EM38 DATA CONVERSION AND COMPUTER INTERFACE BOARD

DESCRIPTION

The optional data conversion and computer interface module converts the analog output signal from EM38 receiver into digital data and sends the data together with other information to a data logging computer via the on-board RS-232 port. The conversion and sending are automatic and continuous, no trigger is needed.

INTERFACE CABLE

The RS-232 port is provided via a 10-pin circular socket mounted on the EM38 body. A 10-position circular connector to 9-position sub-D female connector cable is supplied with each system for connection between EM38 and the data logging computer.

Only two lines are used from the one-way RS-232 communication. These two lines are:

10-pin circular from EM31	9-pin sub-D to computer	function
H	pin 5	GROUND
D (TXD)	pin 2 (RXD)	RS-232 DATA

RS-232 CONFIGURATION

The port is configured as a Data Communication Equipment. No handshaking is used. It is initialized as follows:

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

DATA RATE

10 records per second (approximate)

EM38 DATA RECORD FORMAT

Each data record consists of 8 bytes detailed below:

Byte 1 (ASCII)   " T " -- start byte

Byte 2 (information byte. See next section for marker, mode,
                         phase and range interpretation.)

Byte 3 (ASCII)   + or -, sign of data

Byte 4 (ASCII)   thousand's

Byte 5 (ASCII)   hundred's

Byte 6 (ASCII)   ten's

Byte 7 (ASCII)   one's

Byte 8 (ASCII)   carriage return

INFORMATION BYTE INTERPRETATION

The bit format of the information byte is:

BIT   VALUE OR MEANING

7   1

6   MARKER   = 1 when trigger/marker switch is pressed,
                        = 0 otherwise

5   MODE   = 1 for vertical operation
                        = 0 for horizontal operation

4   GAIN   = 1 Gain=8
                        = 0 Gain=1

3   0

2   Q/I   = 1 for Quad-phase (conductivity) measurement,
                        = 0 for Inphase measurement

1   RANGE 2   = 1 for 1000 mS/m scale
                        = 0 for 100 mS/m scale

0   1

MULTIPLICATION FACTORS

RANGE 2 represents sensitivity as follows:

SENSITIVITY	RANGE 2	MULTIPLICATION FACTORS	
1000	1	Conductivity	-1/Gain
		Inphase	-0.0288/Gain
100	0	Conductivity	-0.1/Gain
		Inphase	-0.00288/Gain

Multiply reading by above factors to obtain result in mS/m or ppt.