13.RS232 Transmission Protocol

13.1 Direction: One-way to computer.
13.2 Serial Transer Rate: 2400 bps
13.3 Data Bit: 8 bit.
13.4 Odd and Even Calibration: No
13.5 Data Decimal: Hex
13.6 Data Length: 14 Bytes.
13.7 Data Information: LCD table on-off information.
13.8 Data Format: 1st byte → 1X (X is seg1, 4 bits represent the data on the LCD table)
2nd byte→ 2X (X is seg2, 4 bits represent the data on the LCD table)
3rd byte → 3X (X is seg3, 4 bits represent the data on the LCD table)
and so on
1X → 4 bit， 2X→ 4 bit ， 3X→ 4 bit
……
EXH→ 4it
13.9 X means: Bit3～Bit 0→ segn (COM4—COM1)
13.10 Sampling Rate: 40KHz
13.11 ADC Output Frequency: 40Hz
13.12 ADC Output Frequency After Average: 10Hz
13.13 Output Frequency After Auto-Zero: 4Hz

VC820_VC840_VC860 Protocol Rev 1.0

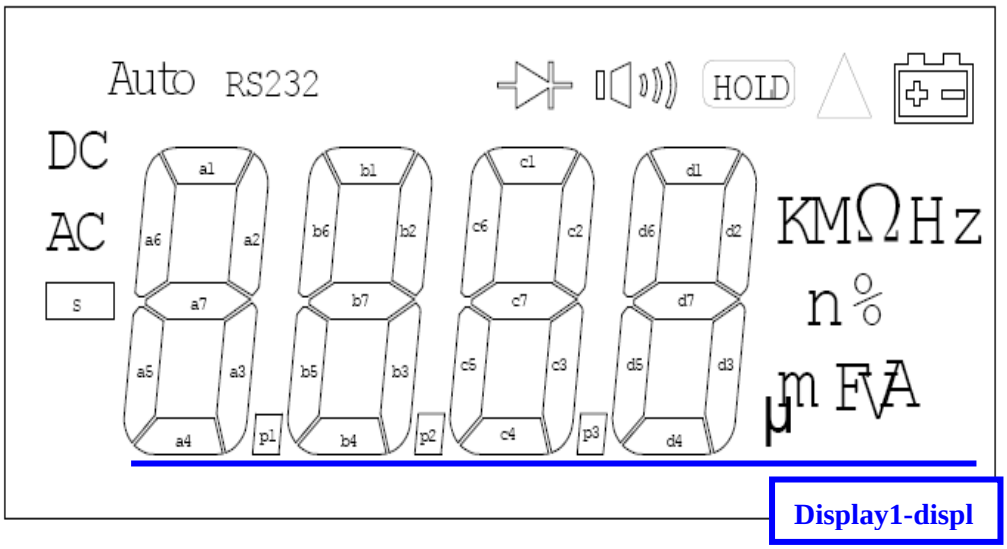
1. RS-232 Serial Interface Setting

Direction: One-way to computer

Baud rate is 2400 bps
No parity
1 start bit
8 data bits (LSB first -→ MSB end)
1 stop bit
Data Decimal: hex
Data Length: 14 Bytes

2. LCD Display

Figure below is the screen print of the LCD display of the vc820_vc840_vc860 device. Please identify the location of the display that will be described in the following document.

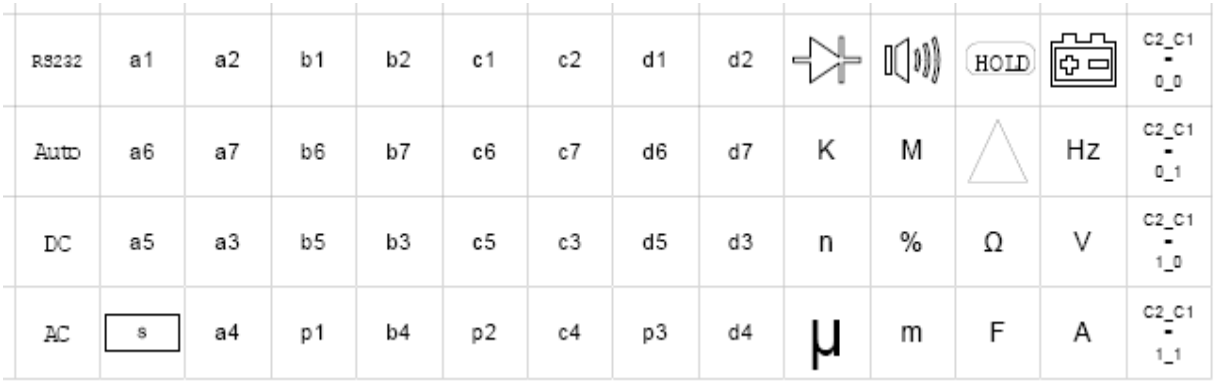


3. Message from DMM to PC

The general format of the message sent from the DMM to the PC is represented as in the following:

Data length : 14 Byte

1byte	2byte	3byte	4byte	5byte	6byte	7byte	8byte	9byte	10byte	11byte	12byte	13byte	14byte
Msg [0]	Msg [1]	Msg [2]	Msg[3]	Msg[4]	Msg [5]	Msg [6]	Msg [7]	Msg [8]	Msg[9]	Msg [10]	Msg [11]	Msg [12]	Msg [13]



Msg[0]

Com4	Com3	Com2	Com1	Rs232_flag	AUTO_flag	DC_flag	AC_flag

RS232_flag:

This flag bit is 1, that RS232 communication open, 0 means off RS232 communication

AUTO_flag:

This flag bit is 1, that AUTO communication open, 0 means off AUTO communication;

DC_flag:

This flag bit is 1, that the DC

AC_flag:

This flag bit is 1, that the AC

Msg[1]_ Msg[2]

Display 1: Msg[1] – Msg[2]

0Xmsg[1] 0Xmsg[2] Display1

Msg[3]_ Msg[4]

Display 2: Msg[3] – Msg[4]

0Xmsg[3] 0Xmsg[4] Display2

P1_flag: Flag of 1 means that the effective decimal point P1

Msg[5]_ Msg[6]

0Xmsg[5] 0Xmsg[6] Display3

P2_flag: Flag of 1 means that the effective decimal point P2

Msg[7]_ Msg[8]

0Xmsg[7] 0Xmsg[8] Display4

P3_flag: Flag of 1 means that the effective decimal point P3

Msg[9]

Com4	Com3	Com2	Com1	Diode_flag	k_flag	n_flag	u_flag

didode_flag:

This flag bit is 1, said diode measurements.

K_flag:

This flag bit is 1, the table method, carry thousands of units. Example : 1.235 K ohm

n_flag:

This flag bit is 1, said unit is n carry. Example : 1.235 n A

u-flag:

This flag bit is 1, said unit is u carry. Example : 1.235 u A

Msg[10]

Com4	Com3	Com2	Com1	Continuous_flag	M_flag	%_flag	m_flag

Continuous _flag:

This flag bit is 1, indicating a continuous measurement.

M_flag:

This flag bit is 1, said unit is M carry. Example : 1.023M OHM

%_flag:

This flag bit is 1, that the duty cycle measurement.

m_flag:

This flag bit is 1, said unit is M carry. Example : 1.023mF

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Msg[11]

Com4	Com3	Com2	Com1	Hold_flag	rel_flag	ohm_flag	F_flag

Hold_flag:

This bit represents the status of the HOLD function. This bit becomes 1 if the hold function is on.

Rel_flag:

When REL function is on, this bit becomes 1, and the current transmitted data at DISP2 is the relative value.

Manu_flag:

Hold_flag:

This bit represents the status of the HOLD function. This bit becomes 1 if the hold function is on.

ohm_flag

This flag bit is 1, said resistance measurement.

F_flag

This flag bit is 1, said capacitance measurement .

Msg[12]

Com4	Com3	Com2	Com1	Low_batt_flag	Hz_flag	V_flag	A_flag

Low_batt_flag:

This bit represents the battery status. This bit becomes 1 when low voltage status is on.

Hz_flag:

This flag bit is 1, said frequency measurement.

V_flag:

This flag bit is 1, said Voltage measurement.

A_flag:

This flag bit is 1, said current measurement.

Msg[13]

Com4	Com3	Com2	Com1	No use	No use	No use	No use