out_d

sample of the wave output