RS-232 Serial Interface

MC66 & MCA66 Controller

Interface Hardware Specification

Protocol：

Baud rate: 38400 bps
Data Bit: 8 Bits
Stop Bit: 1 Bits
Parity: None
Flow Control: No

Connectors & Pins Defined ：

Controller Connector: 9-pin female DB
PC Connector: 9-pin male DB

PC Connector		**Controller Connector**
Pin 2 RxD	<----------	TxD Pin 2
Pin 3 TxD	---------->	RxD Pin 3
Pin 5 Gnd	----------	Gnd Pin 5

Interface Software Specification
Tx Format (Controller Internal Status)
Flow Control : No
Tx Format :
Head Code + Reserved Byte + Zone Address + Command + Data1 + Data2 + Data3 + Data4 + Data5 + Data6 + Data7 + Data8 + Data9 + CheckSum

Checksum = Head Code + Reserved Byte + Zone Address + Command + Data1 + Data2 + Data3 + Data4 + Data5 + Data6 + Data7 + Data8 + Data9

Head(1 byte) ：0x02

Reserved(1 byte) ：0x00

Zone Address(1 byte) ：1 – 6

Command(1 byte) ：0x05

Data1(1 byte) ：

BIT	FUNCTION	Remark
7	POWER ON / OFF	0 : OFF 1: ON
6	MUTE ON / OFF	0 : OFF 1: ON
5	MODE ON / OFF	0 : OFF 1: ON ON indicates the keypad is used to set the state of BASS, TREBLE or BALANCE. OFF indicates the KEYPAD is used to set the state of INPUT or VOLUME.
4	POWER ON / OFF	0 : OFF 1: ON
3	PARTY MODE	0 : OFF 1: ON
0 ~ 2	PARTY MODE INPUT	0 : INPUT1 1 : INPUT2 2 : INPUT3 3 : INPUT4 4 : INPUT5 5 : INPUT6

Data2(1 byte) ：LED of keypad shows the state

BIT	FUNCTION	Remark
7		RESERVED (always 1)
0 ~ 6	VOLUME,TREBLE,BASS KEYPAD LED INDICATOR	

VOLUME KEYPAD LED INDICATOR :

DATA BYTE	VOLUME dB	Remark
0x80	Below -61	Volume is Minimum
0x81	-60	Volume is -51dB ~ -60dB
0x83	-50	Volume is -41dB ~ -50dB
0x87	-40	Volume is -31dB ~ -40dB
0x8f	-30	Volume is -21dB ~ -30dB
0x9f	-20	Volume is -11B ~ 20dB
0xbf	-10	Volume is -1dB ~ -10dB
0xff	0	Volume is Maximum

TREBLE and BASS KEYPAD LED INDICATOR :

DATA BYTE	VOLUME dB	Remark
0x01	-12	
0x02	-8	
0x04	-4	
0x08	0	
0x10	4	
0x20	8	
0x40	12	

BALANCE KEYPAD LED INDICATOR :

DATA BYTE	VOLUME dB	Remark
0x01	-18	
0x02	-12	
0x04	-6	
0x08	0	
0x10	6	
0x20	12	
0x40	18	

Data3(1 byte) :

BIT	FUNCTION	Remark
7	POWER LED	0 : OFF 1: ON
6		RESERVED (always 1)
5	INPUT1	0 : OFF 1: ON
4	INPUT2	0 : OFF 1: ON
3	INPUT3	0 : OFF 1: ON
2	INPUT4	0 : OFF 1: ON
1	INPUT5	0 : OFF 1: ON
0	INPUT6	0 : OFF 1: ON

Data4(1 byte) : RESERVED (always 0)

Data5(1 byte) ：INPUT PORT

DATA BYTE	FUNCTION	Remark
0x01	INPUT1	
0x02	INPUT2	
0x03	INPUT3	
0x04	INPUT4	
0x05	INPUT5	
0x06	INPUT6	

Data6(1 byte) ：VOLUME VALUE

DATA BYTE	VOLUME dB	Remark
0x00	0dB	Maximum Volume
0xff	-1dB	
0xfe	-2dB	
‘‘	‘’	
‘’	‘’	
0xc3	-61dB	Minimum Volume

Data7(1 byte) ：TREBLE VALUE

DATA BYTE	TREBLE dB	Remark
0xf4	-12	
0xf8	-8	
0xfc	-4	
0x00	0	
0x04	4	
0x08	8	
0x0c	12	

Data8(1 byte) ：BASS VALUE

DATA BYTE	BASS dB	Remark
0xf4	-12	
0xf8	-8	
0xfc	-4	
0x00	0	
0x04	4	
0x08	8	
0x0c	12	

Data9(1 byte) ：BALANCE VALUE

DATA BYTE	VOLUME dB	Remark
0xee	-18	
0xf4	-12	
0xfa	-6	
0x00	0	
0x06	6	
0x0c	12	
0x12	18	

Checksum(1 byte) ：Head + Reserved Byte + Zone Address + Command + Data1 + Data2 + Data3 + Data4 + Data5 + Data6 + Data7 + Data8 + Data9

Rx Format(PC COMMAND CODE)

MCA66 To PC Protocol：

Flow Control：No

Data packet structure from MCA66 to PC.

Protocol：

Head + Reserved Byte + Zone Address + Command + Data + Checksum

Checksum = Head + Reserved Byte + Zone Address + Command + Data

Head(1 byte)	：0x02
Reserved (1 byte)	：0x00
Zone Address(1 byte)	：1 – 6
Command(1 byte)	：0x04, 0x06, 0x08, 0x0a, 0x0b
Data(1 byte)	：Data
Checksum(1 byte)	：Head + Reserved + Zone Address + Command + Data

Basic Rx commands are categorized below:

Command Type 0x04

Code : 0x02 + 0x00 + Zone Address + 0x04 + Data + Checksum

Description : MCA66 send out key command

Data definition ::

DATA	CODE	Remark
INPUT1	0x03	
INPUT2	0x04	
INPUT3	0x05	
INPUT4	0x06	
INPUT5	0x07	
INPUT6	0x08	
VOLUME UP	0x0d	+1dB
VOLUME DOWN	0x0e	-1dB
POWER ON	0x20	
POWER OFF	0x21	
MUTE ON/OFF	0x22	Toggle Mute State
BASS UP	0x26	-12,-8,-4,0,4,8,12(dB)
BASS DOWN	0x27	-12,-8,-4,0,4,8,12(dB)
TREBLE UP	0x28	-12,-8,-4,0,4,8,12(dB)
TREBLE DOWN	0x29	-12,-8,-4,0,4,8,12(dB)
BALANCE RIGHT	0x2a	-18,-12,-6,0,6,12,18(dB)
BALANCE LEFT	0x2b	-18,-12,-6,0,6,12,18(dB)
POWER ALL ON	0x28	Zone1 ~ Zone6
POWER ALL OFF	0x39	Zone1 ~ Zone6
PARTY MODE INPUT1	0x3a	
PARTY MODE INPUT2	0x3b	
PARTY MODE INPUT3	0x3c	
PARTY MODE INPUT4	0x3d	
PARTY MODE INPUT5	0x3e	
PARTY MODE INPUT6	0x3f	

2. Query Command Type 0x06

Code ：0x02 + 0x00 + Zone Address + 0x06 + 0x00 + Checksum

Data ：0x00

Description ：Inquire the state of Zone,

Echo : Pass content the of ZONE and KEYPAD data buffers & query fills, if being used.

Date1 : 0x00

Date2 : When Zone exists

BIT	ZONE x	Remark
0	1	0 : OFF 1: ON
1	2	0 : OFF 1: ON
2	3	0 : OFF 1: ON
3	4	0 : OFF 1: ON
4	5	0 : OFF 1: ON
5	6	0 : OFF 1: ON
6	X	don't care
7	X	don't care

Date3 : When keypad of Zone exists

BIT	ZONE	Remark
0	1	0 : OFF 1: ON
1	2	0 : OFF 1: ON
2	3	0 : OFF 1: ON
3	4	0 : OFF 1: ON
4	5	0 : OFF 1: ON
5	6	0 : OFF 1: ON
6	X	don't care
7	X	don't care

Date4 : 0x00

Date5 : 0x00

Date6 : 0x00

Date7 : 0x00

Date8 : 0x00

Date9 : 0x00

3. Query Command Type 0x08

Code ：0x02 + 0x00 + Zone Address + 0x08 + 0x00 + Checksum

Data ：0x00

Description ：Inquire MODEL of MCA66

Echo : " Wangine_MCA66"

4. Command Type 0x0a

Code ：0x02 + 0x00 + Zone Address + 0x0a + Data + Checksum

Data ：1 ~ 3

Description ：Read the memory value stored at M1, M2 or M3.

5. Command Type 0x0b

Code ：0x02 + 0x00 + Zone Address + 0x0b + Data + Checksum

Data ：1 ~ 3

Description ：Store the current value of ZONE in M1, M2 or M3