1. Q1074A / DT9604 / VC850* DMM Transmission Protocol

1.1 After connecting the meter to the computer and after initiating the COM port, the meter will automatically output 14-bytes of data. The format is shown below. The output rate is equal to the LCD display update rate - normally 2 times per second.

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Sign	MSD - Data - LSD				Space	DP	SB1	SB2	SB3	SB4	NUL	CR	LF
1	2	3	4	5	6	7	8	9	10	11	12	13	14
+/-	0-9	0-9	0-9	0-9	20H	0-3	X	X	X	X	00H	0DH	0AH

1.2 14 byte output code description:

a) Sign byte 1: positive or negative
b) Data byte 2: Most Significant Digit
c) Data byte 3:
d) Data byte 4:
e) Data byte 5: Least Significant Digit
f) Space byte 6:
g) DP byte 7: Decimal Point
h) SB1 byte 8: Symbol Byte 1
i) SB2 byte 9: Symbol Byte 2
j) SB3 byte 10: Symbol Byte 3
k) SB4 byte 11: Symbol Byte 4
l) NUL byte 12:
m) CR byte 13: Carriage Return (Enter)
n) LF byte 14: Line Feed

1.3 The sign byte contains the positive or negative sign of the DMM measurement, the output is in ASCII code:

a) positive (+): 2BH
b) negative (-): 2DH

1.4 Next are 4 Data bytes containing the DMM measured data, the outputs are in ASCII code:

a) Data byte 2: stands for MSD
b) Data byte 3: stands for MSD-1
c) Data byte 4: stands for MSD-2
d) Data byte 5: stands for LSD

Normally "0000" to "6000" (up to "9999" for frequency), on overload ":::::" (temperature) or ";0:;" (other modes).
where: ":" = 3AH, ";" = 3BH, "0" = 30H.

1.5 DP byte contains the position of the decimal point, the output is in ASCII code:

a) Decimal point (0): 30H – no decimal point, display = "0000"
b) Decimal point (1): 31H – 1st position, display = "0.000"
c) Decimal point (2): 32H – 2nd position, display = "00.00"
d) Decimal point (3): 33H – 3rd position, display = "000.0"

1.6 SB1 Byte code is as follows, the output is in individual bits:

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
0	0	AUTO	DC	AC	REL	HOLD	0

1.7 SB2 Byte code is as follows, the output is in individual bits:

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
0	0	MAX	MIN	APO	Battery	n	0

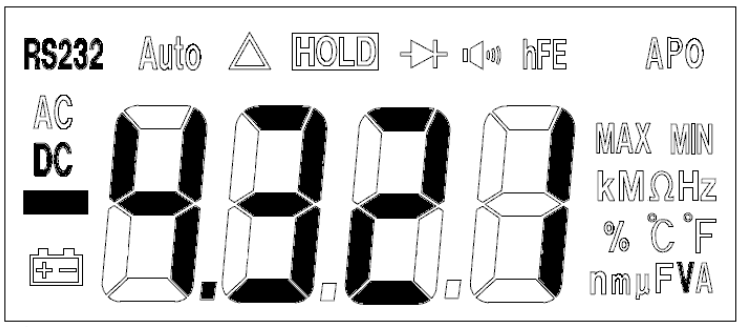
1.8 SB3 Byte code is as follows, the output is in individual bits:

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
µ	m	k	M	Beep	Diode	%	0

1.9 SB4 Byte code is as follows, the output is in individual bits:

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
V	A	Ω	hFE	Hz	F	°C	°F

1.10 Example: LCD display of -4.321VDC and the serial data output:



Output Format in Hex:

2D-34-33-32-31-20-31-10-00-00-80-00-0D-0A

The Q1074A's communications cable connects to the computer's USB port. A USB driver must be installed and automatically allocates a COM port for each Q1074A connected. The COM port allocated can be changed using the computer's Device Manager.

* A bar graph is provided on the VC850 meter, also the overload data output is different!