EM61MK2 INFORMATION

COMPUTER INTERFACE PORT INFORMATION
18 January 2008

PORT AND CABLE PIN ASSIGNMENT

The computer interface port is provided via a 10-pin circular socket mounted on the EM61MK2 panel. A 10-pin circular connector to 10-pin sub-D connector cable is supplied with each system for connection between EM61MK2 and the default controlling unit POLYCORDER. The same cable can be used to connect EM61MK2 to other computer or data acquisition system provided that such computer or system has an RS-232 port and a digital I/O control line available.

EM61MK2 to Logger/computer COM PORT INTERFACE CABLE functions are summarised as follows:

10-pin connector EM61MK2	DS-9 connector	function
C,D	5	GROUND
G (output)	2	RS-232 RXD
H (input)	3	RS-232 TXD
K (input)		manual trigger via a momentary switch.

RS-232 CONFIGURATION

The port is configured as a DCE (Date Communication Equipment). No handshaking is used.

The port is initialised as follows:

Baud rate:	9600
parity:	none
data bits:	8
stop bit:	1

POLYCORDER (OR OTHER CONTROLLING COMPUTER) COMMANDS
(all ASCII code, 30 ms between characters)

COMMAND	COMMAND INTERPRETATION
HH	high gain
HX	high gain, auto mode
HW	high gain, wheel mode
HM	high gain, manual mode
LL	low gain

LL	low gain
LX	low gain, auto mode
LW	low gain, wheel mode
LM	low gain, manual mode
A	trigger byte in auto mode

EM61MK2 RESPONSE MESSAGES

OK	POLYCORDER command received correctly
ER	receiving error

EM61MK2 DATA FORMAT

Each data record consists of 16 bytes detailed below:

Byte 1 (ASCII) start byte

- T: Stand Single Auto and Wheel modes
- D: Stand Differential Auto and Wheel modes
- E: Hand held Single Auto and Wheel modes
- F: Hand held Differential Auto and Wheel modes
- M: Stand Single Manual-mode
- N: Stand Differential Manual-mode
- P: Hand held Single Manual-mode
- Q: Hand held Differential Manual-mode
- S: MARK FOR AUTO AND WHEEL MODES

Byte 2 (HEX number for ranges. Ranges are the gains of the DC amplifiers.)

HEX	R1	R1A	R2	R2A	R3	R3A	R4	R4A	CH1	CH2	CH3	CH4
0	0	0	0	0	0	0	0	0	1	1	1	1
1	0	0	0	0	0	0	0	1	1	1	1	10
3	0	0	0	0	0	0	1	1	1	1	1	100
4	0	0	0	0	0	1	0	0	1	1	10	1
5	0	0	0	0	0	1	0	1	1	1	10	10
7	0	0	0	0	0	1	1	1	1	1	10	100
C	0	0	0	0	1	1	0	0	1	1	100	1
D	0	0	0	0	1	1	0	1	1	1	100	10
F	0	0	0	0	1	1	1	1	1	1	100	100
10	0	0	0	1	0	0	0	0	1	10	1	1
11	0	0	0	1	0	0	0	1	1	10	1	10
13	0	0	0	1	0	0	1	1	1	10	1	100
14	0	0	0	1	0	1	0	0	1	10	10	1
15	0	0	0	1	0	1	0	1	1	10	10	10
17	0	0	0	1	0	1	1	1	1	10	10	100
1C	0	0	0	1	1	1	0	0	1	10	100	1
1D	0	0	0	1	1	1	0	1	1	10	100	10
1F	0	0	0	1	1	1	1	1	1	10	100	100
30	0	0	1	1	0	0	0	0	1	100	1	1
31	0	0	1	1	0	0	0	1	1	100	1	10
33	0	0	1	1	0	0	1	1	1	100	1	100

34	0	0	1	1	0	1	0	0	1	100	10	1
HEX	R1	R1A	R2	R2A	R3	R3A	R4	R4A	CH1	CH2	CH3	CH4
35	0	0	1	1	0	1	0	1	1	100	10	10
37	0	0	1	1	0	1	1	1	1	100	10	100
3C	0	0	1	1	1	1	0	0	1	100	100	1
3D	0	0	1	1	1	1	0	1	1	100	100	10
3F	0	0	1	1	1	1	1	1	1	100	100	100
40	0	1	0	0	0	0	0	0	10	1	1	1
41	0	1	0	0	0	0	0	1	10	1	1	10
43	0	1	0	0	0	0	1	1	10	1	1	100
44	0	1	0	0	0	1	0	0	10	1	10	1
45	0	1	0	0	0	1	0	1	10	1	10	10
47	0	1	0	0	0	1	1	1	10	1	10	100
4C	0	1	0	0	1	1	0	0	10	1	100	1
4D	0	1	0	0	1	1	0	1	10	1	100	10
4F	0	1	0	0	1	1	1	1	10	1	100	100
50	0	1	0	1	0	0	0	0	10	10	1	1
51	0	1	0	1	0	0	0	1	10	10	1	10
53	0	1	0	1	0	0	1	1	10	10	1	100
54	0	1	0	1	0	1	0	0	10	10	10	1
55	0	1	0	1	0	1	0	1	10	10	10	10
57	0	1	0	1	0	1	1	1	10	10	10	100
5C	0	1	0	1	1	1	0	0	10	10	100	1
5D	0	1	0	1	1	1	0	1	10	10	100	10
5F	0	1	0	1	1	1	1	1	10	10	100	100
70	0	1	1	1	0	0	0	0	10	100	1	1
71	0	1	1	1	0	0	0	1	10	100	1	10
73	0	1	1	1	0	0	1	1	10	100	1	100
74	0	1	1	1	0	1	0	0	10	100	10	1
75	0	1	1	1	0	1	0	1	10	100	10	10
77	0	1	1	1	0	1	1	1	10	100	10	100
7C	0	1	1	1	1	1	0	0	10	100	100	1
7D	0	1	1	1	1	1	0	1	10	100	100	10
7F	0	1	1	1	1	1	1	1	10	100	100	100
C0	1	1	0	0	0	0	0	0	100	1	1	1
C1	1	1	0	0	0	0	0	1	100	1	1	10
C3	1	1	0	0	0	0	1	1	100	1	1	100
C4	1	1	0	0	0	1	0	0	100	1	10	1
C5	1	1	0	0	0	1	0	1	100	1	10	10
C7	1	1	0	0	0	1	1	1	100	1	10	100
CC	1	1	0	0	1	1	0	0	100	1	100	1
CD	1	1	0	0	1	1	0	1	100	1	100	10
CF	1	1	0	0	1	1	1	1	100	1	100	100
D0	1	1	0	1	0	0	0	0	100	10	1	1
D1	1	1	0	1	0	0	0	1	100	10	1	10
D3	1	1	0	1	0	0	1	1	100	10	1	100
D4	1	1	0	1	0	1	0	0	100	10	10	1
D5	1	1	0	1	0	1	0	1	100	10	10	10
D7	1	1	0	1	0	1	1	1	100	10	10	100
DC	1	1	0	1	1	1	0	0	100	10	100	1

DD	1	1	0	1	1	1	0	1	100	10	100	10
HEX	R1	R1A	R2	R2A	R3	R3A	R4	R4A	CH1	CH2	CH3	CH4
DF	1	1	0	1	1	1	1	1	100	10	100	100
F0	1	1	1	1	0	0	0	0	100	100	1	1
F1	1	1	1	1	0	0	0	1	100	100	1	10
F3	1	1	1	1	0	0	1	1	100	100	1	100
F4	1	1	1	1	0	1	0	0	100	100	10	1
F5	1	1	1	1	0	1	0	1	100	100	10	10
F7	1	1	1	1	0	1	1	1	100	100	10	100
FC	1	1	1	1	1	1	0	0	100	100	100	1
FD	1	1	1	1	1	1	0	1	100	100	100	10
FF	1	1	1	1	1	1	1	1	100	100	100	100

Byte 3 Higher byte of the 2's complement Hex number of channel 1.

Byte 4 Lower byte of channel 1.

Byte 5 Higher byte of the 2's complement Hex number of channel 2.

Byte 6 Lower byte of channel 2.

Byte 7 Higher byte of the 2's complement Hex number of channel 3.

Byte 8 Lower byte of channel 3.

Byte 9 Higher byte of the 2's complement Hex number of channel 4.

Byte 10 Lower byte of channel 4.

Byte 11 Higher byte of the 2's complement number of TX current.

Byte 12 Lower byte of the 2's complement number of TX current.

Byte 13 Hex number of battery voltage

Byte 14 7F Stop byte

Byte 15 7F Stop byte

EM61MK2 STANDARD AND HAND HELD CONVERTING FACTORS

Each EM61MK2 unit has four channels. RANGE1, RANGE2, RANGE3 and RANGE4 affect channel 1, channel 2, channel 3 and channel 4 respectively.

RANGEs are determined by the microprocessor in the EM61MK2 unit, based on the instantaneous amplitudes of the signals in each channel. RANGEs have also three settings: 1,10 and 100.

GEONICS's convention is that the response is converted to output voltage in mV at the output of each sampling channel by the following:

STANDARD UNIT

$$\text{RESPONSE} = \frac{\text{DATA} \times 4.8333}{\text{RANGE}} \quad \text{(mV)}$$

RESPONSE is the data on polycorder

DATA is the data from instrument

RANGE is controlled by the EM61MK2 which could be 100,10,1

SINGLE MODE:

CH1=CH2=CH3=CH4=RESPONSE

DIFFERENTIAL MODE:
CH1=CH2=CH3=RESPONSE
TOPCH= 2X RESPONSE (which is the single mode channel 4)

HAND HELD UNIT

SINGLE MODE:

CHANNEL 1 = RESPONSE x 0.9025

CHANNEL 2 = RESPONSE x 1.363

CHANNEL 3 = RESPONSE x 2.026

CHANNEL 4 = RESPONSE x 3.019

DIFFERENTIAL MODE:

CHANNEL 1 = RESPONSE x 0.9025

CHANNEL 2 = RESPONSE x 1.363

CHANNEL 3 = RESPONSE x 2.034

TOPCHANNEL = RESPONSE x 3.92 x3.1 (which is the single mode channel 4)