

**SIEMENS**



Training manual

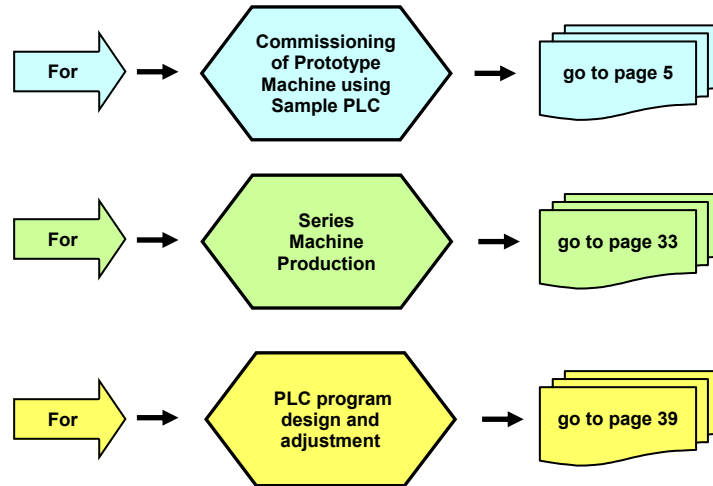
# Sinumerik 808D Commissioning Guide

Version 2013-01

## Notes

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## Workflows

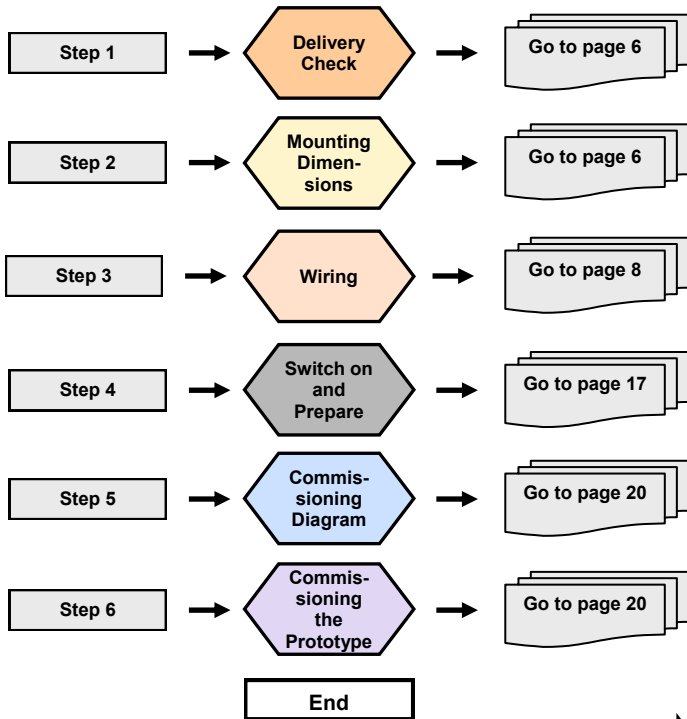


End

**Notes**

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Basic Commissioning procedure for prototype machines using the  
Sample PLC



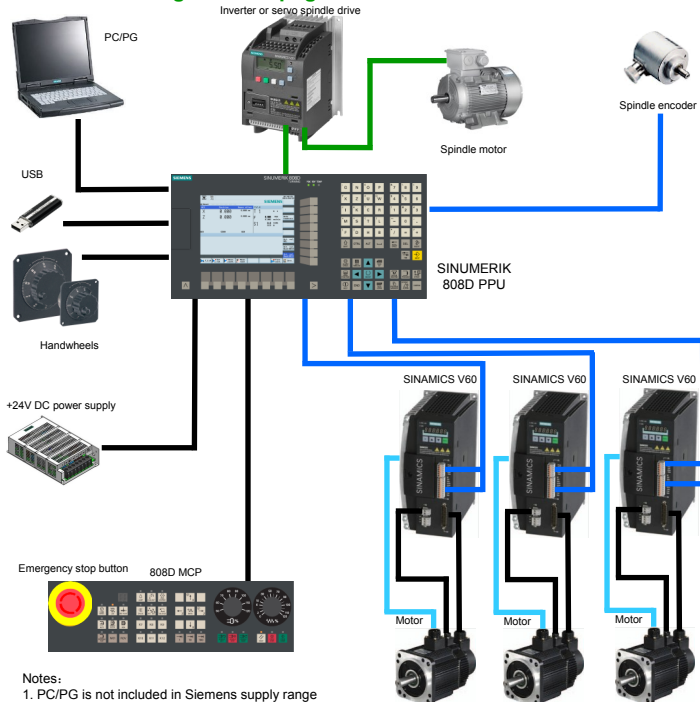
**Commissioning of Prototype Machine using Sample PLC**

**Delivery Check**

**Step 1**

In the following diagram the most common Siemens components are shown. For detailed information refer to :-

**Commissioning manual: page 7 to 10**



Notes:  
 1. PC/PG is not included in Siemens supply range  
 2. "USB", "Handwheel", "24V DC power supply", "Emergency stop button", "Inverter or servo spindle drive", "Spindle encoder" are options.



**Mounting dimensions**

**Step 2**

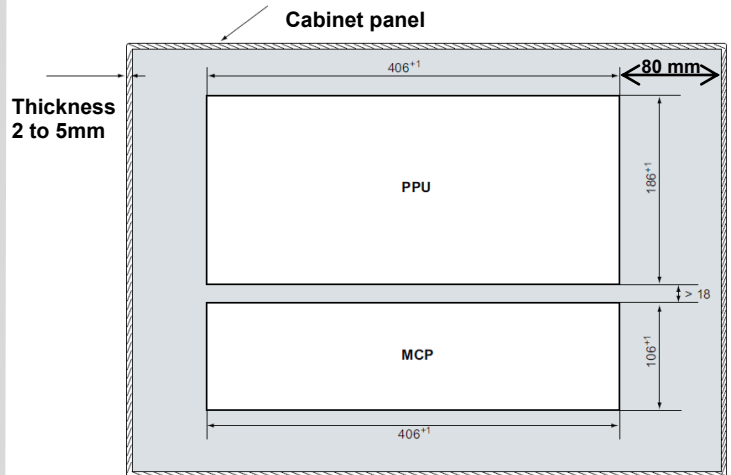
In the following technical drawing the mounting dimensions for the PPU and the MCP are shown.

You must provide sufficient space (recommended distance: 80 mm) between the maintenance door and the cabinet wall for replacing the battery or CF card:

For further components refer to :-

**Commissioning manual page 11 - 16**

**Cut-out dimensions**



PPU = Panel Processing Unit  
 MCP = Machine Control Panel



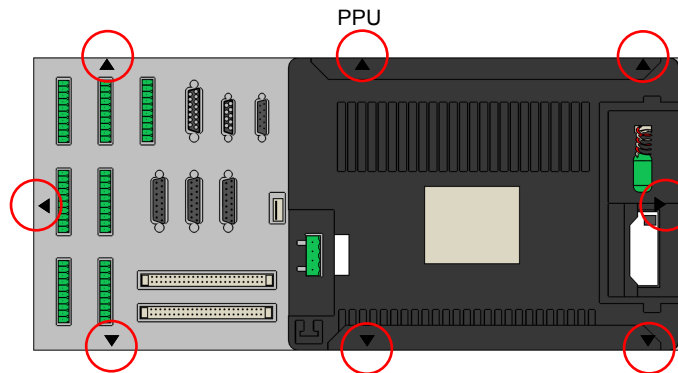
**Mounting dimensions**

**Step 2**

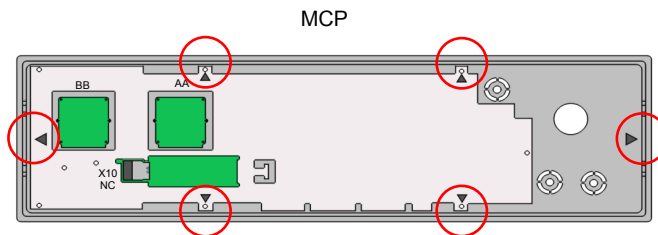
In order to mount the PPU and MCP use the clamps provided as shown below :-



- In total 14 clamps are provided together with the delivery of PPU :
1. 8 clamps for mounting PPU.
  2. 6 clamps for mounting MCP.



The clamps are located at the positions indicated with the black triangles. The black triangles can be seen in the following picture with red circles.



**Wiring**

**Step 3**

When connecting the components in the electrical cabinet, the wiring should comply with the relevant safety standards.

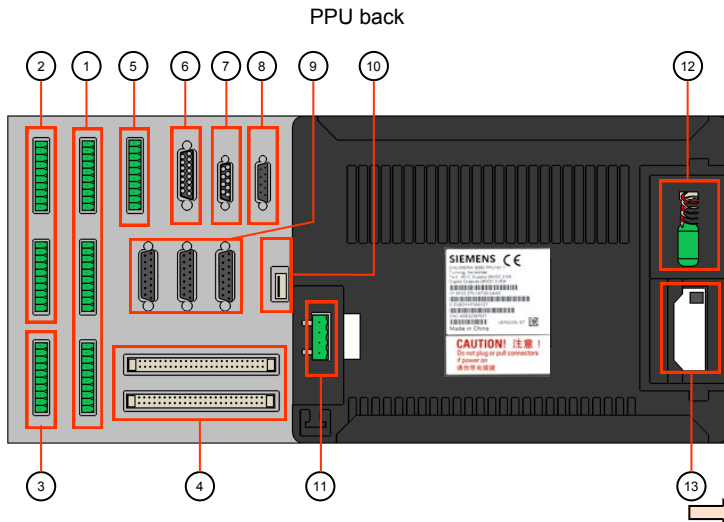
For further information refer to :-

**Commissioning manual 2012-12**

**V60 manual 2012-05**

In order to connect cables and wires, the location of all connectors and terminal blocks need to be known.

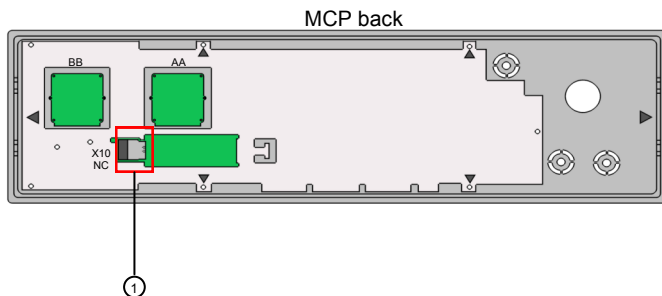
Connector overview of the PPU is shown:



Legend	Interface	Comment
<b>PPU Back</b>		
1	X100, X101, X102	Digital inputs
2	X200, X201	Digital outputs
3	X21	FAST I/O
4	X301, X302	Distributed I/O
5	X10	Hand-wheel inputs
6	X60	Spindle encoder interface
7	X54	Analog spindle interface
8	X2	RS232 interface
9	X51, X52, X53	Pulse drive interfaces
10	X30	USB interface, for connection with the MCP
11	X1	Power supply interface, +24V DC power supply
12	-	Battery interface
13	-	Slot for the System Compact Flash Card (CF card)
<b>PPU Front</b>		
14	-	USB interface

**Wiring**

**Step 3**

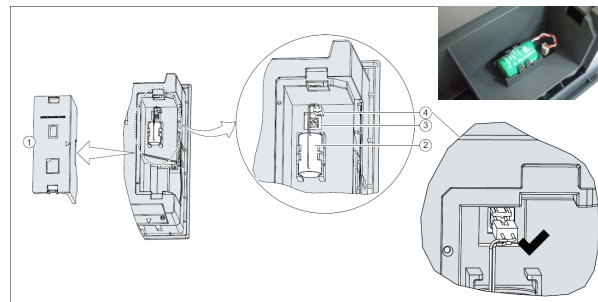


Legend	Interface	Comment
<b>MCP Back</b>		
1	X10	USB interface, for connection with the PPU

Note  
Connect USB cable between X30 on PPU and X10 on MCP.

**Battery connection :**

A battery is placed in the battery compartment, this battery has to be connected prior to switching on of the control.



- ① Maintenance door (as Page 8, legend 12)
- ② Battery
- ③ Battery interface
- ④ Battery connector

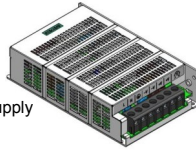
Note  
Battery: Lithium 3V DC 950mAH  
Life time: 3 years  
Order number: 6FC5247-0AA18-0AA0.

Note:  
When you have Alarm 2100 the battery must be changed.

**Wiring**

**Step 3**

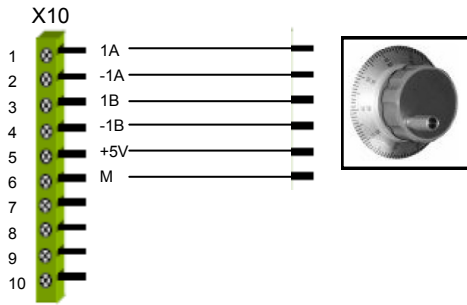
**Selection of 24V DC supply**



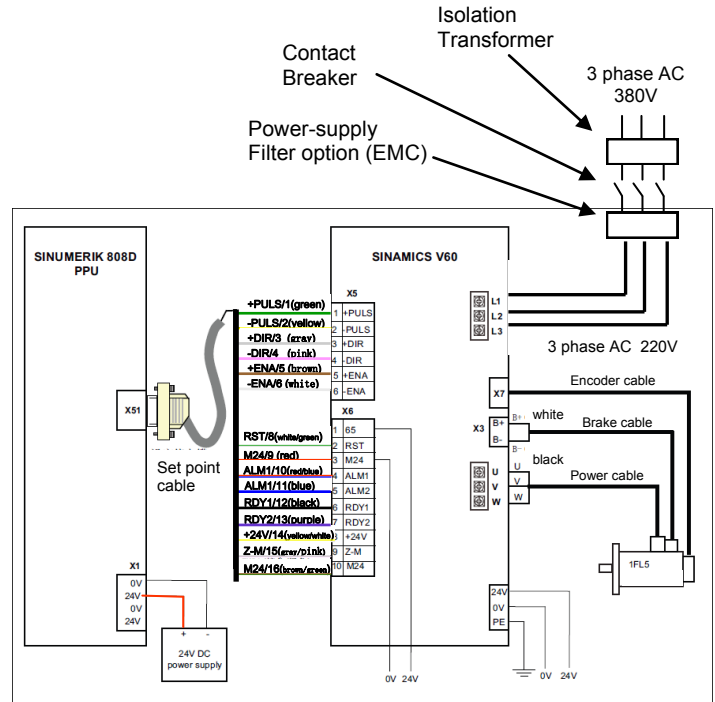
These 4 aspects should be considered during selection of 24V DC supply

1. 24V DC consumed on 808D :
  - ◆ Starting current: 5 A (momentary)
  - ◆ Basic consumption : 1, 5A
2. 24V DC consumed on Sinamics V60 drive:
  - ◆ V60+1FL5 (w/o brake): 0, 8A/axes
  - ◆ V60+1FL5(w. brake): 1, 2A/axes
3. Max. current of digital output: 0,25A/Digital output
4. Other devices (e.g.:fan, hydraulic/pneumatic valve) : calculation base on name shield  
Consideration of redundancy coefficient base on regulation of OEM

The connections for the hand wheel are shown.



The connections for the SINAMICS V60 drives to the PPU are shown. (X51: axis X for an example).



**Warning: connection error between X5 and X6 may cause damage on the drive.**

### Wiring

### Step 3

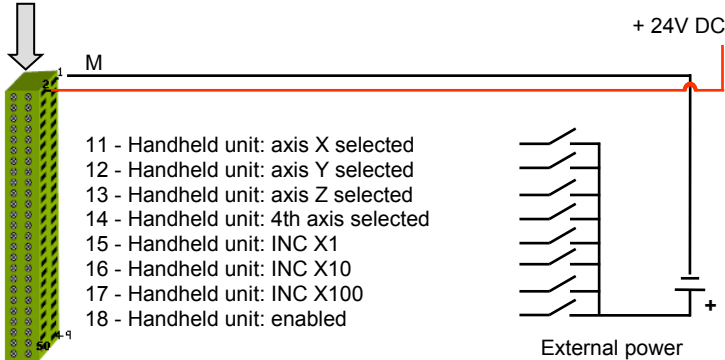
The connections of the distributed I/O are shown for the default PLC.

Illustration shows the connection diagram of PPU X301

#### Milling



#### X301 Distributed I/O



Distribution I/O board

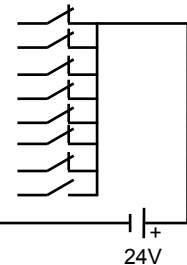
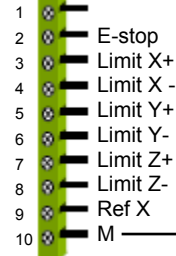
For the connection of distribution I/O on X301, X302 distribution I/O board must be configured. MLFB for distribution I/O: 6EP5 406-5AA00

Pin assignment of X301,X302

Pin	Signal	Comment	Pin	Signal	Comment
<b>X301 DISTRIBUTED I/O 1</b>					
1	MEXT	External ground	26	I5.7	Digital input
2	+24V	+24V output 1	27	-	Not assigned
3	I3.0	Digital input	28	-	Not assigned
4	I3.1	Digital input	29	-	Not assigned
5	I3.2	Digital input	30	-	Not assigned
6	I5.3	Digital input	31	Q2.0	Digital output
7	I3.4	Digital input	32	Q2.1	Digital output
8	I5.5	Digital input	33	Q2.2	Digital output
9	I3.6	Digital input	34	Q2.3	Digital output
10	I5.7	Digital input	35	Q2.4	Digital output
11	I4.0	Digital input	36	Q2.5	Digital output
12	I4.1	Digital input	37	Q2.6	Digital output
13	I4.2	Digital input	38	Q2.7	Digital output
14	I4.3	Digital input	39	Q3.0	Digital output
15	I4.4	Digital input	40	Q3.1	Digital output
16	I4.5	Digital input	41	Q3.2	Digital output
17	I4.6	Digital input	42	Q3.3	Digital output
18	I4.7	Digital input	43	Q3.4	Digital output
19	I5.0	Digital input	44	Q3.5	Digital output
20	I5.1	Digital input	45	Q3.6	Digital output
21	I5.2	Digital input	46	Q3.7	Digital output
22	I5.3	Digital input	47	+24V	+24V Input
23	I5.4	Digital input	48	+24V	+24V Input
24	I5.5	Digital input	49	+24V	+24V Input
25	I4.8	Digital input	50	+24V	+24V Input
<b>X302 DISTRIBUTED I/O 2</b>					
1	MEXT	External ground	26	I6.7	Digital input
2	+24V	+24V output 1	27	-	Not assigned
3	I6.0	Digital input	28	-	Not assigned
4	I6.1	Digital input	29	-	Not assigned
5	I6.2	Digital input	30	-	Not assigned
6	I6.3	Digital input	31	Q4.0	Digital output
7	I6.4	Digital input	32	Q4.1	Digital output
8	I6.5	Digital input	33	Q4.2	Digital output
9	I6.6	Digital input	34	Q4.3	Digital output
10	I6.7	Digital input	35	Q4.4	Digital output
11	I7.0	Digital input	36	Q4.5	Digital output
12	I7.1	Digital input	37	Q4.6	Digital output
13	I7.2	Digital input	38	Q4.7	Digital output
14	I7.3	Digital input	39	Q5.0	Digital output
15	I7.4	Digital input	40	Q5.1	Digital output
16	I7.5	Digital input	41	Q5.2	Digital output
17	I7.6	Digital input	42	Q5.3	Digital output
18	I7.7	Digital input	43	Q5.4	Digital output
19	I8.0	Digital input	44	Q5.5	Digital output
20	I8.1	Digital input	45	Q5.6	Digital output
21	I8.2	Digital input	46	Q5.7	Digital output
22	I8.3	Digital input	47	+24V	+24V Input
23	I8.4	Digital input	48	+24V	+24V Input
24	I8.5	Digital input	49	+24V	+24V Input
25	I8.6	Digital input	50	+24V	+24V Input

#### Milling Digital Inputs

##### X100

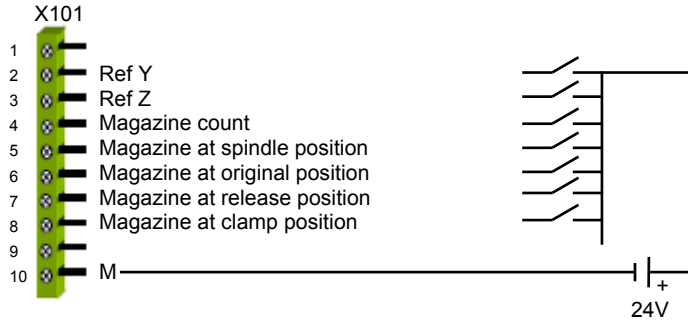


Wiring

Step 3

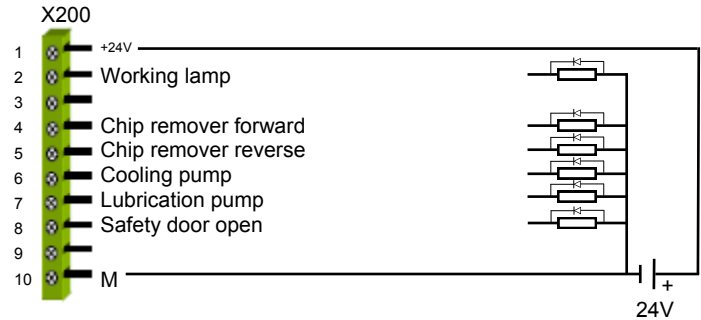
Milling

Digital Inputs

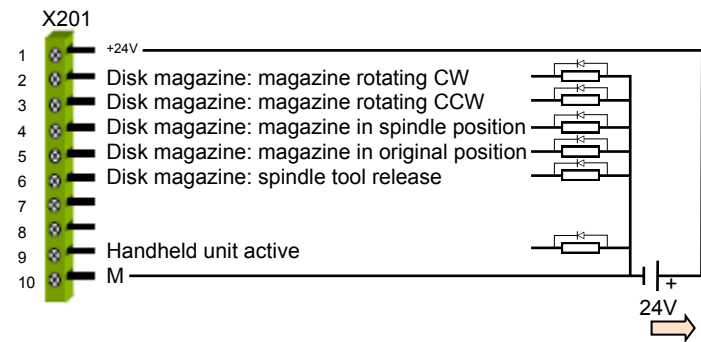
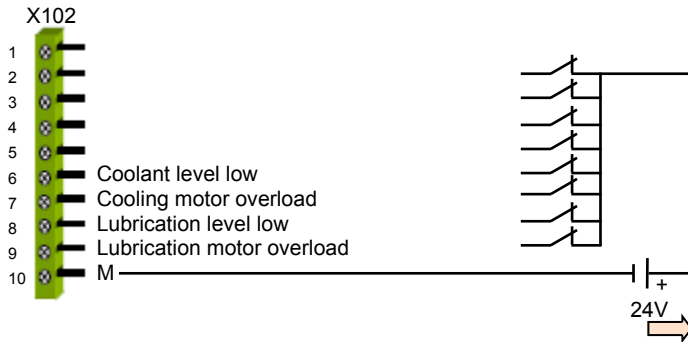


Milling

Digital outputs



**Attention: It is necessary to connect 24V DC to pin 1 and 0V DC to pin 10 of X200 provided that X200 was not connected with any digital outputs, Otherwise the V60 drive will not be enabled.**



### Wiring

### Step 3

The connections of the distributed I/O are shown for the default PLC.

#### Turning



X301 Distributed I/O

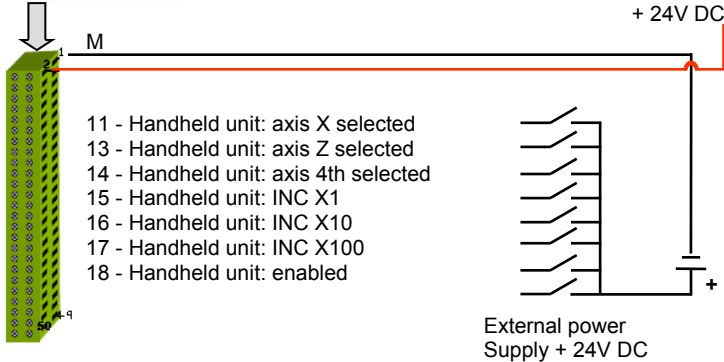


Illustration shows the connection diagram of PPU X301

#### Pin assignment of X301,X302

Pin	Signal	Comment	Pin	Signal	Comment
<b>X301 DISTRIBUTED I/O 1</b>					
1	MEXT	External ground	26	IS.7	Digital input
2	+24V	+24V output 1	27	-	Not assigned
3	I3.0	Digital input	28	-	Not assigned
4	I3.1	Digital input	29	-	Not assigned
5	I3.2	Digital input	30	-	Not assigned
6	I5.3	Digital input	31	Q2.0	Digital output
7	I3.4	Digital input	32	Q2.1	Digital output
8	I3.5	Digital input	33	Q2.2	Digital output
9	I3.6	Digital input	34	Q2.3	Digital output
10	I5.7	Digital input	35	Q2.4	Digital output
11	I4.0	Digital input	36	Q2.5	Digital output
12	I4.1	Digital input	37	Q2.6	Digital output
13	I4.2	Digital input	38	Q2.7	Digital output
14	I4.3	Digital input	39	Q3.0	Digital output
15	I4.4	Digital input	40	Q3.1	Digital output
16	I4.5	Digital input	41	Q3.2	Digital output
17	I4.6	Digital input	42	Q3.3	Digital output
18	I4.7	Digital input	43	Q3.4	Digital output
19	I5.0	Digital input	44	Q3.5	Digital output
20	I5.1	Digital input	45	Q3.6	Digital output
21	I5.2	Digital input	46	Q3.7	Digital output
22	I5.3	Digital input	47	+24V	+24V Input
23	I5.4	Digital input	48	+24V	+24V Input
24	I5.5	Digital input	49	+24V	+24V Input
25	I5.6	Digital input	50	+24V	+24V Input
<b>X302 DISTRIBUTED I/O 2</b>					
1	MEXT	External ground	26	IS.7	Digital input
2	+24V	+24V output 1	27	-	Not assigned
3	I6.0	Digital input	28	-	Not assigned
4	I8.1	Digital input	29	-	Not assigned
5	I8.2	Digital input	30	-	Not assigned
6	I8.3	Digital input	31	Q4.0	Digital output
7	I8.4	Digital input	32	Q4.1	Digital output
8	I8.5	Digital input	33	Q4.2	Digital output
9	I8.6	Digital input	34	Q4.3	Digital output
10	I8.7	Digital input	35	Q4.4	Digital output
11	I7.0	Digital input	36	Q4.5	Digital output
12	I7.1	Digital input	37	Q4.6	Digital output
13	I7.2	Digital input	38	Q4.7	Digital output
14	I7.3	Digital input	39	Q5.0	Digital output
15	I7.4	Digital input	40	Q5.1	Digital output
16	I7.5	Digital input	41	Q5.2	Digital output
17	I7.6	Digital input	42	Q5.3	Digital output
18	I7.7	Digital input	43	Q5.4	Digital output
19	I8.0	Digital input	44	Q5.5	Digital output
20	I8.1	Digital input	45	Q5.6	Digital output
21	I8.2	Digital input	46	Q5.7	Digital output
22	I8.3	Digital input	47	+24V	+24V Input
23	I8.4	Digital input	48	+24V	+24V Input
24	I8.5	Digital input	49	+24V	+24V Input
25	I8.6	Digital input	50	+24V	+24V Input

#### Turning Digital Inputs

##### X100

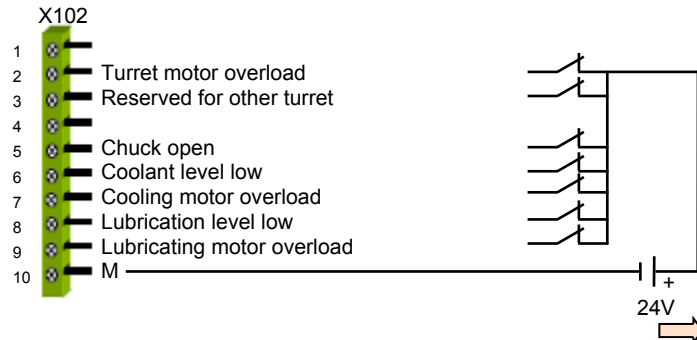


For the connection of distribution I/O on X301, X302 distribution I/O board must be configured. MLFB for distribution I/O: 6EP5 406-5AA00

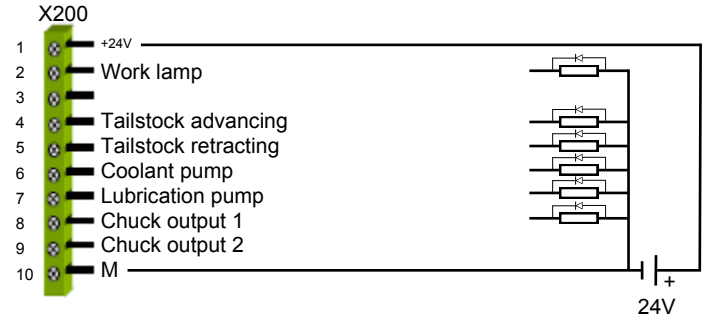
**Wiring**

**Step 3**

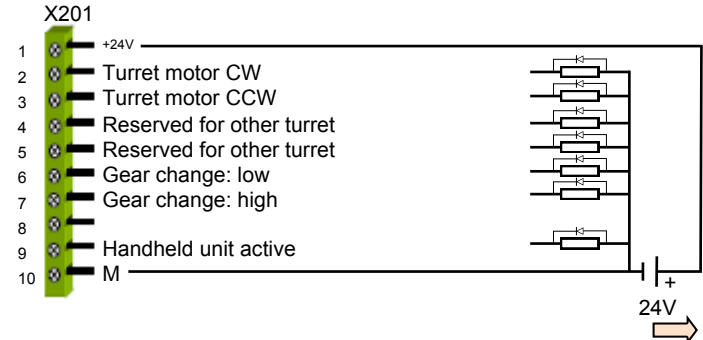
**Turning**  
Digital Inputs



**Turning**  
Digital Outputs



**Attention: It is necessary to connect 24V DC to pin 1 and 0V DC to pin 10 of X200 provided that X200 was not connected with any digital outputs, Otherwise the V60 drive will not be enabled.**

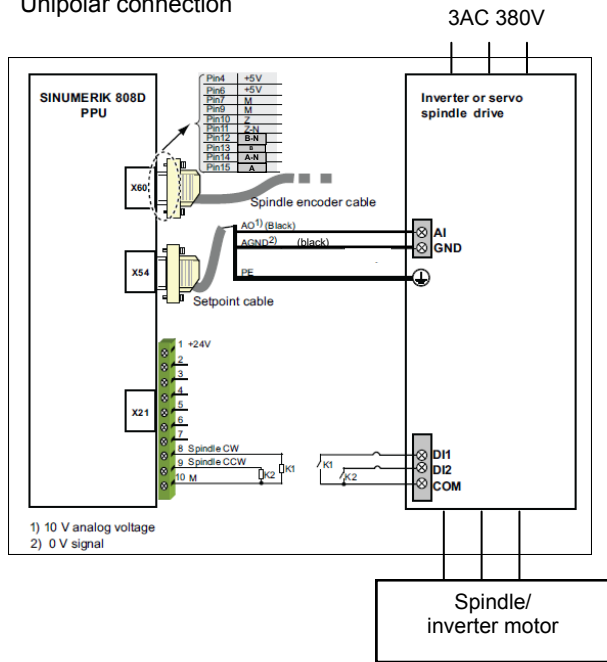


Wiring

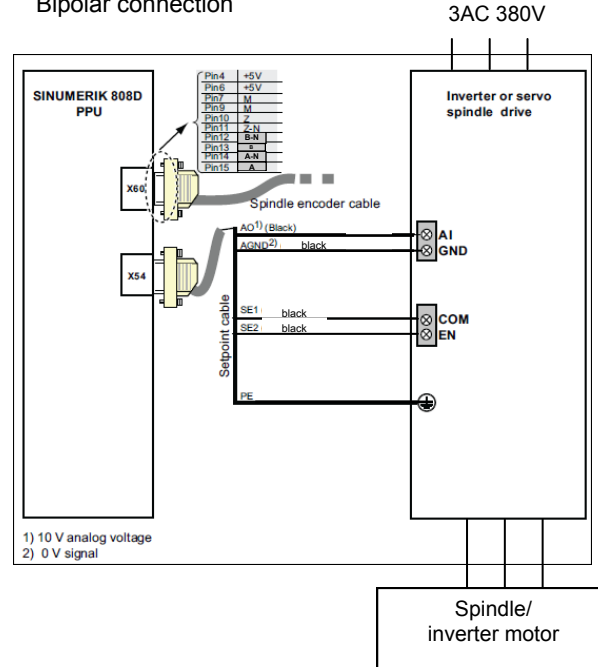
Step 3

The connections for the inverter or the spindle drive to the PPU are shown.

Unipolar connection



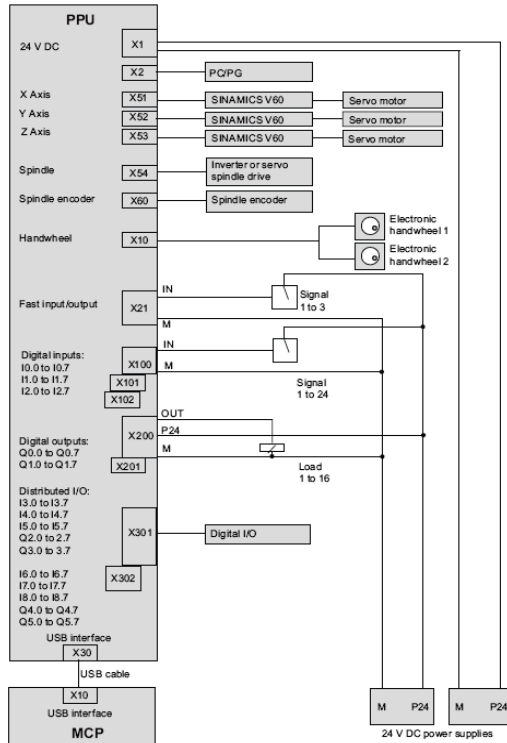
Bipolar connection



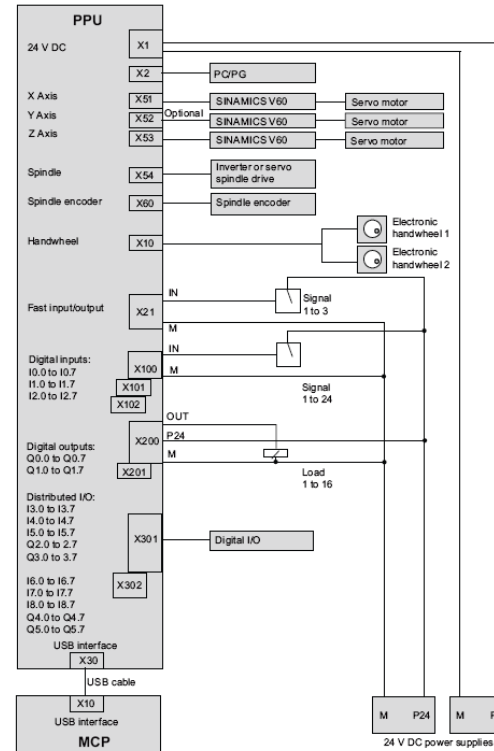
Wiring

Step 3

The connection overview for Milling is shown.



The connection overview for Turning is shown.



**Switching on and Prepare for Commissioning**

**Step 4**

Before powering on the controller, you should familiarise yourself with the operation of the PPU and MCP.

For detailed information refer to :-

**Commissioning manual page 27 to 29**

1. Apply 24V DC to the PPU (X1).
2. Apply 3P 220VAC to V60 drives (L1 L2 L3).

2. Check that the status LED's on the front face of the PPU are in the ready state.

For detailed information refer to :-

**Commissioning manual page 30**



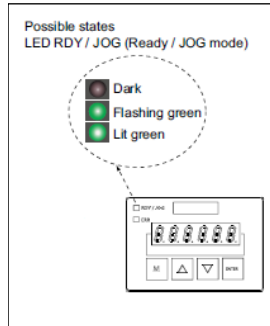
3. Check that the status LED's on the front face of the V60 drives are in a ready state.

V60 digital drive display at this stage, the status should be S- 4.

For detailed information refer to :-

**Commissioning manual page 30**

Status description on SINAMICS V60	
Item	Description
8.8.8.8.8.8	Initializing the drive, will stay 1 sec during the process
S-2	Waiting for 220V power supply
S-3	Wait for drive enable from Terminal 65 at X6
S-4	Wait for pulse enable from terminal ENA+ and ENA- at X5
S-RUN	Drive is running properly
S-A01...S-A45	Alarm codes in the drive system

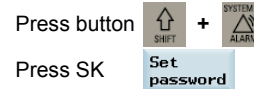


Before the control can be commissioned, loading of standard NC data has to be carried out, the password has to be set to manufacturer, the time and the date have to be set.

Setting of the password.

For detailed information refer to :-  
**Commissioning manual page 31**

To set the password :-



Press SK

Type in "SUNRISE"



Press SK

Setting of the time and date.

For detailed information refer to :-  
**Commissioning manual page 34**

To set the time and date :-

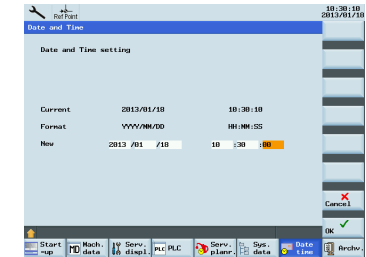
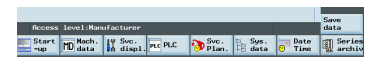
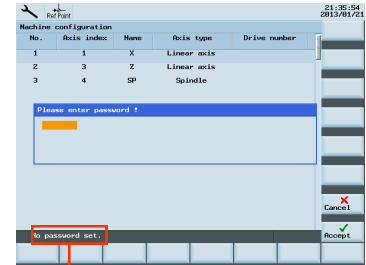


Press SK

Type in time and date using the keyboard and the button



Press SK



**Switching on and prepare for Commissioning**


**Step 4**

Load standard data :-  
The control must be powered off → on.

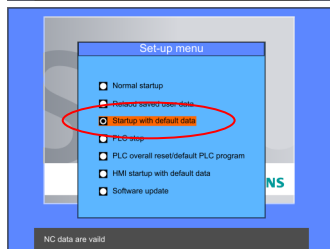
When the PPU shows the following screen:-

Press 



In the following screen select  
“startup with default data” using  
button 

Press 



To accept the selection.

On power up of the control the current alarms 4060 and 400006 can be acknowledged with the “Reset” and “Alarm cancel” buttons

Reset the password as the Default PLC will set to “NO PASSWORD”

Press button 

Press SK 


Type in SUNRISE

Press SK 

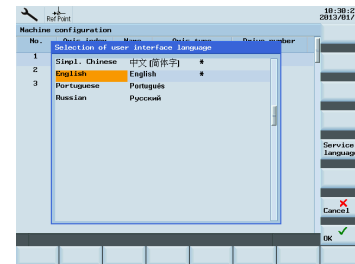
To set the language:-

Press button 

Press SK 

Select the language with 

Press SK 



**Switching on and prepare for Commissioning**

**Step 5**

V60 Drive:

Loading of “Default data”

- Remove 24v dc from terminal 65
- Press M repeatedly (until “FUnC” is displayed)
- Press Enter
- Press ▼ (until “dEFAUL” is displayed)
- Press Enter
- Press ▼ (until “YES” is displayed)
- Press Enter
- FINISH is displayed
- Press M (3 times)
- S- 3 is displayed
- Apply 24v dc to terminal 65
- S- 4 is displayed



There are 4 parameters that have to be set depending on which axis motor has been used in the construction of the machine.

	Parameter	4Nm	6Nm	7.7Nm	10 Nm
		Data	Data	Data	Data
Drive SINAMICS V60	P20 Kp	0.81	1.2	1.5	2.1
	P21 Tn	17.7	17.7	17.7	18
	P30 KV	3	3	3	3
	P31 FFW	85	85	85	85

The four parameters being p20, p21, p30, and p31.

Setting parameters (p20, p21, p30, and p31)

- Remove 24v dc from terminal 65
  - Press M (until “PArA” is displayed)
  - Press Enter
  - Press ▼ (until “P01” is displayed)
  - Press Enter
  - Press ▼ (until “1” is displayed)
  - Press Enter
1. Press ▼ (until “Pn” is displayed) “n” being the required parameter number
  2. Press Enter
  3. Press ▼ (until the correct value is shown)
  4. Press Enter

Repeat this until all required values are set

- Press ▼ (until “P01” is displayed)
- Press Enter
- Press ▼ (until “0” is displayed)
- Press Enter
- Press M repeatedly (until “FUnC” is displayed)
- Press Enter
- Press ▼ (until “StorE” is displayed)
- Press Enter
- Press ▼ (until “YES” is displayed)
- Press Enter
- FINISH is displayed
- Press M (3 times)
- S- 3 is displayed
- Apply 24v dc to terminal 65
- S- 4 is displayed



Commissioning diagram

Step 6

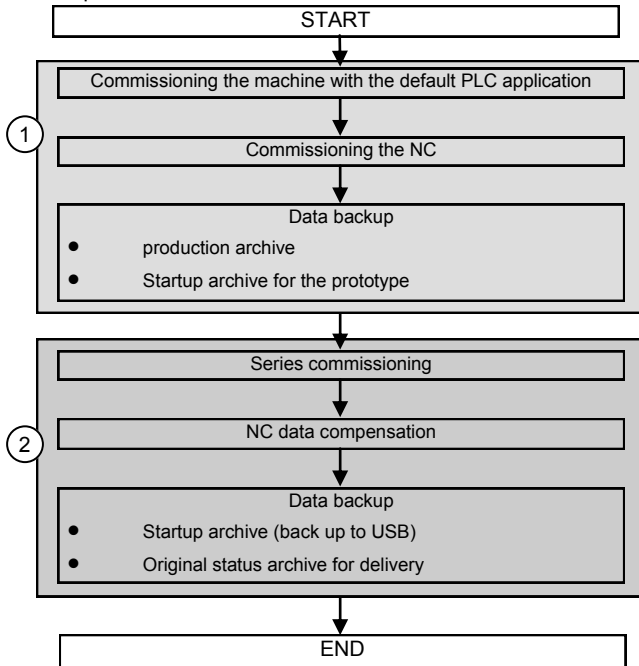
Commissioning the prototype

Step 7

Commissioning diagram

Commissioning manual page 37

- 1 Commissioning the prototype.
- 2 Series production



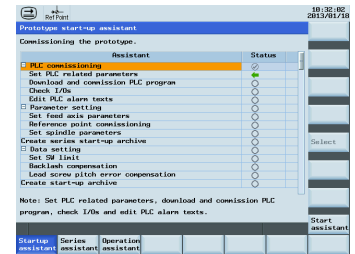
Commissioning the prototype.  
For detailed information refer to :-  
**Commissioning manual page 35**

To start the assistant

Press



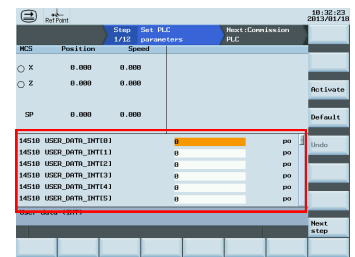
The PPU shows the following screen.



Press



The PPU shows the following screen.  
In the box shown you can enter the PLC MD values.



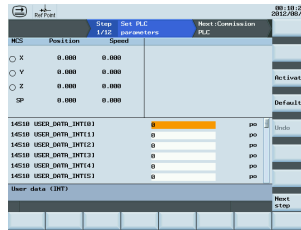
Commissioning the prototype

Step 7

Set PLC parameters.

MILLING (all default values are set to zero)

For detailed information refer to :-  
**Commissioning manual**  
page 42



MD14510	PLC interface	Unit	Range	Function
14510[12]	DB4500.DBW24	*	-	vertical =0 - horizontal=1
MD14510[13] SBR 42	DB4500.DBW26	0.1sec	5~200	Spindle braking time
MD14510[20] SBR 51 - 52	DB4500.DBW40		Max.64	Max Tool number in magazine
MD14510[24] SBR 45	DB4500.DBW48	1min		Lubrication interval
MD14510[25] SBR 45	DB4500.DBW50	0.01s	12~2000	Lubrication duration
MD14514	PLC interface	Function		
MD14514[0]	DB4500.DBD2000	Tool magazine : spindle poisoning angle		
MD14514[1]	DB4500.DBD2004	Tool magazine: Preparation position of Z axes for tool change		
MD14514[2]	DB4500.DBD2008	Tool magazine: Tool changing position of Z axes		
MD14514[3]	DB4500.DBD2012	Tool magazine: velocity of Z axis, Go to tool change preparation position		
MD14514[4]	DB4500.DBD2016	Tool magazinevelocity of Z axis, back to tool change preparation position		

MILLING continued

MD14512	Functionality							
	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
14512[16] DB4500.D BB1016	Selection of axis to be controlled by hand wheel via MCP	Z axis: rotary monitoring	Y axis: rotary monitoring	X axis: rotary monitoring	Safety door open when M1/M2 programmed	Safety door activate	Chip remover activate	
					SBR 22	SBR 22	SBR 23	
14512[17] DB4500.D BB1017					Selection of hand-wheel controlled axis via HHU			Tool magazine activate
								SBR 52 - 53
14512[18] DB4500.D BB1018	One hardware limit triggered per axis	Hardware limit is independent of the PLC application	Fixed direction of spindle	External stop signal of the spindle		Automatic lubrication after first power-on		
	SBR 40	SBR 40		SBR 33				
14512[19] DB4500.D BB1019						Delete system password when power on	Spindle brake activate	
							SBR 42	

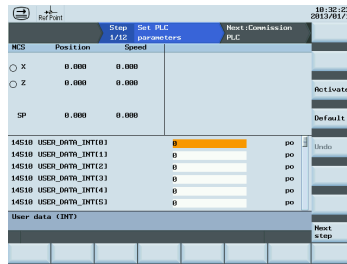
Commissioning the prototype

Step 7

Set PLC parameters.

TURNING (all default values are set to zero)

For detailed information refer to :- **Commissioning manual page 39**



MD14510	PLC interface	unit	Range	Functionality
14510[12]	DB4500.DBW24	*	-	flat bed=0 - inclined bed = 1
MD14510[13] SBR 42	DB4500.DBW26	0.1sec	5~200	Spindle braking time
MD14510[20] SBR 51 - 52	DB4500.DBW40		4, 6	Max Tool number in turret. (for tool amount >6, PLC to be programmed by customer themselves)
MD14510[21] SBR 51 - 52	DB4500.DBW42	0.1sec	5~30	HED turret: Tool clamping time for
MD14510[22] SBR 51 - 52 SBR 53	DB4500.DBW44	0.1sec	30~200	HED turret: Time monitoring for tool change
MD14510[24] SBR 45	DB4500.DBW48	1min		Lubrication interval
MD14510[25] SBR 45	DB4500.DBW50	0.01s	12~2000	Lubrication duration

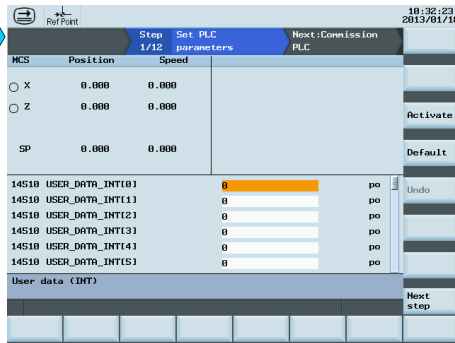
TURNING continued

MD14512	Functionality							
	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
14512[16] DB4500.DB B1016	Selection of axis to be controlled by hand wheel via MCP	Z axis: rotary monitoring		X axis: rotary monitoring	Safety door open when M1/ M2 programmed	Safety door activate		
					SBR 22	SBR 22		
14512[17] DB4500.DB B1017					Selection of hand-wheel controlled axis via HHU	Tail-stock function activate	Chuck function activate	HED turret activate
								SBR 51 - 52
14512[18] DB4500.DB B1018	One hardware limit triggered per axis	Hardware limit is independent of the PLC application	Fixed direction of spindle	External stop signal of the spindle		Automatic lubrication after first power-on		
	SBR 40	SBR 40		SBR 33				
14512[19] DB4500.DB B1019	MM+ (option) activate					Delete system password when power on	Spindle brake activate	
	SBR 58 - 59						SBR 42	

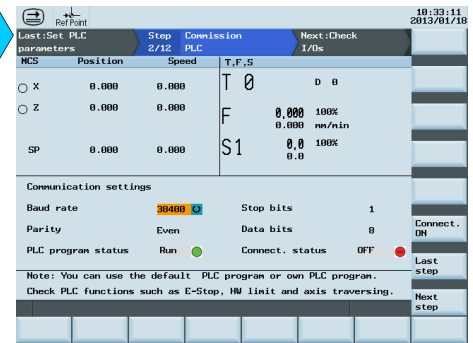
Commissioning the prototype

Step 7

Set PLC parameters.



Commissioning PLC



PLC MD is to be adapted to suit the machine

It may be that the machine tool builder requires further PLC functionality, if this is required the PLC has to be modified.

To install PLC programming tool, follow the information in :-

[PLC Subroutines manual page 11 to 12](#)  
(install PLC programming tool)

To make a connection to the PPU, press SK Connect. ON

Then follow the information in:-  
[PLC Subroutines manual page 19 to 22](#)

- Activate } Changes will be activated
- Default } MD set to default value
- Undo } MD set to previous value

To continue press the SK



To continue press the SK



# Commissioning of Prototype Machine using Sample PLC

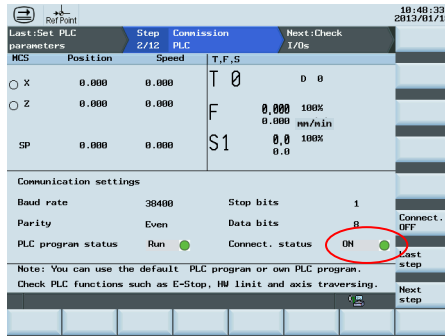


## Commissioning the prototype

### Step 7

#### Commissioning PLC

The "connect status" should now be green.



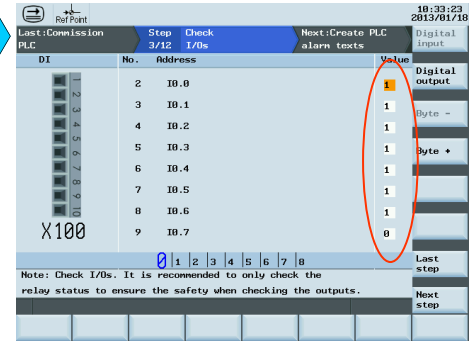
First the "Sample PLC blocks" should be uploaded to the PC, then the modifications can be made to achieve the required functionality. Once this has been completed, the PLC should be put into stop and the modified PLC should be downloaded into the PPU. The PLC must then be "restarted".

[PLC Subroutines manual page 23-30](#)

To continue press the SK



#### Check I/O's



All I/O status must be checked with the electrical drawing using the following SK's. The status is shown on the right hand side as shown above.

Vertical SK's allow you to select digital inputs or outputs and selection of the byte required.

Digital input

Choose digital input

Digital output

Choose digital output

Byte -

Choose the digital O/I addresses of Byte -

Byte +

Choose the digital O/I addresses of Byte +

To continue press the SK

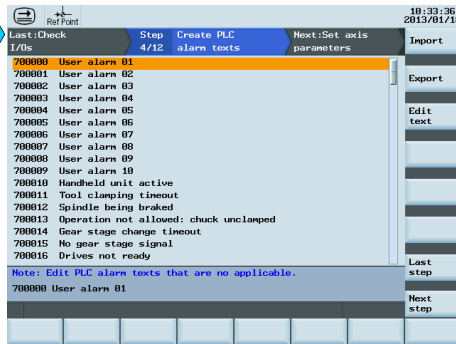


## Commissioning the prototype

### Step 7

#### Create PLC alarm texts

For detailed information refer to :- **Commissioning manual page 48**



You can edit the PLC user alarm text either directly on the HMI, or off line by transferring the file using a USB stick. Vertical SK's allow you to import and export the text file from the HMI, and SK that that allows the text file to be directly edited on the HMI.

<b>Import</b>	Import the backup alarm text into the PPU
<b>Export</b>	Export the finished alarm text from the PPU
<b>Edit Text</b>	Edit the alarm text

To continue press the SK



#### Set axis parameters

For detailed information refer to :- **Commissioning manual page 56**

The data below must be set :

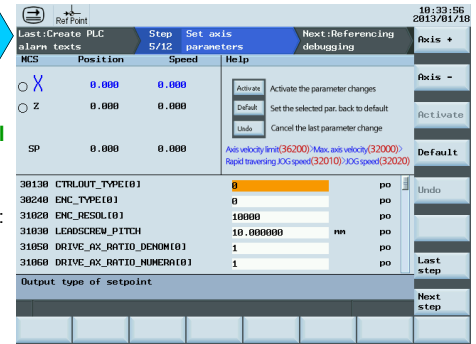
Machine data	Setting
30130	2
30240	3
34200	2

You can edit the axis machine data for the required axis. Vertical SK's allow you to edit, activate or set as default value.

<b>Axis +</b>	} Used to select the axis (X or Z turning or X, Y, or Z milling)
<b>Axis -</b>	
<b>Activate</b>	} Changes will be activated
<b>Default</b>	
<b>Undo</b>	} MD set to previous value

V60 digital drive display normal status should be S-RUN .

To continue press the SK

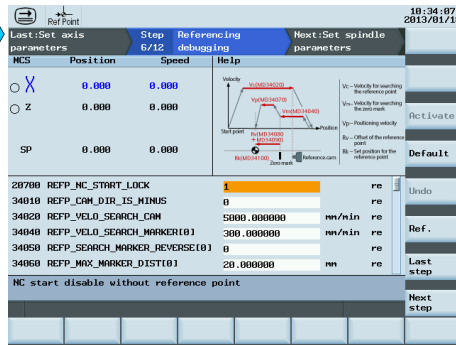


Commissioning the prototype

Step 7

Referencing debugging

For detailed information refer to :- **Commissioning manual page 59**



You can edit the axis machine data and the for the required axis. Vertical SK's allow you to edit, activate or set as default

- Axis + } Used to select the axis (X or Z turn or X, Y, or Z mill)
- Axis - }
- Activate } Changes will be activated
- Default } MD set to default value
- Undo } MD set to previous value
- Ref. } An axis can be referenced

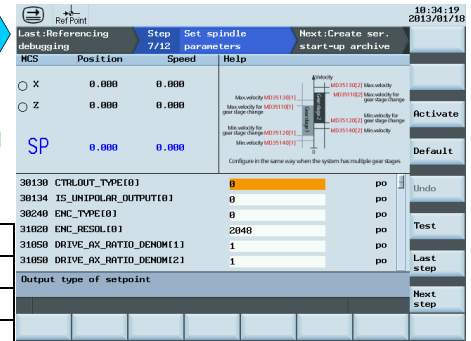
To continue press the SK

Set spindle parameters.

For detailed information refer to :- **Commissioning manual page 57**

The data below must be set as default values:

Machine data	Setting
30130	1
30240	2
30134	0: output value is Bipolar 1: output value is Unipolar 2: output value is Unipolar
30200	0: without spindle encoder



MD 30200 is not in assistant and default value = 1..?

You can edit the spindle machine data required. Vertical SK's allow you to edit, activate or set as default

- Axis + } Used to select the axis (X or Z turn or X, Y, or Z mill)
- Axis - }
- Activate } Changes will be activated
- Default } MD set to default value
- Undo } MD set to previous value
- Test } Test spindle in MDA mode

To continue press the SK

# Commissioning of Prototype Machine using Sample PLC

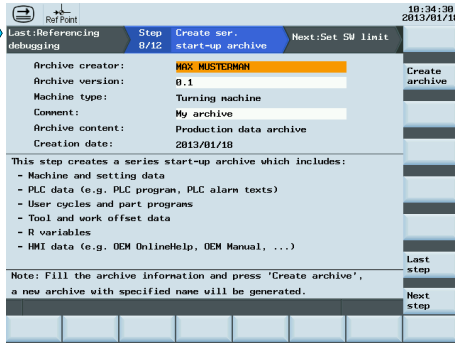


## Commissioning the prototype

### Step 7

#### Create ser. start-up archive

For detailed information refer to :-  
**Commissioning manual page 66**

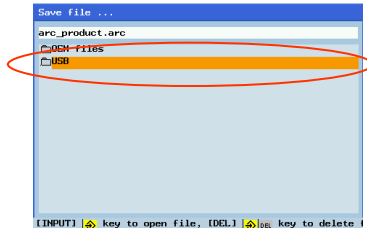


Vertical SK allows you to, create the “series start-up archive” press SK “Create archive”.

Create archive

} Create production archive

Note:  
When creating the production backup, store archive to USB memory stick.

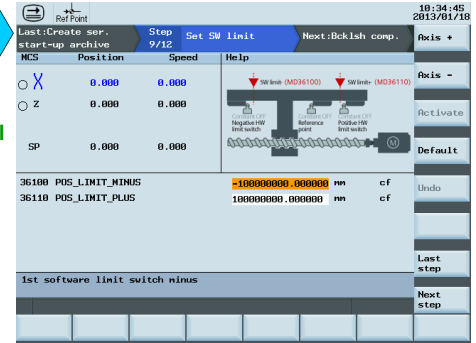


To continue press the SK



#### Set SW limit.

For detailed information refer to :-  
**Commissioning manual page 61**



You can edit the axis machine data for the required axis. Vertical SK's allow you to edit, activate or set as default

Axis +

} Used to select the axis (X or Z turn or X, Y, or Z mill)

Axis -

Activate

} Changes will be activated

Default

} MD set to default value

Undo

} MD set to previous value

To continue press the SK

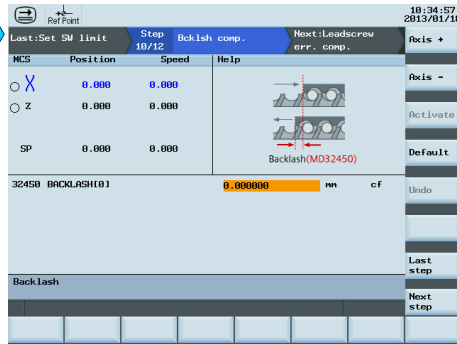


**Commissioning the prototype**

**Step 7**

**Bcklsh comp.**

For detailed information refer to :- **Commissioning manual page 62**



You can edit the axis machine data for the required axis. Vertical SK's allow you to edit, activate or set as default

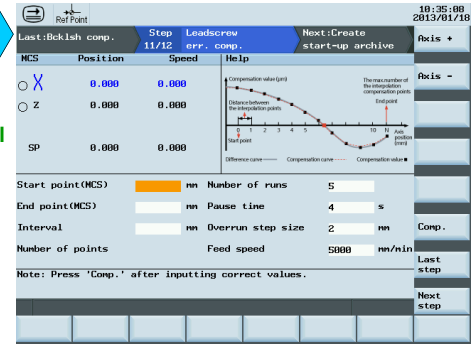
- Axis + } Used to select the axis (X or Z turn or X, Y, or Z mill)
- Axis - } Used to select the axis (X or Z turn or X, Y, or Z mill)
- Activate } Changes will be activated
- Default } MD set to default value
- Undo } MD set to previous value

To continue press the SK



**Leadscrew err. comp.**

For detailed information refer to :- **Commissioning manual page 62**



You can edit the axis machine data for the required axis. Vertical SK's allow you to edit, activate or set as default

- Axis + } Used to select the axis (X or Z turn or X, Y, or Z mill)
- Axis - } Used to select the axis (X or Z turn or X, Y, or Z mill)
- Comp. } Used to enter compensation data via the HMI
- ↓
- Activate } Changes will be activated

To continue press the SK

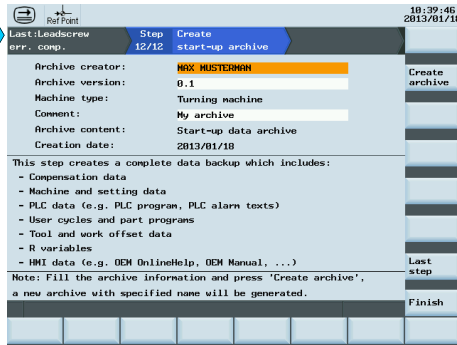


## Commissioning the prototype

## Step 7

### Create Start-up archive

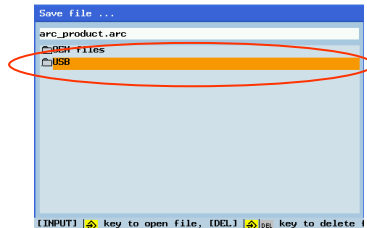
For further information refer to :- **Commissioning manual page 67**



Vertical SK allows you to, create the “production archive” press SK “Create archive”.

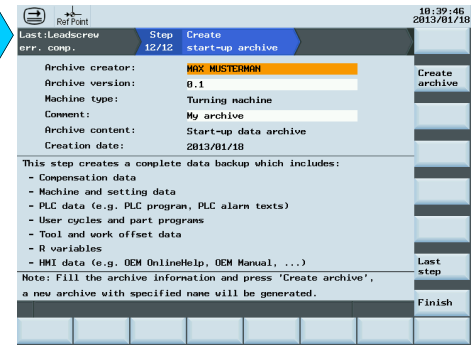
**Create archive** } Create Start-up archive

Note:  
When creating the Start-up archive, store archive to USB memory stick



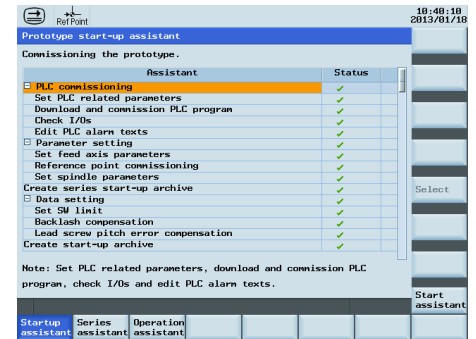
### Create Start-up archive

Once the assistant is completed.

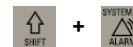


To continue press the SK

**Finish**



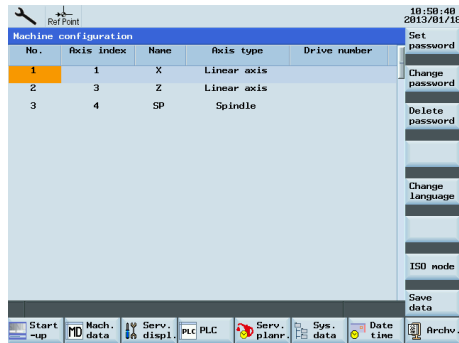
To continue press button



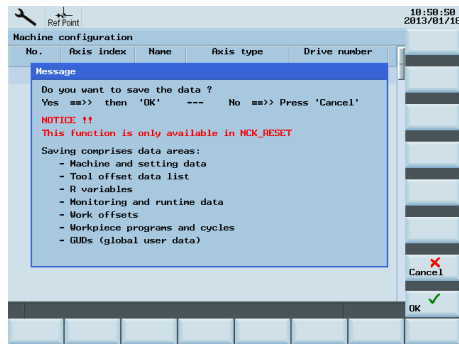
Commissioning the prototype

Step 7

Now that the commissioning is completed a "SAVE DATA" should be performed.



To continue press the SK



To continue press the SK



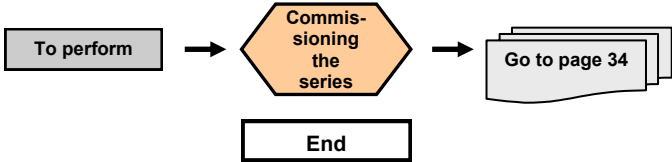
**Notes**

A large grid area for taking notes, consisting of a uniform pattern of small squares. The grid is empty and occupies the majority of the page's content area.

## Notes

A large grid area for taking notes, consisting of a uniform pattern of small squares. The grid is empty and occupies the majority of the page's content area.

Basic Commissioning procedure for series machines



**Commissioning the series machine**

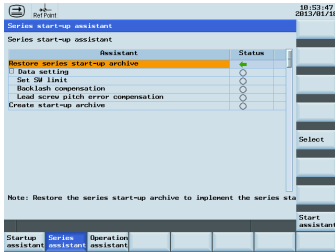
**Step 1**

For detailed information refer to :-  
**Commissioning manual page 35**

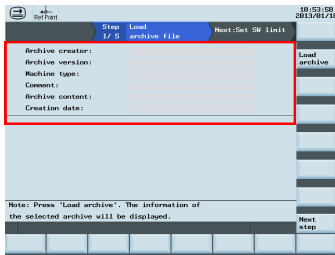
**To start the assistant**

Press  Followed by **Series assistant**

The PPU shows this screen.

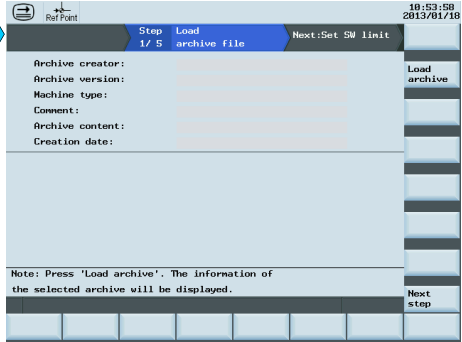


Press **Start assistant**




**Load archive file**

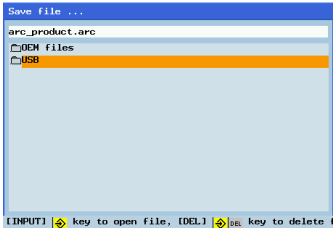
For detailed information refer to :-  
**Commissioning manual page 71**




Vertical SK allows you to load the “production archive” press SK “Load Archive”.

 } Loads production archive

Note:  
When loading the production archive, use archive on USB memory stick.



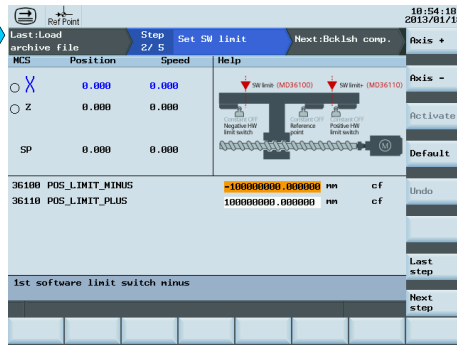
To continue press the SK 

Commissioning the series machine

Step 1

Set SW limit

For detailed information refer to :- **Commissioning manual page 61**



You can edit the axis machine data for the required axis. Vertical SK's allow you to edit, activate or set as default

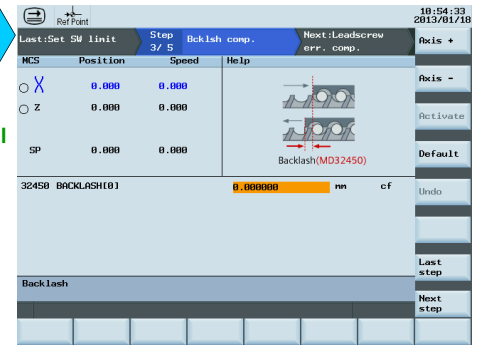
- Axis + } Used to select the axis (X or Z turn or X, Y, or Z mill)
- Axis - } Used to select the axis (X or Z turn or X, Y, or Z mill)
- Activate } Changes will be activated
- Default } MD set to default value
- Undo } MD set to previous value

To continue press the SK



Backlash comp.

For detailed information refer to :- **Commissioning manual page 62**



You can edit the axis machine data for the required axis. Vertical SK's allow you to edit, activate or set as default

- Axis + } Used to select the axis (X or Z turn or X, Y, or Z mill)
- Axis - } Used to select the axis (X or Z turn or X, Y, or Z mill)
- Activate } Changes will be activated
- Default } MD set to default value
- Undo } MD set to previous value

To continue press the SK

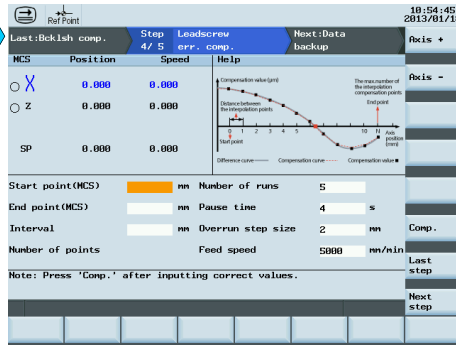


Commissioning the series machine

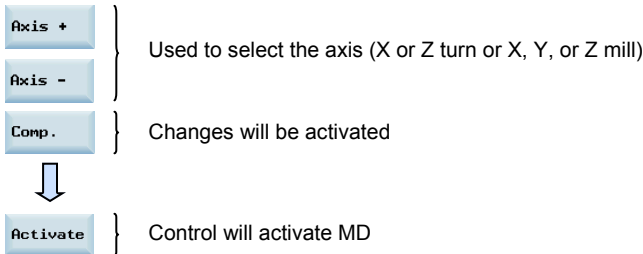
Step 1

Leadscrew err. Comp.

For detailed information refer to :- **Commissioning manual page 62**



You can edit the axis machine data for the required axis. Vertical SK's allow you to edit, activate or set as default

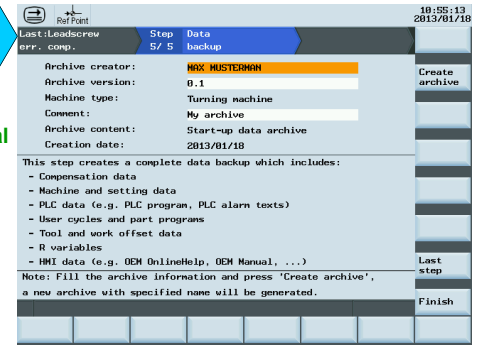


To continue press the SK



Data backup

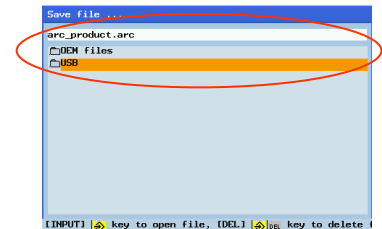
For detailed information refer to :- **Commissioning manual page 67**



Vertical SK allows you to, create the "production archive" press SK "Create archive".



Note: When creating the start-up archive, store archive into OEM directory and on a USB memory stick

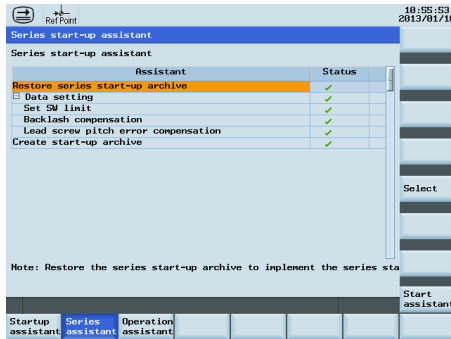


To continue press the SK



Commissioning the series machine

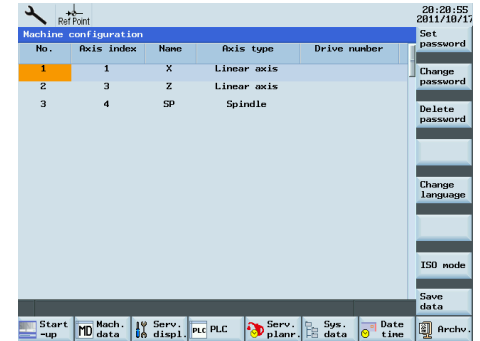
Step 1



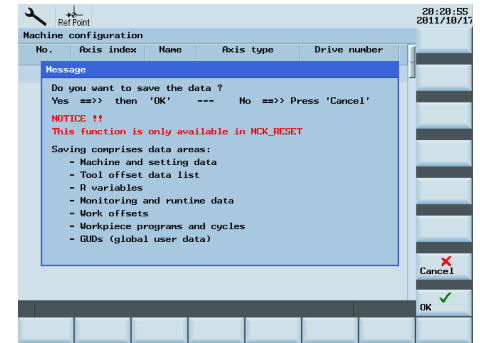
To Continue press button



Now that the commissioning is completed a "SAVE DATA" should be performed.



To continue press the SK



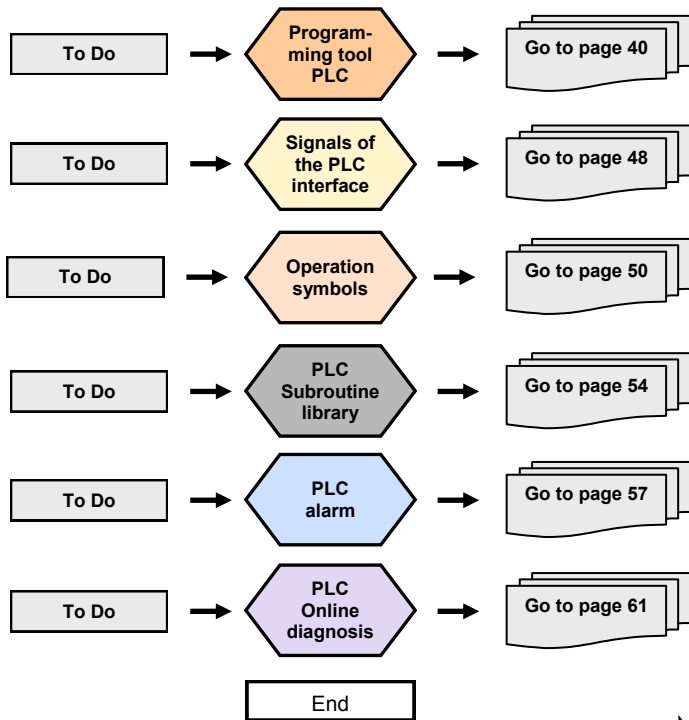
To continue press the SK



## Notes

A large, empty grid area for taking notes, consisting of a uniform pattern of small squares. The grid is bounded by a thin grey border on the top, left, and right sides, and is positioned below the 'Notes' header.

Basic PLC design and adjustment.



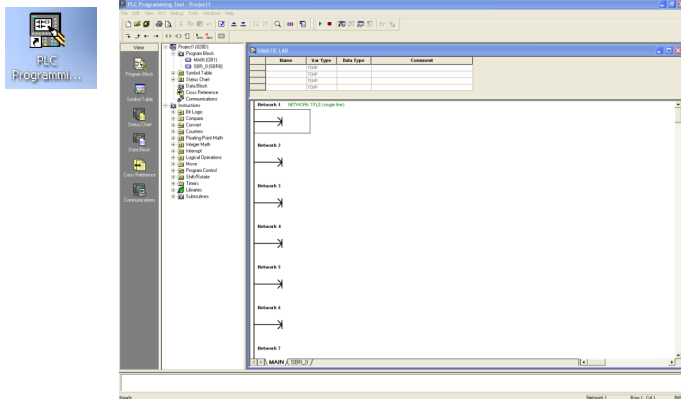
**Programming tool PLC**

In order to edit the PLC program we must use Programming Tool PLC V3.2 or higher .

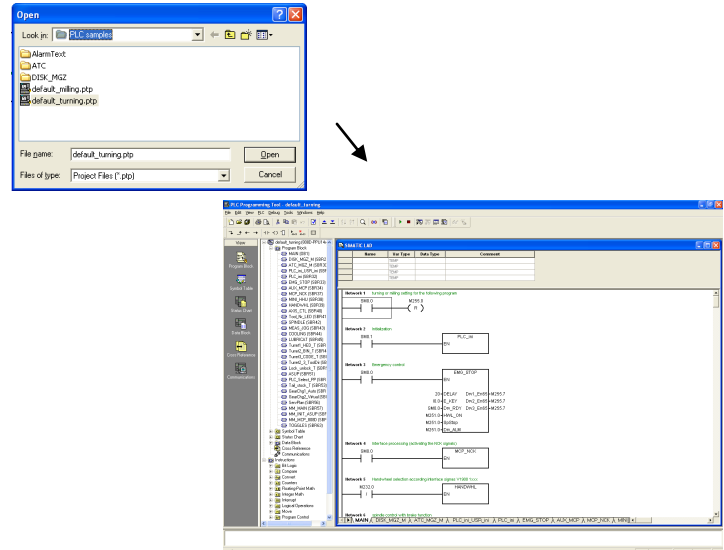
Using the PLC programming tool you can:-

- Create the PLC program
- Edit the PLC program
- Make a connection between the programming tool and the system
- Compile the PLC program
- Download the PLC program
- Upload the PLC program
- Monitor the PLC

The software is started by double clicking the icon on your desktop.

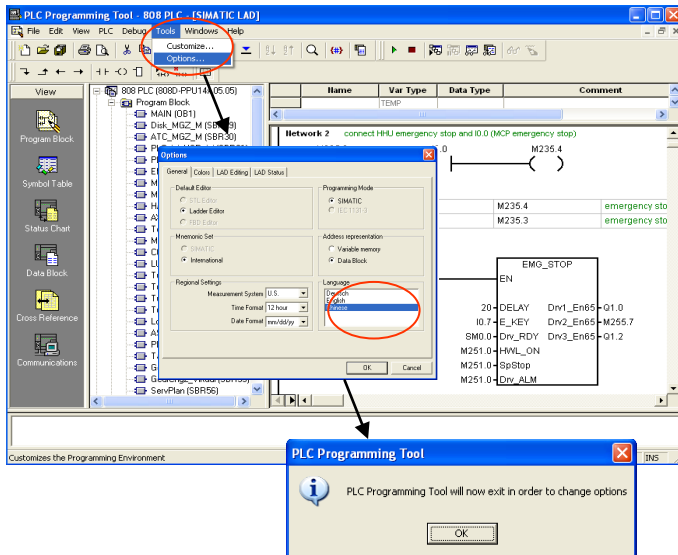


Open the “default PLC” program and save this file under a new name so that the default program is not over written.

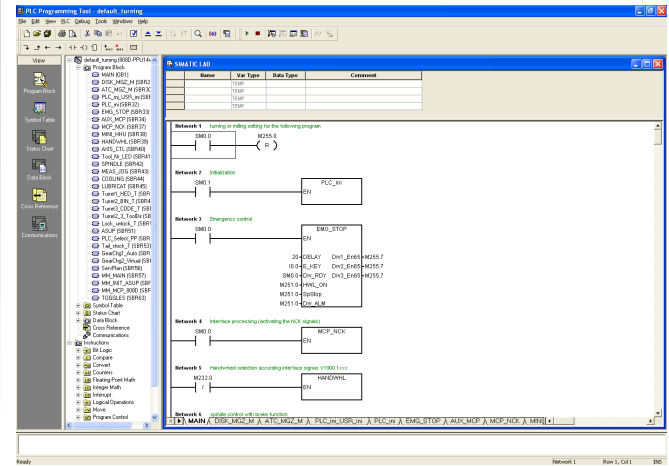


## Programming tool PLC

The PLC programming tool has 5 languages that can be selected when installing the software, you choose the display languages by using the following sequence.



Overview of PLC programming tool.

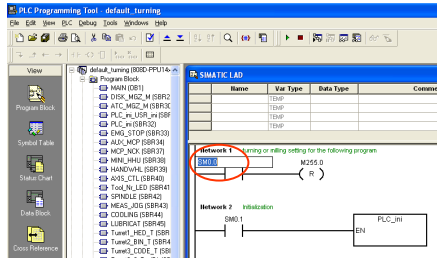


The programming tool will prompt you that the software will close automatically and you will have to start the programming tool again.



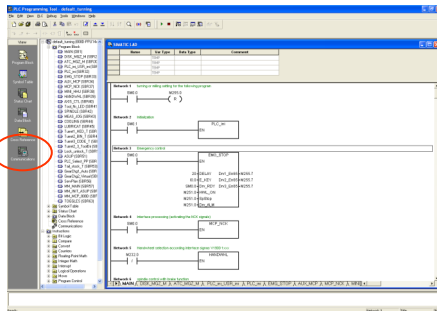
**Programming tool PLC**

The address of each instruction can be edited at any time by highlighting the instruction.

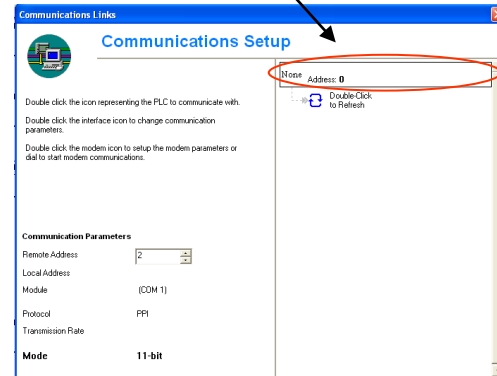


A connection must be made so that the PLC programming tool can communicate with PPU.

Press the Communications Icon.

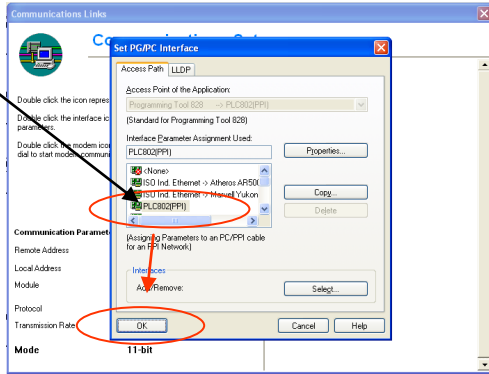


Double click this icon.

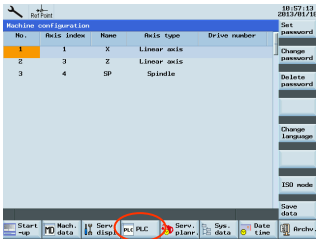


Programming tool PLC

808D Communicates using the PPI serial interface.



Activate the PLC connection setting in 808D (password set to "sunrise")

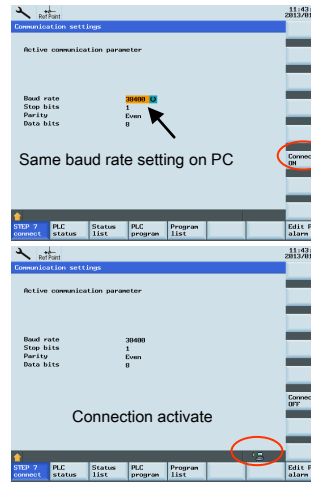


Operating processes:

Press key:



Press soft key



Confirm the baud rate setting in 808D, same as the setting in PC (38400 for example)

Press SK

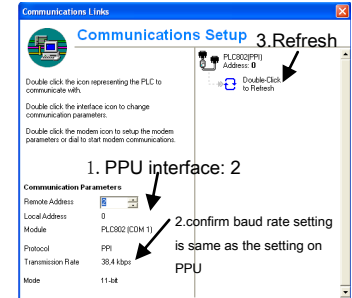


Illustration



Connection established

Follow the steps 1-3 on you PC

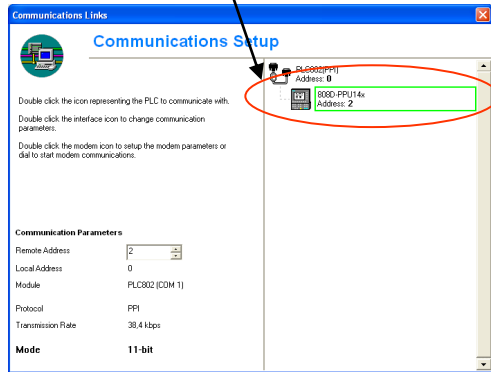


1. PPU interface: 2

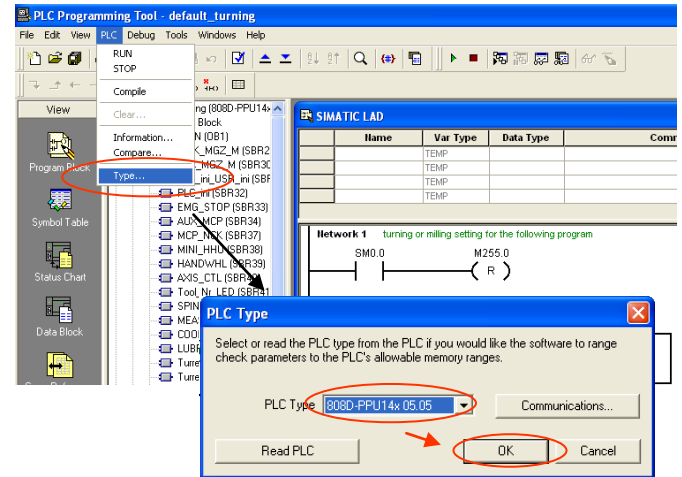
2. confirm baud rate setting is same as the setting on PPU

**Programming tool PLC**

The connection is now established.



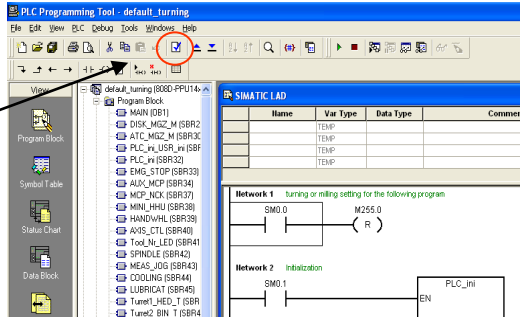
To check for syntax errors use “compile” after editing and modification of the PLC program.



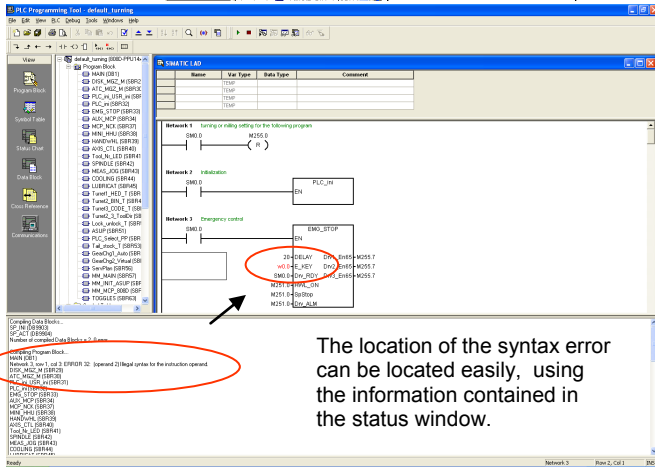
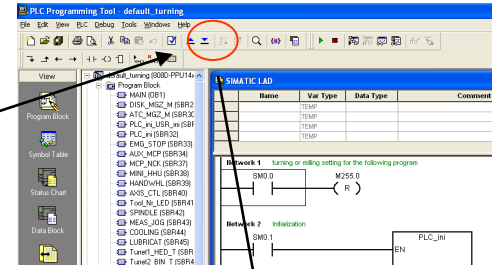
The correct system must  
Be chosen.

Programming tool PLC

To compile the PLC program press the compile icon

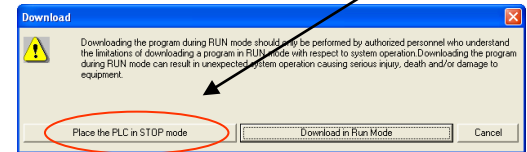
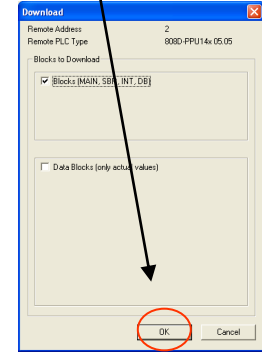


To download the modified PLC program press icon.



The location of the syntax error can be located easily, using the information contained in the status window.

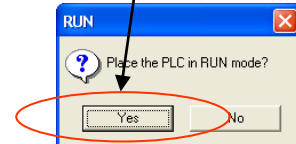
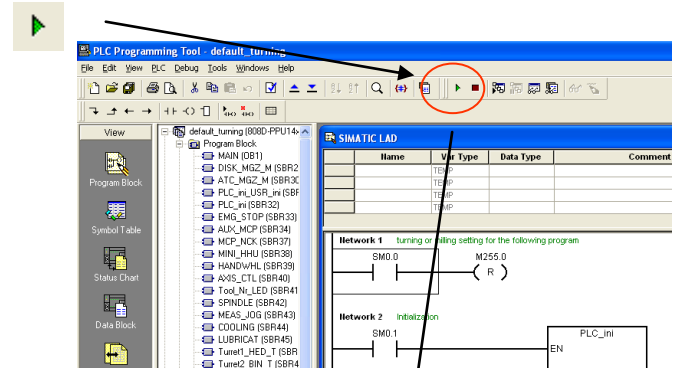
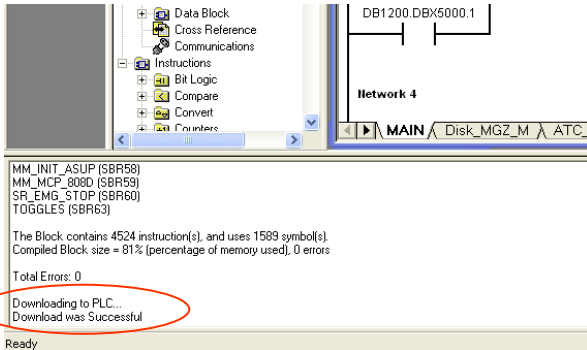
Place the PLC into STOP.



Programming tool PLC

Once the PLC is successfully downloaded, it must be placed in RUN mode.

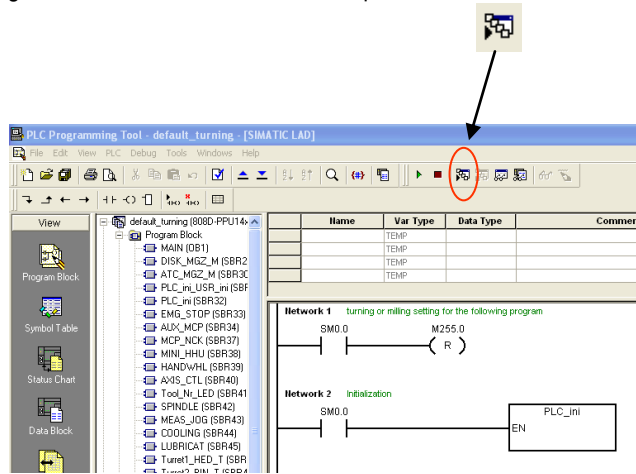
To place the modified PLC program in RUN mode, press icon.



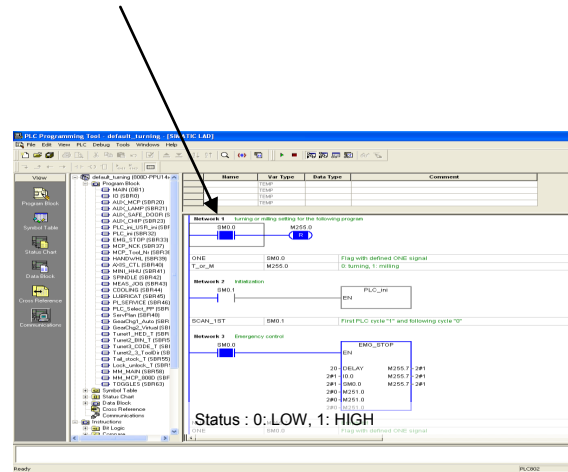
Programming tool PLC

Online monitoring can be used when the PLC program is in the run mode.

To display the online conditions of the PLC, press

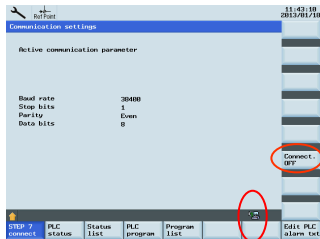


The blue represents an online connection showing the status.



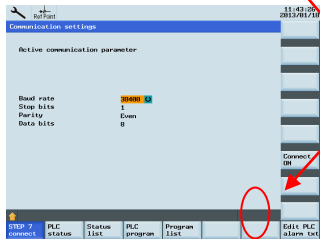
Programming tool PLC

Please confirm the Step 7 connection should be deactivated after the PLC commissioning has finished



Press the soft key

Connect .  
OFF

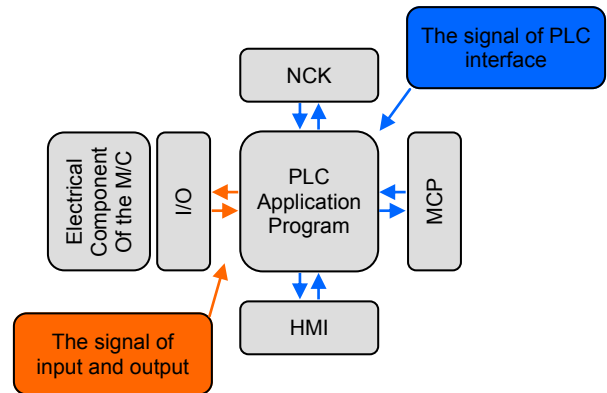


Not present, connection closed

Signals of the PLC interface

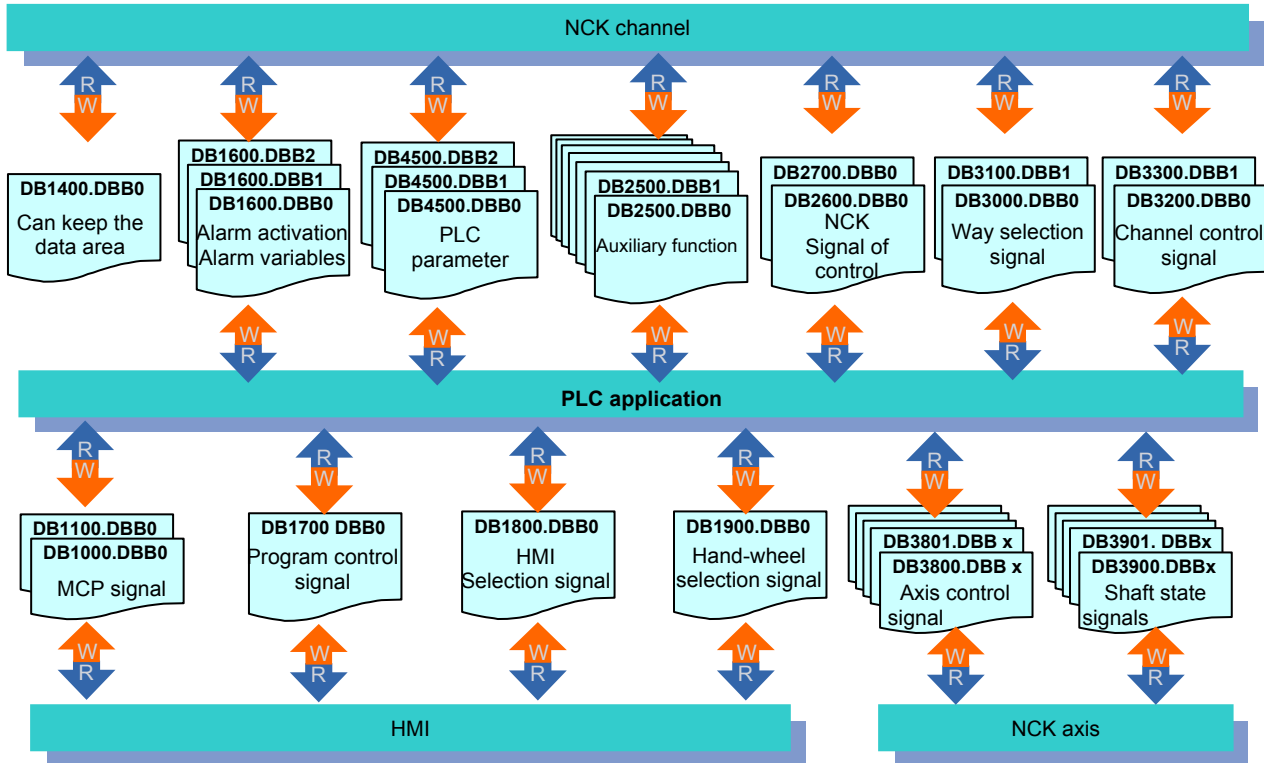
The signals of the PLC interface and the signals of the input and output.

The PLC program exchanges information between NCK, HMI, MCP and I/O through the signals of the interface and the signals of the input and output cards.



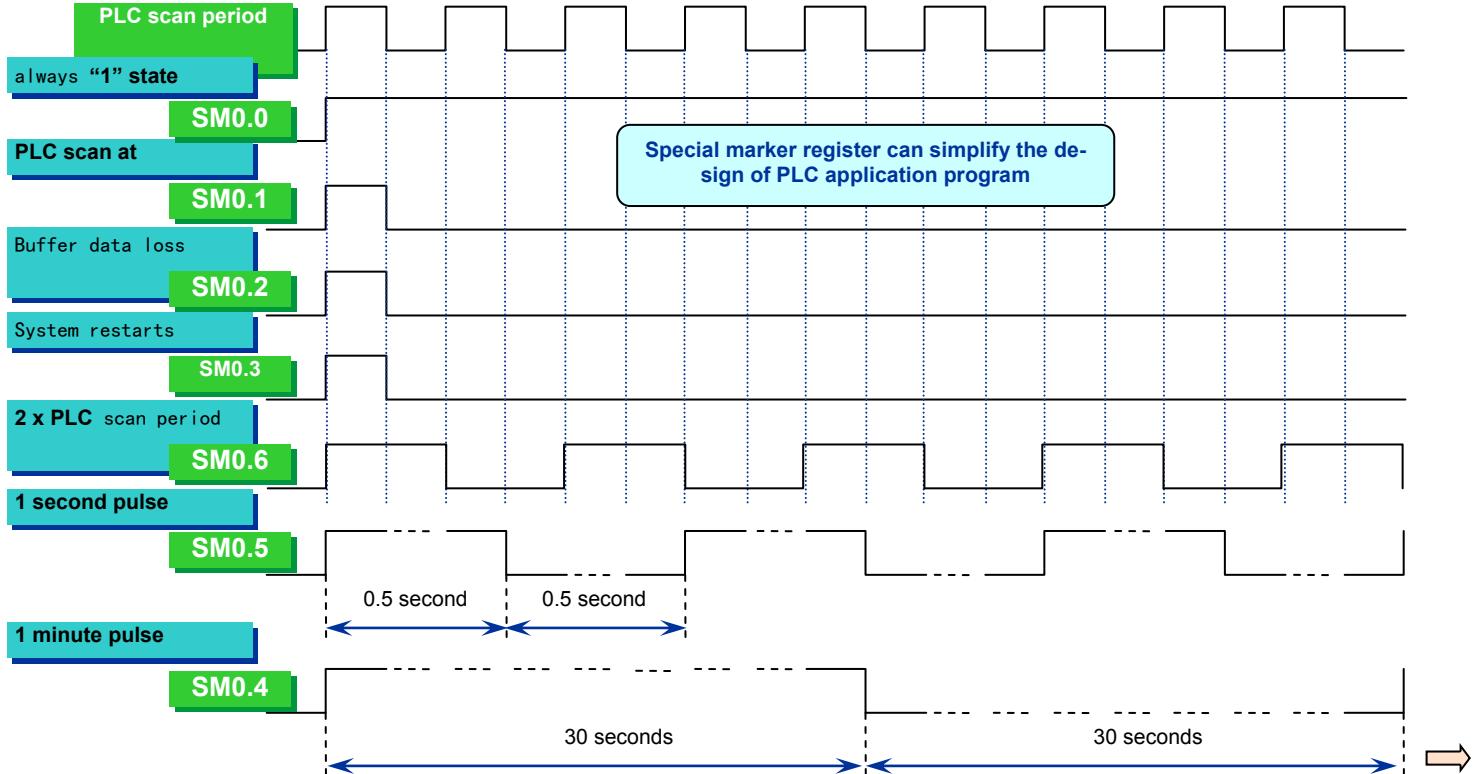
Signals of the PLC interface

The signals of the interface



Operation symbols of PLC programming language

Special markers



**Operation symbols of PLC programming language**

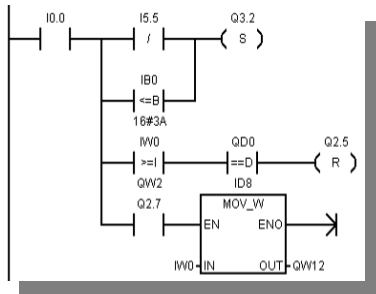
The signal of input and output.

Address

Input; I                      output; Q

form

<b>bit</b>	<b>I0.0, I4.6;</b>	<b>Q2.1, Q1.7</b>
<b>byte</b>	<b>IB4, IB12;</b>	<b>QB3, QB7</b>
<b>word</b>	<b>IW2, IW4;</b>	<b>QW0, QW6</b>
<b>double word</b>	<b>ID2, ID8;</b>	<b>QD0, QD4</b>



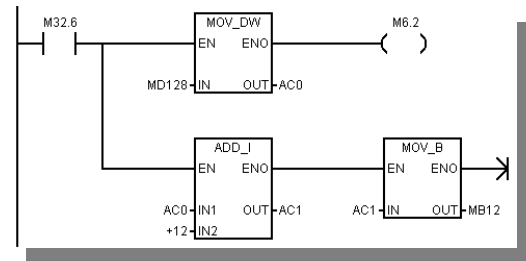
Accumulator transport and storage

Accumulator transport: AC (max 4 Accumulators)

Form; Arithmetic accumulators **AC0 AC1**, logical accumulator **AC2, AC3**.

Flag register: M

<b>bit</b>	<b>M0.1, M124.5</b>
<b>byte</b>	<b>MB21, MB12</b>
<b>word</b>	<b>MW22, MW106</b>
<b>double word</b>	<b>MD4, MD28</b>



Operation symbols of PLC programming language

Counter

Counter: C

Form;  
condition of counter bit C3, C25; - represents the  
comparison result of the counter and present value.

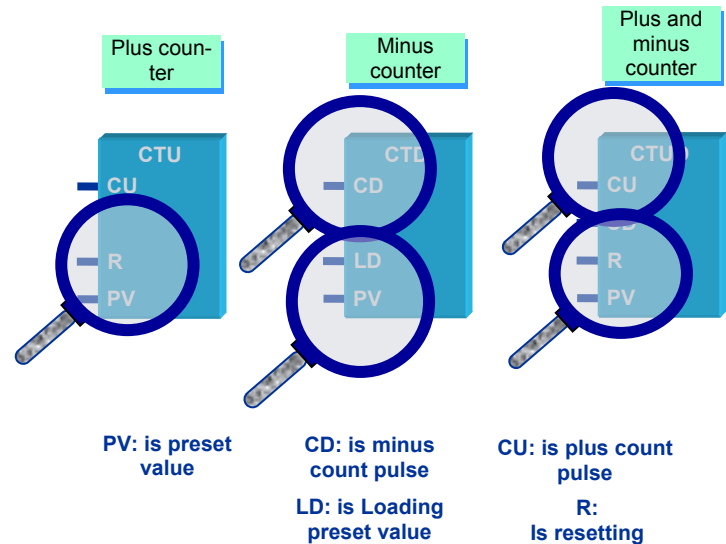
Style:

plus counter **CTU** count: counter value+1;  
**R=1** counter resets; counter value>preset value  
**Cn=1**

minus counter **CTD** count: counter value -1;  
**LD** counter value = preset; value = counter value=0  
**Cn=1**

plus and minus counter **CTUD** plus counter:  
counter value+1;

minus counter: counter value **R=1** counter  
resets: counter value>preset value **C=1**



Operation symbols of PLC programming language

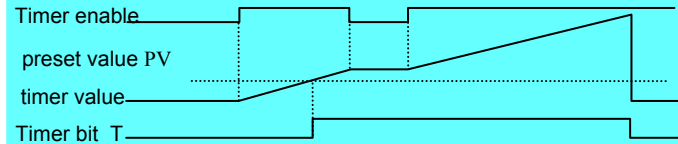
Timers

Timer: T

Form;  
condition of timer bit **T3, T25**; — represent the  
**comparison result of timer value and preset value**  
  
timer value **T3, T25**; — represent timer value

Style;  
open delay timer **TON IN=1 begin timing ; IN=0  
timer resetting ; count value>preset value  $T_n=1$**   
  
close delay timer **TOF IN=1 timer resetting ; IN=0  
begin timing; count value>preset value  $T_n=0$**   
keep delay timer **CTUD IN=1 begin timing;  
IN=0 timer stops; count value>preset value  $T_n=1$**   
  
Assign word constant **0** to **T** to make counter composite

Keep the sequence



## PLC subroutine library

The purpose of the PLC subroutine Library.

In order to simplify PLC design, refined PLC functions which have generality, such as initialization, machine panel signal processing, abrupt stop processing, shaft enable control, hard limit, reference point etc. Producers only need to add the needed subroutines module to main procedure, plus other under action procedures, then you can complete PLC procedure design very quickly.

Composition of PLC subroutine library.



PLC project file: SAMPLE\_TURN.PTP (application program as examples for turning machine)



PLC project file: SAMPLE\_MILL.PTP (application program as examples for milling machine)

**Through these application programs as examples, you can clearly realize how to create or invoke PLC subroutines. You can reorganize PLC subroutines or modify some networks to realize most machine functions. Test and debug subroutines of the subroutine library on machines overall according to practical situation to assure the correctness of subroutine library's functions.**

System resource

	resource	
PLC system resource	Input	I0.0 to I2.7 (24 inputs of CNC) I3.0 to I8.7 (48 allocated input)
	Output	Q0.0 to Q1.7 (24 outputs of CNC) Q2.0 to Q5.7 (48 allocated output)
	RAM	M0.0 to M255.7 (256 bytes)
	No volatile memory	DB1400.DBX0.0 to DB14000.DBX127.7 (128 bytes)
	PLC user alarm	DB1600.DBX0.0 to DB16000.DBX15.7 (128 user alarms)
	Timer	T0 to T15 (100ms timer) T16 to T32 (10ms timer)
	counter	C0 to C63 (64 counters)
NC resource	Parameter MD14510(32)	Statistic INT: DB4500.DBW0 to DB4500.DBW62 (32 double word)
	Parameter MD14514(32)	Statistic HEX: DB4500.DBB1000 to DB4500.DBB1031 (32 bytes)
	Parameter MD14514(8)	Statistic REAL: DB4500.DBD2000 to DB4500.DBD2028 (8 double)
Programming tool resource	Subroutine (64)	SBR0 to SBR63 (64 subroutines)
	Symbol table (32)	SYM1 to SYM32 (32 symbol tables)

**PLC subroutine library**

A constant definition

Constant input	symbol	address
Constant "1"	<b>ONE</b>	SM0.0
Constant "2"	<b>ZERO</b>	M251.0

Zero output definition

Statistic type	symbol	address
bit	<b>NULL_b</b>	M255.7
byte	<b>NULL_B</b>	MB255
word	<b>NULL_W</b>	MW254
Long word	<b>NULL_DW</b>	MD252

**All the addresses in PLC** subroutine library are programmed by symbols. All the signals of interfaces are named by symbols and arranged in different symbol table. The name of symbols follows some conventions. Please refer to the PLC subroutine library instructions.

symbol	List name	Symbol list details
1	<b>PP_1</b>	PP module 1 I/O defined by manufacturer
.....	.....	.....
4~15		Preset for manufacturer
16	<b>IS_MCP</b>	Send to or from machine control panel MCP
.....	.....	.....

**PLC subroutine library**

A constant definition

Realize through invoking PLC sample subroutine or manual writing PLC program :  
All the reference functions related to safety such as Emergency stop and limit  
✓ Operation function works: mode select, manual control, rate set.

**PLC sample subroutine offers adequate PLC functions for machine tool**

0 to 19	...	Saved for producers
SBR 20	<b>AUX_MCP</b>	MT auxiliary function
SBR 21	<b>AUX_LAMP</b>	Working lamp
SBR 22	<b>AUX_SAFE_DOOR</b>	Safety door
SBR 23	<b>AUX_CHIP</b>	Chip remover
SBR 31	<b>PLC_ini_USER_ini</b>	Initialize for PLC user data (called in SBR 32)
SBR 32	<b>PLC_INI</b>	PLC initialize
SBR 33	<b>EMG_STOP</b>	Emergency stop
SBR 37	<b>MCP_NCK</b>	Signal transfer from MCP & HMI to the NCK interface
SBR 38	<b>MCP_Tool_Nr</b>	Tool number display on MCP

SBR 39	<b>HANDWHL</b>	Hand wheel selection in HMI
SBR 40	<b>AXES_CTL</b>	Axis control (feed axis and spindle)
SBR 41	<b>MINI_HHU</b>	HHU (hand held unit ) control
SBR 42	<b>SPINDLE</b>	Spindle control
SBR 43	<b>MEAS_JOG</b>	Measure in JOG
SBR 44	<b>COOLING</b>	Coolant control
SBR 45	<b>LUBRICATE</b>	Lubrication control
SBR 46	<b>PI_SERVICE</b>	ASUP control
SBR 47	<b>PLC_Select_PP PLC</b>	NC program selection via PLC
SBR 48	<b>ServPlan</b>	Service planner
SBR 49	<b>GearChg1_Auto</b>	Automatic gear change
SBR 50	<b>GearChg2_Virtual</b>	Gear change (virtual)
SBR 54	<b>TOOL_DIR</b>	Tool change direction control
SBR 58	<b>MM_MAIN</b>	Manual machine related
SBR 59	<b>MM_MCP_808D</b>	Manual machine related
SBR 63	<b>TOGGLE</b>	Toggle switch control
34-36/57/61/62	...	Reserve for OEM

PLC subroutine library

PLC sample subroutine  
can realize adequate  
lathe functions

For turning only		
SBR 51	Turret1_HED_T	HED turret control
SBR 52	Turret2_BIN_T	Bi-direction changeable turret (binary coded)
SBR 53	Turret3_CODE_T	Bi-direction changeable turret (coded by turret supplier)
SBR 55	Tail_stock_T	Tailstock control
SBR 56	Lock_unlock_T	Chuck control

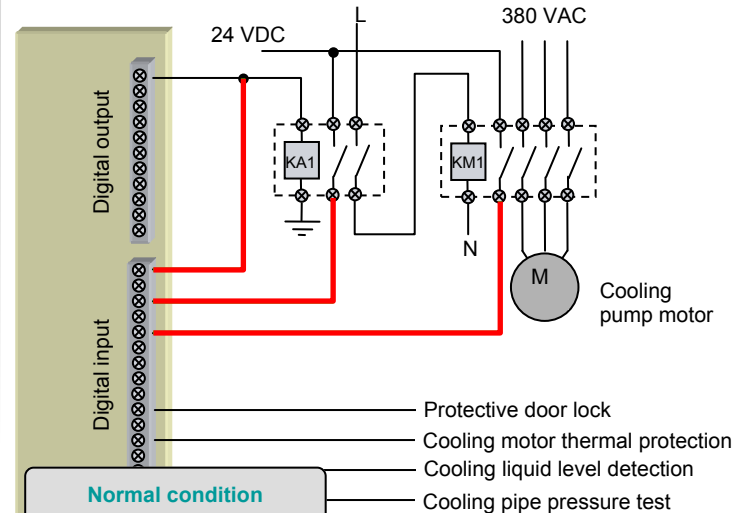
PLC sample subroutine  
can realize adequate  
milling functions

For milling only		
SBR 60	Disk_MGZ_M	Disk magazine control (w/o automatic tool changer)

For detail information please refer to  
PLC Subroutines manual Page 35 - 76

PLC alarm

Diagnosing of the machine is important.  
Complete designed diagnosis scheme can help users understand the  
cause and the location of breakdown immediately.



Normal condition

I/O interface has no output  
signal, check hardware  
connection

Relay KA1 Works unusually,  
check component: hardware

Contactor KM1 works  
unusually, check components  
hardware connection and  
power supply


PLC alarm



Alarm number	PLC signal	PLC alarm variable	Alarm attribute setup	Alarm text
700000	DB1600.DBX0.0	DB16000.DBD1000	MD14516[0]	
.....	.....	.....	.....	.....
700016	DB1600.DBX2.0	DB16000.DBD1064	MD14516[16]	Driver is not ready
700018	DB1600.DBX2.2	DB16000.DBD1072	MD14516[17]	Coolant motor overload
.....	.....	.....	.....	.....
700127	DB1600.DBX15.7	DB16000.DBD1508	MD14516 [127]	User alarm 127

System provides users with 128 PLC user alarms. Every user alarm has a corresponding NCK address bit: DB1600.DBX0.0 ~ DB1600.DBX15.7 The address bit "1" can activate the corresponding alarm, reset "0" can cancel the alarm.

In PLC cross reference, you can find the reason for the PLC alarm through looking up reference addresses to make corresponding modification.

Conditions of elimination

power-on clear : after the cancel of alarm, you need to re-power it on

cancel key  or : after the cancel of alarm, you need to use the cancel key or reset key, then the alarm will be cancelled

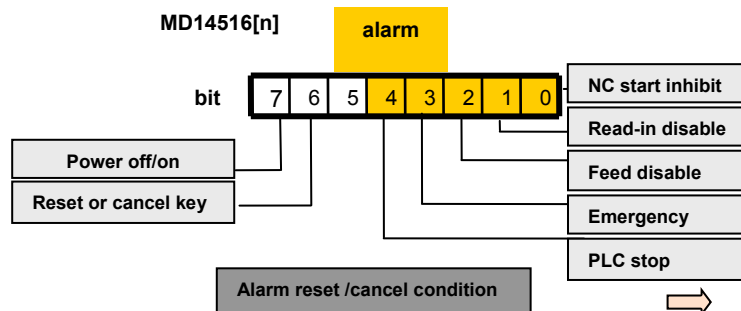
self-clean: after the cancel of alarm, the alarm will be cancelled by itself

alarm reaction

React by two ways after alarm

PLC reaction: the PLC program written realizes reaction through corresponding PLC interface, such as cancel the shaft-enable when giving an alarm.

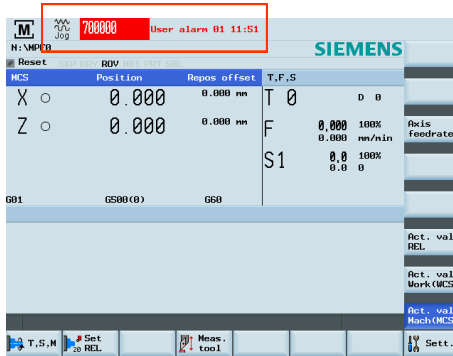
NC reaction: every alarm has a 8 configuration MD14516[0]~ [127].you can set a cancelation condition and alarm reaction of every alarm according to current condition. The system makes corresponding reaction when alarm begins.



PLC alarm

Alarm text.

Create, edit alarm text correctly and reasonably can make users clearly realize the reason of PLC alarm and locate ,and rule resolve a breakdown.



[edit PLC user alarm by USB](#)

[edit PLC user alarm by HMI](#)

Edit PLC user alarm by USB.

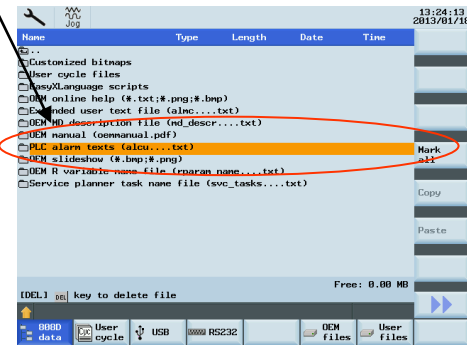
Press button  + 

Press SK 

Cursor over HMI

Press SK 

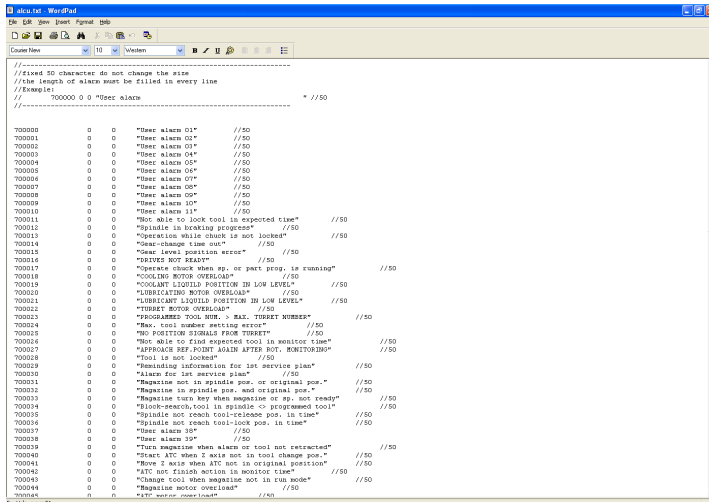
1. choose text "PLC alarm text (alcu.txt)" ,
2. then press vertical soft key "copy",
3. press level soft key "USB" and press vertical soft key "paste".



## PLC alarm

Edit PLC user alarm by USB.

Connect USB storage medium with PC USB, find PLC alarm text which is downloaded. And open it by WordPad.



```

//-----
//fixed 50 characters do not change the size
//the length of alarm must be filled in every line
//Example:
//          *00000 0 0 "User alarm" * //50
//-----
700000 0 0 "User alarm 01" //50
700001 0 0 "User alarm 02" //50
700002 0 0 "User alarm 03" //50
700003 0 0 "User alarm 04" //50
700004 0 0 "User alarm 05" //50
700005 0 0 "User alarm 06" //50
700006 0 0 "User alarm 07" //50
700007 0 0 "User alarm 08" //50
700008 0 0 "User alarm 09" //50
700009 0 0 "User alarm 10" //50
700010 0 0 "User alarm 11" //50
700011 0 0 "Not able to lock tool in expected time" //50
700012 0 0 "Spindle in locking progress" //50
700013 0 0 "Operation while chuck is not locked" //50
700014 0 0 "Gear-change time out" //50
700015 0 0 "Gear level position error" //50
700016 0 0 "SERVES NOT READY" //50
700017 0 0 "Operation check when sp. or part prog. is running" //50
700018 0 0 "COOLING MOTOR OVERLOAD" //50
700019 0 0 "NOOILANT LIQUID POSITION IN LOW LEVEL" //50
700020 0 0 "LUBRICATING MOTOR OVERLOAD" //50
700021 0 0 "LUBRICANT LIQUID POSITION IN LOW LEVEL" //50
700022 0 0 "TARGET MOTOR OVERLOAD" //50
700023 0 0 "PROGRAMMED TOOL NUM. > MAX. TARGET NUMBER" //50
700024 0 0 "Max. tool number setting error" //50
700025 0 0 "NO POSITION SIGNAL FROM TARGET" //50
700026 0 0 "Not able to find expected tool in monitor time" //50
700027 0 0 "APPROACH SET POINT AHEAD AFTER ROT." //50
700028 0 0 "Tool is not locked" //50
700029 0 0 "Feeding/locking information for lat service plan" //50
700030 0 0 "Alarm for lat service plan" //50
700031 0 0 "Machine not in spindle pos. or original pos." //50
700032 0 0 "Machine in spindle pos. and original pos." //50
700033 0 0 "Machine turn key when inspection or sp. not ready" //50
700034 0 0 "Block-search.tool in spindle < programmed tool" //50
700035 0 0 "Spindle not reach tool-change pos. in time" //50
700036 0 0 "Spindle not reach tool-lock pos. in time" //50
700037 0 0 "User alarm 12" //50
700038 0 0 "User alarm 13" //50
700039 0 0 "Start impossible when alarm on tool not retracted" //50
700040 0 0 "Start ATC when I axis not in tool change pos." //50
700041 0 0 "Turn I axis when ATC not in original position" //50
700042 0 0 "ATC not finish action in monitor time" //50
700043 0 0 "Change tool when magazine not in run mode" //50
700044 0 0 "Magazine motor overload" //50
700045 0 0 "ATC service area locked" //50
  
```

Find alarm number which needs to be edited and input your own text.

Save and close file after editing alarm text.

Disconnect USB storage from PC and connect it with USB interface on the front panel of PPU again

Copy “PLC alarm text (alcu.txt)” which is edited back in to “HMI statistic”.

In <system>operation area, press soft key “PLC” > “edit PLC alarm text”. You can check the result of edit.



### PLC alarm

Edit PLC user alarm by HMI.

Create PLC alarm text directly in 808D system.

Press button +

Press SK

Press SK

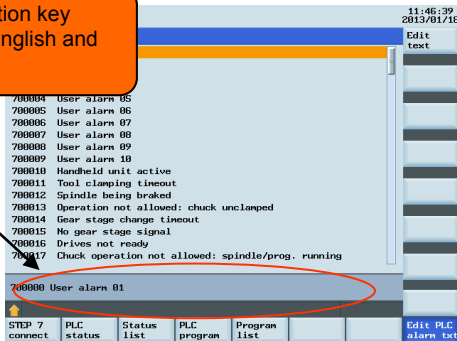
Move the cursor to choose the alarm number which needs to be edited and go into the condition of alarm text edit.

Press SK

Input alarm text combination key ALT+S, change in both English and Chinese input method.

Click "OK" after finishing edit.

Press SK



### PLC online diagnosis

Check the condition of PLC and judge logical error or external electrical error through displaying PLC program online.

Press button +

Press SK

Press SK

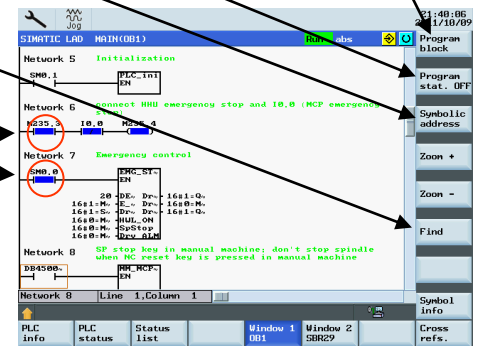
Symbol display/ address displaying

Display the condition of "can close"

Alter the program displayed in the window

Find appointed target in the display program

On state



Display another program in window 2

PLC online diagnosis

Check the PLC operating status and data.

Press button

Press SK

Press SK

Press SK

Running state

PLC program  
information

PLC style and  
versions

PLC scan period

PLC running time

Check the condition of PLC and judge logical error or external electrical error through displaying PLC program online.

Press button

Press SK

Press SK

Press SK

Operand address

condition

Operand	Format	Value	Operand +
DB2700.DBB1	B	0000 0000	
DB3100.DBB0	H	0000 000?	Operand -
DB1000.DBX0.0	B	0	
I0.0	B	0	
I01	B	0000 0000	
Q00	B	0000 0000	Delete
QW2	B	0000 0000 0000 0000	Change

Display current condition of interface  
signal or bit, byte, word of I/O

### PLC online diagnosis

Check the correctness of hardware connection through examining the state of input point.

Press button

Press SK

Press SK

Press SK

Check if there is any error of the connection in the input point according to the value of the input point.

Operand	Format	Value	Operand
IB0	B	0000 0000	
IB1	B	0000 0000	
QB	B	0000 0000	

Check the condition of hardware connection through examining the status of output point.

Move the cursor to the operand which needs modification

Set the condition of output point, confirm by

Check electrical level of the output point (whether the relay is in absorption), check if there is any error in the connection of the output point.

If the compulsive output point, the signal of interface is used in PLC program, its state will be refreshed by the program.

Operand	Format	Value	Operand
IB0	B	0000 0000	
IB1	B	0000 0000	
QB	B	0000 0000	

PLC online diagnosis

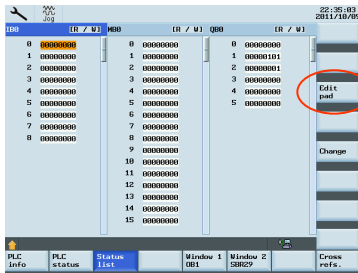
Observe the condition of PLC , judge logical error quickly or external electrical error through displaying PLC program online.

Press button

Press SK

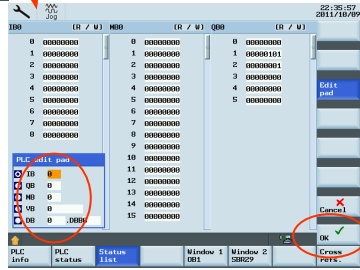
Press SK

Press SK



Amend operand address accurately and confirm by soft key.

Display conditions of input point ,output point, auxiliary relay and the signal of interface by listing.



Observe the condition of PLC , judge logical error quickly or external electrical error through displaying PLC program online.

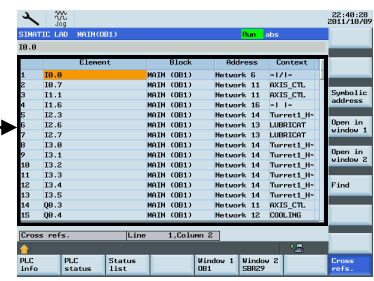
Press button

Press SK

Press SK

Press SK

Display whether signals of I/O and interfaces are used or not and which subroutine and network they are used by.



Look up appointed target in cross-reference table

## Notes

A large grid area for taking notes, consisting of a uniform pattern of small squares. The grid is empty and occupies the majority of the page's content area.

Everything ever wanted to know about SINUMERIK 808D:

[www.automation.siemens.com/mcms/m2/en/automation-systems/cnc-sinumerik/sinumerik-controls/sinumerik-808/Pages/sinumerik-808.aspx](http://www.automation.siemens.com/mcms/m2/en/automation-systems/cnc-sinumerik/sinumerik-controls/sinumerik-808/Pages/sinumerik-808.aspx)

Everything about shopfloor manufacturing:

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