

TN532D

Siemens S7-1200

March. 2010

PanelMaster, PanelExpress and PM Designer



Email: ts@offpeak-solutions.com

PanelMaster & Siemens S7-1200, S7-1200TCP/IP Hub PC PanelMaster Siemens S7-1200 °



### (1)Seimens S7-1200 Parameter Setting:

(a)If the S7-1200 PLC is the new one without IP address:

EIN #27-0381059

Step1: Switching TCP/IP setting of your PC or laptop to "Obtain an IP address automatically.

| Local Area Connection Properties  | Internet Protocol (TCP/IP) Properties   | ? × |
|---|---|-----|
| General   | General   |     |
| Connect using:  VMware Accelerated AMD PCNet Adapter  | You can get IP settings assigned automatically if your network supports<br>this capability. Otherwise, you need to ask your network administrator for<br>the appropriate IP settings. |     |
| Configure<br>Components checked are used by this connection:  | Detain an IP address automatically     C. Use the following IP address:   |     |
| Client for Microsoft Networks     Section 2.2     Section | [P.address:   |     |
|   | Default gateway:  |     |
| Install Uninstall Properties  | Obtain DNS server address automatically     C. Use the following DNS server addresses   |     |
| Transmission Control Protocol/Internet Protocol. The default<br>wide area network protocol that provides communication<br>across diverse interconnected networks  | Preferred DNS server:   |     |
| Show icon in taskbar when connected   | Alternate UNS server:   |     |
| OK Cancel   |   | el  |

Step2: Select the "Accessible devices" to find out the "MAC address".

| Start                   |                                |                                   |                              |                         |                 |           |         |
|-------------------------|--------------------------------|-----------------------------------|------------------------------|-------------------------|-----------------|-----------|---------|
| Devices &<br>Networks   | <b>*</b>                       | Show all devices                  |                              |                         |                 |           |         |
| PLC<br>Programming      | ٩                              | Online status                     | 57                           |                         |                 |           |         |
| Visualization           |                                |                                   | -                            |                         |                 |           |         |
| Online &<br>Diagnostics | 10-                            |                                   | 2                            |                         |                 |           |         |
|                         |                                | Accessible devices                |                              |                         |                 |           |         |
| Accessible devices      |                                | +                                 |                              |                         | ×               |           |         |
|                         |                                | PG/PC interface to show acc       | essible devices for: 🛛 🌉     | Marvell Yukon 88        | 8E8071 PCI 💌    |           |         |
|                         | Accessible devices in target : | subnet:                           |                              |                         |                 |           |         |
| -                       | Device D                       | evice type Type<br>57-1200 TCP/IP | Address<br>192.168.1.100     | MAC addre<br>00-1C-06-0 | 155<br>00-85-28 |           |         |
|                         |                                |                                   |                              |                         |                 |           |         |
| Flash LED               | W<br>"S                        | hen the softw<br>how project      | vare find th<br>tree" buttor | ie MAC<br>n.            | addre           | ss, pleas | e press |
|                         |                                |                                   |                              |                         | <u>R</u> efresh |           |         |
|                         |                                |                                   | Show in project              | tree                    | Close           |           |         |

Step3: Select "Online & diagnostics" and link with PLC by MAC address.

| Project tree   |        |                               |                      |                            |
|--|--------|-------------------------------|----------------------|----------------------------|
| Devices  |        |                               |                      |                            |
| B 0 0  | 1      | <b>a</b>                      |                      |                            |
| Devices & Networks  PLC_1 [CPU 1212C AC/DC/Rly]  Common data  Canguages & Resources  Canguages & Resources  Marvell Yukon 88E8071 PCI-E  A Update accessible devices | G)     | ▲<br>#i =                     |                      |                            |
| IP=192.168.1.100 CPUcom     Online & diagnostics   | 200    | Open                          |                      |                            |
| Gonnie & diagnostics     Fig. Program blocks     Fig. Technological Objects     Microsoft TV/Video Connection  | Х<br>П | Cut<br>Copy<br>Paste          |                      | Ctrl+X<br>Ctrl+C<br>Ctrl+V |
| Broadcom 802.11g   | ×      | Delete<br>Rename              |                      | Del<br>F2                  |
| ▼ Details view   |        | Go to device<br>Go to library |                      |                            |
| Name<br>Program blocks   |        | Go online<br>Go offline       | nortice              | C+rl - D                   |
| Technological Objects  | 00     | Compare offl                  | nostics<br>ine/onlin | e<br>e                     |

Step4: When you link with PLC by MAC address, assign the IP Address=192.168.1.100; Sub

#### Mask=255.255.255.0.

| <ul> <li>Diagnostics</li> <li>General</li> </ul> | Assign IP address   |                        |
|--|---------------------|------------------------|
| Diagnostics status<br>Standard diagnostics       | MAC address:        | 00 -1C -06 -00 -85 -28 |
| Cycle time<br>Memory                             | IP address:         | 192.168.1.100          |
| Diagnostics buffer                               | Subnet screen mask: | 255 . 255 . 255 . 0    |
| Functions  | Use router:         | 192.168.1.100          |
| Set time of day                                  |                     |                        |
| Assign IP address                                |                     | Assign IP address      |
| Reset to factory settings                        |                     |                        |
|  | <b>ا</b> ا          |                        |

Step5: Make sure the IP address setting is success.



Step6: Create a new project

| Sie             | mens  |  |   |                           |  |   |
|-----------------|---|--|---|---------------------------|--|---|
| Pr              | oject Edit View II  | nsert Online C<br>🎩 🗶 🗉 🗊  | options Tools Window Help<br>🗙 🖬 🖥 🛄 🚉 🚿 Go on                    | line 🖉 Go offline 🕌 📗 [   |  | Totally Integrat  |
|                 | rn ject tree  |  | ◀:E8071 PCI-E Gigabit E   | thernet Controller → IP=1 | 92.168.1.100                                       | CPU common 🔔 🖬 🗮 🗙  |
|                 | Devices   |  |   |                           |  |   |
| stics           | 000   |  | Diagnostics     General     Diagnostics status                    | Assign IP addre           | 55   |   |
| Online & Diagno | Online access     Online access     Marvell Yuk Cr     Ordate     Ordate | eate a new proj<br>Project name:<br>Path:<br>Author:<br>Comment: | ect.<br>Project7<br>C:IDocuments and Settings\UserTr<br>UserTm55x | n55xlMy Documents         | AC address:<br>IP address:<br>:creen mask:<br>:er: | 00 -1C -06 -00 -85 -28<br>192 .168 .1 .100<br>255 .255 .255 .0<br>192 .168 .1 .100<br>Assign IP address |
|                 | SIMATIC Card F  |  | ▶ IP=192.168.1.100 CPUcc  | Create Cancel             | erties   | Fo 😨 Diagnostics 🔻  |
|                 | ▼ Details view  |  | General Compile   | Cross-reference           |  |   |

#### Step7: Select the correct PLC model



Step8: Key-in the IP=192.168.1.100 and SubMask=255.255.255.0

| Project7>PLC_1                           |             |               |                 |         |           |      |       | _∎×       |
|--|-------------|---------------|-----------------|---------|-----------|------|-------|-----------|
|  |             |               |                 | 📩 N     | letwork v | view | De De | vice view |
| PLC_1                                    | <u>•</u>    |               | 🔍 ±             | 100%    |           | -    |       |           |
| 57-1200 rack                             | 103 SIDNERS | 3447.3-45<br> | Undak<br>Lacaty |         |           |      |       |           |
| III     Device overview                  |             |               |                 |         |           |      |       | <u>,</u>  |
| Device overview                          |             |               |                 |         |           |      |       |           |
| PROFINET interface                       |             |               | o Pro           | perties | i In      | to g | Diagn | ostics    |
| General<br>General<br>Ethernet addresses | et addres   | sses          |                 |         |           |      |       | <u></u>   |
| Advanced     Time synchronization        | erface co   | onnected      | with            |         |           |      |       |           |
|  | •           |               | 2               | ubnet:  | PN/IE_1   |      |       | ±         |
|  | protocol    |               | IF ad           | dress:  | 192 . 10  | 58.1 | . 100 |           |
|  |             |               | Juliet          | musk.   | 233.2     | 23   |       |           |

Step9: Download the setting data into PLC.

| Insert Online     | Option     | is Tools Window | v Help<br>V Go onli | ine 🔊 G | o offline     |         |
|-------------------|------------|-----------------|---------------------|---------|---------------|---------|
|                   | 4          | Project7>PLC_1  |                     |         |               |         |
|                   |            |                 | 1                   |         |               | 📥 Netwo |
|                   | <b>1</b>   | Bt PLC_1        |                     | •       | 📃 🏑 🍳         | ± 100%  |
|                   |            | \$7-1200 r      | ack                 | SIGNORS | 101270 (P~102 |         |
| ice               |            |                 |                     |         |               |         |
| tworks            |            |                 | 101                 |         |               | 3 1     |
| 212C AC/DC/Rly]   |            |                 |                     |         |               |         |
| a                 |            |                 |                     |         |               |         |
| Resources         | Ξ          |                 | 103                 |         |               |         |
| n 88E8071 PCI-E G | <b>)</b> . |                 | _                   |         |               |         |

Step10: Select the correct IP to download

| xtended download | to device             |                          |               |                         |  |
|------------------|-----------------------|--------------------------|---------------|-------------------------|--|
|                  | Configured access n   | odes of "PLC_1"          |               |                         |  |
|                  | Device                | Device type              | Туре          | Address                 |  |
|                  | PLC_1                 | CPU 1212C AC/D           | TCP/IP        | 192.168.1.100           |  |
|                  |                       |                          |               |                         |  |
|                  |                       |                          |               |                         |  |
|                  |                       |                          |               |                         |  |
|                  |                       |                          |               |                         |  |
|                  |                       | PG/PC interface for load | ling: 📒 Marv  | ell Yukon 88E8071 PCI 🗖 |  |
|                  |                       | Connection to sub        | inet: 📮 (loca | I) TCP/IP               |  |
|                  |                       | 1st nate                 | way:          |                         | -                                      |
|                  |                       |                          |               |                         |  |
|                  | Accessible devices in | target subnet:           |               |                         | Show all accessible devices            |
|                  | Device                | Device type              | Tuno          | Address                 | Target device                          |
|                  | CPUcommon             | CPU 1212C AC/D           | TCP/IP        | 192 168 1 100           | CPLIcommon                             |
|                  | crocommon             | Cro 1212Cheb             | TCP/IP        | Access address          |  |
|                  |                       |                          |               |                         |  |
|                  |                       |                          |               |                         |  |
|                  |                       |                          |               |                         |  |
| Flash LED        |                       |                          |               |                         |  |
|                  |                       |                          |               |                         |  |
|                  |                       |                          |               |                         |  |
|                  |                       |                          |               |                         | Refresh                                |
|                  |                       |                          |               |                         | <u>R</u> efresh                        |
|                  |                       |                          |               |                         | <u>R</u> efresh                        |
|                  |                       |                          |               |                         | <u>R</u> efresh<br>.oad <u>C</u> ancel |
|                  |                       |                          |               |                         | .oad <u>C</u> ancel                    |

| tatus | Info | Target | Message            | Action |
|-------|------|--------|--------------------|--------|
| +0    | 0    | PLC_1  | Ready for loading. |        |
|       |      |        |                    |        |
|       |      |        |                    |        |
|       |      |        |                    |        |
|       |      |        |                    |        |
|       |      |        |                    |        |

Step11 Go Online •

| Online   | Options To      | ools Wind | 01 |
|----------|-----------------|-----------|----|
| 💋 Go or  | iline           | K.        |    |
| Go of    | fline           | 13        |    |
| V. Onlin | e & diagnostics | s Ctrl+D  | 1  |
| Start    | runtime         |           |    |
| Stop     | runtime         |           |    |
| Simu     | ate runtime     |           | •  |
| Down     | load to device  | Ctrl+L    |    |
| Exten    | ded download    | to device |    |
| Hardy    | vare detection  |           |    |
| Devic    | e maintenance   |           | •  |
| Acces    | sible devices   |           |    |
| Start    | CPU             |           |    |
| Stop     | CPU             |           |    |

Step12: Recheck the linking status

| Project7>PLC_1                                 |  |
|--|--|
|  | hetwork view 📑 Device view                             |
| S7-1200 rack                                   | When you see this, it means the PC linking is correct. |
| - III<br>103                                   |  |
| ▲ III  |  |
| Device overview                                |  |
| PLC_1  | Properties 🐮 Info 😲 Diagnostics 🔻                      |
| Device information<br>No devices with problems |  |
| 🐈 Online 幅 Operat Device/modul                 | e Message Details                                      |
|  |  |
|  |  |
|  |  |

(b)If the S7-1200 PLC has IP address inside

Step1: Select the "Accessible devices" to check the "IP Address"

| s | tart                    |                           |  |                    |                        |                            |
|---|-------------------------|---------------------------|--|--------------------|------------------------|----------------------------|
|   |                         | * <sup>†</sup>            | <ul> <li>Show all</li> <li>Online s</li> </ul> |                    |                        |                            |
|   |                         | 1                         |  |                    |                        |                            |
|   | Online &<br>Diagnostics |                           | Accessib                                       | le devices         |                        |                            |
|   |                         |                           | PG/PC interfac                                 | e to show accessit | ole devices for: 🛛 💻 M | arvell Yukon S8EB071 PCI 💌 |
|   |                         | Accessible devices in tai | Device type                                    | Type               | Address                | MAC address                |
|   |                         | PLC_1                     | CPU 1212C AC/D                                 | TCP/IP             | 192.168.1.100          | 00-1C-06-00-B5-2B          |
|   | Flash LED               |                           |  |                    |                        |                            |
|   |                         |                           |  |                    |                        | <u>R</u> efresh            |
|   |                         |                           |  |                    | Show in project tre    | ee Close                   |

Step2: Create a new project

| Save project  | <b>3</b> X 🗉 🗎   | <ul> <li>★ 3 3 3 2 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5</li></ul> | e 🔊 Go offline 🔐 🛽 | =192.168.1.100 (                                   | PUcommon 🔔 🖬 🗙  |
|---|--|--|--------------------|--|---|
|   |  | Diagnostics<br>General<br>Diagnostics status                       | Assign IP add      | dress  |   |
|   | eate a new proj<br>Project name:<br>Path:<br>Author:<br>Comment: | ect.<br>Project7<br>C:Documents and Settings\UserTm!<br>UserTm55x  | i5xlMy Documents   | AC address:<br>IP address:<br>:creen mask:<br>.er: | 00 - 1C - 06 - 00 - 85 - 28<br>192 . 168 . 1 . 100<br>255 . 255 . 255 . 0<br>192 . 168 . 1 . 100<br>Assign IP address |
| VMware Vir     VMware Vir     VMware Vir     SIMATIC Card F |  |  | Create Cancel      | •  | ,   |

#### Step3: Select the correct PLC model



Step4: Download the setting data into PLC.

|                   | •        | Project7>PLC_1 |      |                | 1                  |        |
|-------------------|----------|----------------|------|----------------|--------------------|--------|
|                   |          |                |      |                |                    | ሐ Netv |
|                   | <b>1</b> | H PLC_1        |      | <u> </u>       | J 🔏 🔍              | ± 100% |
|                   |          | \$7-1200       | rack | SIEMENS        | anare as dat       |        |
| ice               |          |                | -    |                | 1                  |        |
| tworks            |          |                | 101  |                |                    |        |
| 212C AC/DC/Rly]   |          |                | 100  | i <sup>u</sup> | CRUNING<br>ACOCINY |        |
| a                 |          |                |      |                |                    |        |
| Resources         | Ξ        |                | 103  |                |                    |        |
| n 88E8071 PCI-E G | <b>.</b> |                |      |                |                    |        |

| tatus | Info | Target | Message            | Action |
|-------|------|--------|--------------------|--------|
| +1    | 0    | PLC_1  | Ready for loading. |        |
|       |      |        |                    |        |
|       |      |        |                    |        |
|       |      |        |                    |        |
|       |      |        |                    |        |
|       |      |        |                    |        |
|       |      |        |                    |        |
|       |      |        |                    |        |
|       |      |        |                    |        |
|       |      |        |                    |        |
|       |      |        |                    |        |

Step5 Go Online •

| Online   | Options To      | ools Windo |
|----------|-----------------|------------|
| 💋 Go or  | iline           | ĸ          |
| Go of    | fline           | 43         |
| V. Onlin | e & diagnostics | Ctrl+D     |
| Start    | untime          |            |
| Stop i   | runtime         |            |
| Simul    | ate runtime     | •          |
| Down     | load to device  | Ctrl+L     |
| Exten    | ded download    | to device  |
| Hardv    | vare detection  |            |
| Devic    | e maintenance   | 2          |
| Acces    | sible devices   |            |
| Start (  | CPU             |            |
| Stop (   | CPU             |            |

#### Step6: Recheck the linking status

| Project7>PLC_1                                 |  |
|--|--|
|  | 🍰 Network view 🛛 🏦 Device view                         |
| 🕂 PLC_1 🗨 🖽                                    | 🛃 🔍 ± 100% 🗨   |
| 57-1200 rack                                   | When you see this, it means the PC linking is correct. |
| 103  |  |
|  |  |
| Device overview                                |  |
| PLC_1  | 🔯 Properties 🐮 Info 😲 Diagnostics 🔻                    |
| Device information<br>No devices with problems |  |
| 🍟 Online 🚰 Operat Device/module                | Message Details  |
|  |  |
|  |  |

## Regarding the detail setting information, please refer to "SIMATIC STEP

## 7 Basic V10.5 User Manual"

### (2) HMI Settings:

| Link Number:      | 1  |  |
|-------------------|--|--|
| Link Name:        | Link 1   |  |
| Link Type:        | Direct Link (Ethernet)                               |  |
| Device/Server:    | Siemens AG SIMATIC S7 (Ethernet)                     |  |
| Link Port:        | Ethernet1  |  |
|                   |  |  |
|                   |  |  |
|                   |  |  |
|                   |  |  |
|                   |  |  |
|                   |  |  |
|                   |  |  |
|                   |  |  |
| The duration of s | showing a communication error message: 5 💌 second(s) |  |
| The duration of s | showing a communication error message: 5 💌 second(s) |  |
| The duration of s | showing a communication error message: 5 💌 second(s) |  |

Select [Device/Server: Siemens AG →SIMATIC S7 (Ethernet)]

### Setting HMI IP address to 192.168.1.100

| Link Properties                     | ĸ |
|-------------------------------------|---|
| General Parameter                   |   |
| IP Address: 192.168.1.100           |   |
| Use Default Port                    |   |
| Port: 102                           |   |
| ✓ Use Default Rack and Slot Numbers |   |
| Rack Number: 1                      |   |
| Slot Number: 1                      |   |
| Timeout Time: 0 * (x 0.1 Sec.)      |   |
| Command Delay: 0 🚊 (x 0.1 Sec.)     |   |
| Retry Count: 0                      |   |
|                                     |   |
|                                     |   |
|                                     |   |
|                                     |   |
|                                     |   |
| OK Cancel Help                      |   |

### Bit Device:

| Toggle Switch   | Bit Device (SIMATIC 57 (Ethernet))   |
|---|--|
| General Label Advanced Visibility   | Bit Device Address Range Block Address Comment   |
| ID: TS0000 Note:<br>Picture Shape E E<br>Shape VFTA: Su<br>State: On Off<br>Border I FG Co<br>Pattern: I BG Co<br>Write Address: M0.0 | DBm.DBXn.b         m: 1*255; n: 0*65535; b: 0*7         b=0         DBm.DBXn.b           DBXn.b         n: 0*65535; b: 0*7         b=0           In.b         n: 0*65535; b: 0*7         b=0           Mn.b         n: 0*65535; b: 0*7         b=0           Qn.b         n: 0*65535; b: 0*7         b=0           Vn.b         n: 0*65535; b: 0*7         b=0           Vn.b         n: 0*65535; b: 0*7         b=0           T         c         c         c |
| Monitor Address   |  |
| Eink: Com2_57-1200  | Liose  |
| 257 ▼ : M ▼ 0.0<br>C A 1 2 3 CLR<br>D B 4 5 6 BS<br>E : 7 8 9 ESC<br>F / . 0 ENT  |  |

## Word Device:

| Numeric Entry  | Word Device (S)  | MATIC 57 (Ethernet))   |   | ×                    |
|--|--|--|---|----------------------|
| General Advanced Visibility  | Word Device  | Address Bange  | Size  | Comment              |
| ID: NE0000 Note: Trans<br>Trans<br>Shape<br>Border Co<br>BG Color:<br>Data Type: 16-Bit Unsigned Integer<br>Display Type: 16-Bit Unsigned Integer<br>Write Address: DBWO | Cn<br>DBm.DBDn<br>DBm.DBWn<br>DBWn<br>IDn<br>IWn<br>MDn<br>MWn<br>QDn<br>QWn<br>Tn<br>VDn<br>VWn<br>AlWn<br>AlQn<br>AlQn<br>AQWn | n: 0°65534<br>m: 1°255; n: 0°65532; n=4q<br>m: 1°255; n: 0°65534; n=2q<br>n: 0°65532; n=4q<br>n: 0°65532; n=4q<br>n: 0°65534; n=2q<br>n: 0°65532; n=4q<br>n: 0°65532; n=4q<br>n: 0°65534; n=2q<br>n: 0°65534; n=2q | Word<br>32 bits<br>Word<br>32 bits<br>Word<br>32 bits<br>Word<br>32 bits<br>Word<br>32 bits<br>Word<br>32 bits<br>Word<br>32 bits<br>Word<br>32 bits<br>Word<br>32 bits<br>Word | DBm.DBDn<br>DBm.DBWn |
| Monitor address identical to write addre<br>Monitor Addr Address Input Keypad<br>Font: Font. Link: Com2_S7-1200  | AUDn   | n: U~65534; n=2q   | 32 bits   |                      |
| Total Digits:       257 • : DBW         C Left       C A 1 2         C Center       D B 4 5         C Right       E : 7 8         F / . 0                                | <ul> <li>0</li> <li>3 CLR</li> <li>6 BS</li> <li>9 ESC</li> <li>ENT</li> </ul>   | ad   |   |                      |
| ОК   | Cancel   | Help   |   |                      |

# (4)Cable Diagram

You can use the general Ethernet Cable to link with PLC, and we will suggest you can link with it via Ethernet Hub.

| HMI Side         |   |  | S7-1200 Side |               |  |
|------------------|---|--|--------------|---------------|--|
| EnterNet connect |   |  | Ente         | erNet connect |  |
| TX(+)            | 1 |  | 1            | RX(+)         |  |
| TX(-)            | 2 |  | 2            | RX(-)         |  |
| RX(+)            | 3 |  | 3            | TX(+)         |  |
|                  | 4 |  | 4            |               |  |
|                  | 5 |  | 5            |               |  |
| RX(-)            | 6 |  | 6            | TX(-)         |  |
|                  | 7 |  | 7            |               |  |
|                  | 8 |  | 8            |               |  |
|                  |   |  |              |               |  |

Technical Support Information: OffPeak Technologies LLC <u>ts@offpeak-solutions.com</u> <u>www.offpeak-solutions.com</u> 717-891-0971