4X4 HDMI matrix communication protocol

1. RS232 Serial port:

Baud rate: 9600 bps
Stop bits: 1 bit
Data bits: 8 bits
Parity: None
Flow control: No

2. LAN port:

Default IP address: 192.168.1.10
Default Port: 5000
Default Gate way: 192.168.1.1
Default Mask address: 255.255.255.0

3. Command strings

3.1 Matrix control commands

Index	Command strings	Parameter description	Remark	Direction
1	MT00SW0000NT		Mirrored output 1 → 1, 2 → 2...	PC → Matrix
2	MT00SW*XX*00NT	XX is the input port number (digits 01~04)	1 input to all outputs	PC → Matrix
3	MT00SW*XXYY*NT	XX is the input port number (digits 01~04) ; YY is the output port number (digits 01~04) ;	Connect input XX to output YY	PC → Matrix
4	MT00RD0000NT		Request Matrix return current connection status. (The returned format are described in index 9)	PC → Matrix
5	LINK:O*YI X*;END	X is the input port number (digits 1~4) ; Y is the output port number (digits 1~4) ;	Matrix return current connection status to console	Matrix → PC
6	MT00CT*XXXX*NT	XXXX is the 0000~9999 digits, the unit is seconds; 0000 means never timeout	Set matrix 's LED display timeout time	Matrix → PC

3.2 Matrix Configuration commands

3.2.1 Settings via RS232 connection

(TO BE CONTINUED)

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Index	Command strings	Parameter description	Remark	Direction
1	MT8003IP?		For RS232 connection only. Query matrix's current IP address	PC → Matrix
2	MT8003PT?		For RS232 connection only. Query matrix's current port number address	PC → Matrix
3	MT8003GW?		For RS232 connection only. Query matrix's current gate way address	PC → Matrix
4	MT8003MA?		For RS232 connection only. Query matrix's current mask address	PC → Matrix
5	IP:**AAA**.**BBB**.**CCC**.**DDD**;	**AAA**.**BBB**.**CCC**.**DDD** are the 000~255 digits numbers	Feed back the matrix's current IP address	Matrix → PC
6	PT:**XXXXX**;	**XXXXX** is 00000~65535 digits.	Feed back the matrix's current port number	Matrix → PC
7	GW:**AAA**.**BBB**.**CCC**.**DDD**;	**AAA**.**BBB**.**CCC**.**DDD** are the 000~255 digits numbers	Feed back the matrix's current gate way address	Matrix → PC
8	MA:**AAA**.**BBB**.**CCC**.**DDD**;	**AAA**.**BBB**.**CCC**.**DDD** are the 000~255 digits numbers	Feed back the matrix's current mask address	Matrix → PC
9	MT8019IP:**AAA**.**BBB**.**CCC**.**DDD**;	**AAA**.**BBB**.**CCC**.**DDD** are the 000~255 digits numbers	For RS232 connection only. Change the matrix's current IP address to AAA.BBB.CCC.DDD	PC → Matrix
10	MT8009PT:**XXXXX**;	*XXXXX* are the 00000~65535 digits numbers	For RS232 connection only. Change the matrix's current port number to XXXXX	PC → Matrix
11	MT8019GW:**AAA**.**BBB**.**CCC**.**DDD**;	**AAA**.**BBB**.**CCC**.**DDD** are the 000~255 digits numbers	For RS232 connection only. Change the matrix's current gate way address to AAA.BBB.CCC.DDD	PC → Matrix
12	MT8019MA:**AAA**.**BBB**.**CCC**.**DDD**;	**AAA**.**BBB**.**CCC**.**DDD**are the 000~255 digits numbers	For RS232 connection only. Change the matrix's current mask address to AAA.BBB.CCC.DDD	PC → Matrix

3.2.2 Settings via LAN connection

(TO BE CONTINUED)

Index	Command strings	Parameter description	Remark	Direction
1	IP?		For LAN connection only. Query matrix's current IP address	PC → Matrix
2	PT?		For LAN connection only. Query matrix's current port number address	PC → Matrix
3	GW?		For LAN connection only. Query matrix's current gate way address	PC → Matrix
4	MA?		For LAN connection only. Query matrix's current mask address	PC → Matrix
5	IP:**AAA**.**BBB**.**CCC**.**DDD**;	**AAA**.**BBB**.**CCC**.**DDD** are the 000~255 digits numbers	Feed back the matrix's current IP address	Matrix → PC
6	PT:**XXXXX**;	**XXXXX** is 00000~65535 digits.	Feed back the matrix's current port number	Matrix → PC
7	GW:**AAA**.**BBB**.**CCC**.**DDD**;	**AAA**.**BBB**.**CCC**.**DDD** are the 000~255 digits numbers	Feed back the matrix's current gate way address	Matrix → PC
8	MA:**AAA**.**BBB**.**CCC**.**DDD**;	**AAA**.**BBB**.**CCC**.**DDD** are the 000~255 digits numbers	Feed back the matrix's current mask address	Matrix → PC
9	IP:**AAA**.**BBB**.**CCC**.**DDD**;	**AAA**.**BBB**.**CCC**.**DDD** are the 000~255 digits numbers	For LAN connection only. Change the matrix's current IP address to AAA.BBB.CCC.DDD	PC → Matrix
10	PT:**XXXXX**;	*XXXXX* are the 00000~65535 digits numbers	For LAN connection only. Change the matrix's current port number to XXXXX	PC → Matrix
11	GW:**AAA**.**BBB**.**CCC**.**DDD**;	**AAA**.**BBB**.**CCC**.**DDD** are the 000~255 digits numbers	For LAN connection only. Change the matrix's current gate way address to AAA.BBB.CCC.DDD	PC → Matrix
12	MA:**AAA**.**BBB**.**CCC**.**DDD**;	**AAA**.**BBB**.**CCC**.**DDD** are the 000~255 digits numbers	For LAN connection only. Change the matrix's current mask address to AAA.BBB.CCC.DDD	PC → Matrix

4. Cording Examples for Windows VS2012:

4.1 RS232:

```
private: System::IO::Ports::SerialPort^   serialPort1;
private: System::Windows::Forms::ComboBox^   CBSerialPort;

// Get current available Serial Port list
int i;
for(i=0;i<(System::IO::Ports::SerialPort::GetPortNames()->Length);i++)
{
    this->CBSerialPort->Items->Add(System::IO::Ports::SerialPort::GetPortNames()[i]);
}
if(i>=1)
{
    this->CBSerialPort->SelectedIndex = 0;
}
```

```cpp
//Connect to selected Serial Port
try
    {
            serialPort1->BaudRate = 9600;
            serialPort1->PortName = this->CBSerialPort->Text;
            timer1->Enabled = true;
            serialPort1->Open();
    }
    catch(System::Exception^ e)
    {
            // Initializes the variables to pass to the MessageBox::Show method.
            String^ message = "Cann't open port "+ this->CBSerialPort->Text;
            String^ caption = "Open port error!";
            MessageBoxButtons buttons = MessageBoxButtons::OK;
            System::Windows::Forms::DialogResult result;

            // Displays the MessageBox.
            result = MessageBox::Show( this, message, caption, buttons );
            if(result == System::Windows::Forms::DialogResult::OK)
            {
                BTConnect->Text = "Connect";
            }
    }

//Send command strings to Matrix
serialPort1->WriteLine("MT00SW0102NT ");     //Connect input 01 to output 02
```

4.2 LAN(TCP/IP connection):

```cpp
private: System::Net::Sockets::Socket^ netCtlSocket;

//Connect to Matrix
netCtlSocket = ConnectSocket("192.168.1.10" ,5000);        //Connect to matrix with default IP address and port number.

private:String^ SocketSendReceive( String^ cmdStr)
{
    //String^ request = String::Concat( "GET / HTTP/1.1\r\nHost: ", server, "\r\nConnection: Close\r\n\r\n" );
    array<Byte> ^bytesSent = Encoding::ASCII->GetBytes( cmdStr );

    if(netCtlSocket==nullptr)
    {
            return "Socket is not initialized!";
    }

    if(!netCtlSocket->Connected)
    {
            return "Socket is disconnected!\r\n";
    }

    // Send request to the server.
    netCtlSocket->Send( bytesSent, bytesSent->Length, static_cast<SocketFlags>(0) );

    return cmdStr;
}

//Send command strings to Matrix
if(netCtlSocket->Connected)
{
     SocketSendReceive("MT00SW0102NT ");   //Connect input 01 to output 02
}
```