## 3 ELC-CAPBDP

The ELC-CAPBDP is a PROFIBUS DP Slave Communication Module. To ensure correct installation and operation of the product, please read this operation information below carefully before using it. ELC-CAPBDP is a PROFIBUS DP slave communication module for connecting ELC series special I/O modules, digital I/O modules and standard Modbus devices to PROFIBUS DP network.

## 3.1 Features

- Supports PROFIBUS DP cyclic data transmission.
- Auto-detects baud rates; supports max. 12Mbps.
- Self-diagnosis
- Able to connect to max. 8 special I/O modules (i.e. analog I/O, temperature measurement, counter and positioning modules) and 16 digital I/O modules (max. 256 digital I/O points).
- The RS-485 COM port is able to connect to max. 16 standard Modbus slave stations.

## 3.2 Specifications

#### PROFIBUS DP Port

Interface	DB9 connector
Transmission method	High-speed RS-485
Transmission cable	Shielded twisted pair cable
Electrical isolation	500VDC

#### Communication

Message type	Cyclic data exchange
Module name	ELC-CAPBDP
GSD file	EATN09B9.GSD
Product ID	09B9 (HEX)
Serial transmission speed supported (auto-detection)	9.6kbps; 19.2kbps; 93.75kbps; 187.5kbps; 500kbps; 1.5Mbps; 3Mbps; 6Mbps; 12Mbps (bits per second)

#### Environment

	ESD (IEC 61131-2,IEC 61000-4-2): 8kV Air Discharge EFT (IEC 61131-2,IEC 61000-4-4): Power Line:±2kV,Digital Input:±2kV
Noise immunity	Communication I/O: ±2kV
	Conducted Susceptibility Test (EN61000-4-6, IEC 61131-2 9.10): 150kHz ~ 80MHz,10V/m
	KS (IEC 01131-2, IEC 01000-4-3): 20MHZ ~ TGHZ, 10V/M
Storage/operation	Operation: $0^{\circ}$ C ~ 50°C (temperature), 50 ~ 90% (humidity), pollution degree 2 Storage: -25°C ~ 70°C (temperature), 5 ~ 95% (humidity)
	Storage25 C 70 C (temperature), 5 95% (number)

Shook/wibration	International standards; IEC 61121 2 IEC 69 2 6 (TEST
Shock/vibration	International standards: IEC 61131-2,IEC 68-2-6 (TEST
immunity	Fc)/IEC 61131-2& IEC 68-2-27 (TEST Ea)

#### Electrical specification

Power supply voltage	24VDC
Insulation voltage	500VDC
Power consumption	2.5W
Weight	90g

# 3.3 Product Profile and Outline



Unit: mm

1. POWER indicator	10. Nameplate
2. NET indicator	11. I/O module connection port
3. RS-485 indicator	12. DIN rail (35mm)
4. RUN/STOP switch	13. I/O module fixing clip
5. RUN indicator	14. DIN rail fixing clip
6. ALARM indicator	15. RS-485 COM port
7. Address setup switch	16. I/O module fixing notch
8. PROFIBUS DP COM port	17. DC24V power supply interface
9. I/O module positioning hole	

# 3.4 Installation and wiring

## Definition of PROFIBUS DP Port

PIN	PIN name	Definition
1		N/C
2		N/C
3	RxD/TxD-P	Sending/receiving data P(B)
4		N/C
5	DGND	Data reference potential (C)
6	VP	Power voltage – positive
7		N/C
8	RxD/TxD-N	Sending/receiving data N(A)
9		N/C



## ■ Connecting to PROFIBUS DP Port

Connect the PROFIBUS DP bus connector to the PROFIBUS DP port on the ELC-CAPBDP (see the figure below) Screw it tight to ensure ELC-CAPBDP and PROFIBUS DP bus are properly connected.



## ■ Installing ELC-CAPBDP and I/O Module on DIN Rail

- Use 35mm DIN rail.
- Open the DIN rail clips on ELC-CAPBDP and I/O module. Insert ELC-CAPBDP and I/O module on the DIN rail.
- Clip up the DIN rail clips on ELC-CAPBDP and I/O module to fix them on the DIN rail (see the figure below).



## RUN/STOP Switch

	Status	Description	
RUN	RUN => STOP	1. Special I/O module switches from RUN to STOP.	
		2. All Y points on digital output module turn OFF.	
		3. Modbus function disabled	
		4. RUN LED turns off.	
STOP	STOP => RUN	1. ELC-CAPBDP re-detects the number of digital I/O points and special I/O modules.	
		2. Special I/O module switches from STOP to RUN.	
		3. Enable digital I/O modules.	
		4. Enable Modbus function.	
		5. RUN LED turns on.	

## Address Setup Switch

The two rotary address setup switches,  $x16^{0}$  and  $x16^{1}$ , set up the node address of ELC-CAPBDP on PROFIBUS DP network in hex form. The range for rotation is 0 ~ F.

Address	Definition	
H'1~ H'7D	Valid PROFIBUS address	ADDRESS
H'0 or H'7E ~ H'FF	Invalid PROFIBUS address. NET LED will flash in red color if the node address falls within this range.	NOD

**Example:** If you need to set the node address of ELC-CAPBDP to 26 (decimal), simply switch  $x16^{1}$  switch to "1" and  $x16^{0}$  to "A". 26 (decimal) = 1A (hex) =  $1x16^{1} + Ax16^{0}$ . **Note:** 

- Switch off the power supply before setting up the node address of ELC-CAPBDP. Re-power the module after the setup is completed.
- Changing the value on the switch during the operation of ELC-CAPBDP is invalid.
- Use slot type screwdriver to set up the switch.

### ■ Connecting to a PROFIBUS DP Network

See the figure below for the connection of ELC series I/O modules and Modbus devices into a PROFIBUS DP network.



#### Transmission Distance and Baud Rate

The baud rate range for PROFIBUS DP is 9.6kbps ~ 12Mbps, and the length of transmission cable varies with the transmission speed. The cable length ranges from 100m to 1,200m. See the table below for the baud rates ELC-CAPBDP supports and their corresponding cable lengths.

Baud rate (bps)	9.6k	19.2k	93.75k	187.5k	500k	1.5M	3M	6M	12M
Cable Length (m)	1,200	1,200	1,200	1,000	400	200	100	100	100

## 3.5 ELC-CAPBDP Settings and Configurations

The GSD file is a text file used to describe a PROFIBUS DP device (master or slave). A GSD file usually contains the supplier's information, baud rates supported and applicable I/O messages. When using the ELC-CAPBDP, import the ELC-CAPBDP GSD file into the configuration software for the PROFIBUS DP master you are using. After the file is imported, the configuration software for the master will display the ELC-CAPBDP and its configuration settings.

## ELC-CAPBDP Settings

When you set up the ELC-CAPBDP in the configuration software for PROFIBUS DP master, you will be presented with multiple configuration settings, which adds flexibility to the use of the ELC-CAPBDP. See the figure below for ELC-CAPBDP settings.

Properties - DP slave	×
General Parameter Assignment	,
Parameters         Station parameters         Pevice-specific parameters         Modbus protocol         Modbus baudrate         Modbus mode         Modbus slave error         Modbus slave error         Modbus slave error         Modbus slave error         Modbus slave         Modbus slave         Modbus slave         Modbus timeout setting (ms)         Diagnose cycle (s)         Hex parameter assignment	Value         Disable         8,N,2         19200 bps         RTU         Hold I/O data         Ignore & continue I/O exchange         Ignore & continue I/O exchange         Ignore & continue I/O exchange         10
OK	Cancel Help

Definitions of settings:

Setup item	Setting	Definition		
Acceleration mode	Enable	When the Modbus device is configured with many addresses and the addresses are consecutive, all contents in the consecutive addresses can be read or written at a time.		
	Disable	When the Modbus device is configured with many addresses, only contents in a single address can be read or written.		
Modbus protocol	7, E, 1 7, O, 2 8, N, 1 7, O, 1 8, E, 1 8, N, 2 7, E, 2 8, O, 1	Modbus communication format (including data bit, stop bit and parity bit)		
Modbus Baudrate	1,200bps19,200bps2,400bps38,400bps4,800bps57,600bps9,600bps115,200bps	Modbus serial transmission speed		
Modbus mode	RTU/ASCII	Modbus communication mode		
Loss communication with master	Hold I/O data	ELC-CAPBDP retains the I/O data last received from the master.		
	Clear I/O data	ELC-CAPBDP reset all the I/O data to 0 after communication from the master is lost.		

Setup item	Setting	Definition
Modbus slave error	Ignore & continue I/O exchange	ELC-CAPBDP continues exchanging data with the master even when Modbus read/write error occurs.
	Stop I/O exchange &report fault	ELC-CAPBDP stops exchanging data with the master when Modbus read/write error occurs.
	Ignore & continue I/O exchange	ELC-CAPBDP continues exchanging data with the master even when the Modbus slave is disconnected.
Loss Modbus slave	Continue & report alarm	ELC-CAPBDP continues exchanging data with the master and alarms it when there is Modbus slave getting disconnected.
	Stop I/O exchange & report fault	ELC-CAPBDP stops exchanging data with the master and reports error to it when there is Modbus slave getting disconnected.
	Ignore & continue I/O exchange	ELC-CAPBDP continues exchanging data with the master even when error occurs in the right-side special I/O module.
	Continue & report alarm	ELC-CAPBDP continues exchanging data with the master and alarms it when error occurs in the right-side special I/O module.
IO module error	Stop I/O exchange & report fault	ELC-CAPBDP stops exchanging data with the master and reports error to it when error occurs in the right-side special I/O module.
Modbus timeout setting (ms)	0 ~ 65535	Modbus communication timeout. Unit: ms
Diagnose cycle (s)	1 ~ 20	Cycle for ELC-CAPBDP to diagnose the right-side special I/O module. Unit: s

## Configuration Items

ELC-CAPBDP offers flexible configuration when being configured in PROFIBUS DP master configuration tool, for example, you can configure digital I/O modules or special I/O modules by the actual name of the module, or self-define the configuration.

Configuration item	Configurable device	Configuration method
Modbus 1 read address		
Modbus 2 read address		
Modbus 4 read address	Modbus devices connected to ELC-CAPBDP	Modbus
Modbus 8 read address		
Modbus 1 write address		
Modbus 2 write address	Modbus devices connected to ELC-CAPBDP	Modbus

Configuration item	Configurable device	Configuration method	
Modbus 4 write address			
Modbus 8 write address			
Modbus 1 read & write address	Modbus devices connected to	Madhua	
Modbus 2 read & write address	ELC-CAPBDP	Modbus	
Modbus 4 read & write address			
Modbus 8 read & write address			
ELC-EX08NNDN	ELC-EX08NNDN connected to ELC-CAPBDP		
ELC-EX08NNNT	ELC-EX08NNNR or ELC-EX08NNNT connected to ELC-CAPBDP		
ELC-EX08NNDR/T	ELC-EX08NNDR or ELC-EX08NNDT connected to ELC-CAPBDP	Standard configuration method for digital I/O module	
ELC-EX16NNDR/T	ELC-EX16NNDR or ELC-EX16NNDT connected to ELC-CAPBDP		
ELC-EX08NNSN	ELC-EX08NNSN module connected to ELC-CAPBDP		
8 DI			
8 DO			
8 DIDO			
16 DI			
16 DO			
16 DIDO	Digital I/O modules connected to	Self-defined configuration	
32 DI	ELC-CAPBDP	module	
32 DO			
32 DIDO			
64 DI			
64 DO			
64 DIDO			
ELC-AN04ANNN	ELC-AN04ANNN connected to ELC-CAPBDP	Ctandard configuration	
ELC-AN06ANNN	ELC-AN06ANNN connected to ELC-CAPBDP	method for special I/O module	
ELC-AN02NANN	ELC-AN02NANN connected to ELC-CAPBDP		
ELC-AN04NANN	ELC-AN04NANN connected to ELC-CAPBDP	Standard configuration method for special I/O	

Configuration item	Configurable device	Configuration method
ELC-AN06AANN	ELC-AN06AANN connected to ELC-CAPBDP	module
ELC-PT04ANNN	ELC-PT04ANNN connected to ELC-CAPBDP	
ELC-TC04ANNN	ELC-TC04ANNN connected to ELC-CAPBDP	
1 AI		
2 AI		
4 AI		
8 AI		
1 AO	Special I/O modules connected to	
2 AO		Self-defined configuration
4 AO	ELC-CAPBDP	module
8 AO		
1 AIAO		
2 AIAO		
4 AIAO		
8 AIAO		

### Settings of Configuration Items

• Settings of Configuration Items for Digital I/O Modules

There are 2 types of configuration items for digital I/O modules, standard configuration and self-defined configuration. By standard configuration, the digital I/O module is named after its actual name, whereas it is named after the number of points by self-defined configuration. You do not have to set up parameters in the configuration. The digital I/O can correspond to the master directly after the configuration

- Settings of Configuration Items for Special I/O Modules
   The special I/O module is named after its actual name in the configuration. You can
   configure special I/O module by standard configuration items. Detailed configuration
   methods will be explained in the following paragraphs.
  - (1) Configuration method for ELC-AN06ANNN and ELC-AN04ANNN Refer to the figure below for the relevant parameters to configure ELC-AN06ANNN. ELC-AN04ANNN and ELC-AN06ANNN have the same parameters to set, except that ELC-AN06ANNN has two more parameters for output channels to set than does ELC-AN04ANNN (Therefore, only the parameter settings for ELC-AN06ANNN are introduced in this section).

Properties - DP slave	
Address / ID Parameter Assignment	1
Parameters = 🔄 Station parameters	Value
Device-specific parameters     Device-specific parameters     Device-specific parameters	0
_≝ CH1 input mode _≝ CH2 input mode	-10V~+10V -10V~+10V -10V~+10V
-딸 CH3 input mode -딸 CH4 input mode -딸 CH5 input mode	-10V~+10V -10V~+10V
– ≝ CH6 input mode – ≝ Input value mode	-10V~+10V Current value
LIII Average times 	10
OK	Cancel Help

Definitions of configuration items:

Parameter	Value	Definition
Location	0 ~ 7	The location of ELC-AN06ANNN at the right side of ELC-CAPBDP. The location of the first special I/O module at the right side of ELC-CAPBDP is 0, the second is 1 and so forth. This rule is only applicable on special I/O modules.
	-10V ~ +10V	The input channel on ELC-AN06ANNN is set to mode 0: Voltage input mode. Input range: -10V ~ +10V
CH1 input mode CH2 input mode CH3 input mode CH4 input mode CH5 input mode CH6 input mode	-6V ~ +10V	The input channel on ELC-AN06ANNN is set to mode 1: Voltage input mode. Input range: $-6V \sim +10V$ .
	-12mA ~ +20mA	The input channel on ELC-AN06ANNN is set to mode 2: Current input mode. Input range: -12mA ~ +20mA
	-20mA ~ +20mA	The input channel on ELC-AN06ANNN is set to mode 3: Current input mode. Input range: -20mA ~ +20mA
Input value mode	Current value	Current value of the input signal in all channels on ELC-AN06ANNN
	Average value	Average value of the input signals in all channels on ELC-AN06ANNN
Average times	1 ~ 4,096	The average times

(2) Configuration method for ELC-AN04NANN and ELC-AN02NANN

Refer to the figure below for the relevant parameters to configure ELC-AN04NANN. ELC-AN04NANN and ELC-AN02NANN have the same parameters to set, except that ELC-AN04NANN has two more parameters for input channels to set than does ELC-AN02NANN (Therefore, only the parameter settings for ELC-AN04NANN are introduced in this section).

Properties - DP slave	
Address / ID Parameter Assignment	
Parameters         □       Station parameters         □       □	Value           0           0V~10V           0V~10V           0V~10V
- I CH3 output mode - CH4 output mode 	0V~10V 0V~10V
OK	Cancel Help

Definitions of configuration items:

Parameter	Value	Definition
Location	0 ~ 7	The location of ELC-AN04NANN at the right side of ELC-CAPBDP. The location of the first special I/O module at the right side of ELC-CAPBDP is 0, the second is 1 and so forth. This rule is only applicable on special I/O modules.
CH1 output mode CH2 output mode CH3 output mode CH4 output mode	0V ~ 10V	The output channel on ELC-AN04NANN is set to mode 0: Voltage output mode. Output range: 0V ~ +10V
	2V ~ 10V	The output channel on ELC-AN04NANN is set to mode 1: Voltage output mode. Output range: 2V ~ 10V
	4mA ~ 20mA	The output channel on ELC-AN04NANN is set to mode 2: Current output mode. Output range: 4mA ~ 20mA
	0mA ~ 20mA	The output channel on ELC-AN04NANN is set to mode 3: Current output mode. Output range: 0mA ~ 20mA

(3) Configuration method for ELC-AN06AANN

Refer to the figure below for the relevant parameters to configure ELC-AN06AANN.

Properties - DP slave	
Address / ID Parameter Assignment	
Parameters	Value
	0 -10V~~+10V
<ul> <li>□ CH2 input mode</li> <li>□ CH3 input mode</li> <li>□ CH4 input mode</li> <li>□ CH4 input mode</li> </ul>	-10V~+10V -10V~+10V -10V~+10V
<ul> <li>□ CHS output mode</li> <li>□ CH6 output mode</li> <li>□ Input value mode</li> <li>□ Input value mode</li> </ul>	0V~10V 0V~10V Current value
OK	Cancel Help

Parameter	Value	Definition
Location	0~7	The location of ELC-AN06AANN at the right side of ELC-CAPBDP. The location of the first special I/O module at the right side of ELC-CAPBDP is 0, the second is 1 and so forth. This rule is only applicable on special I/O modules.
	-10V ~ +10V	The input channel on ELC-AN06AANN is set to mode 0: Voltage input mode. Input range: -10V ~ +10V
CH1 input mode CH2 input mode	-6V ~ +10V	The input channel on ELC-AN06AANN is set to mode 1: Voltage input mode. Input range: -6V ~ +10V
CH3 input mode CH4 input mode	-12mA ~ +20mA	The input channel on ELC-AN06AANN is set to mode 2: Current input mode. Input range: -12mA ~ +20mA
	-20mA ~ +20mA	The input channel on ELC-AN06AANN is set to mode 3: Current input mode. Input range: -20mA ~ +20mA
CH5 output mode CH6 output mode	0V ~ 10V	The output channel on ELC-AN06AANN is set to mode 0: Voltage output mode. Output range: 0V ~ +10V
	2V ~ 10V	The output channel on ELC-AN06AANN is set to mode 1: Voltage output mode. Output range: 2V ~ 10V
	4mA ~ 20mA	The output channel on ELC-AN06AANN is set to mode 2: Current output mode. Output range: 4mA ~ 20mA
	0mA ~ 20mA	The output channel on ELC-AN06AANN is set to mode 3: Current output mode. Output range: 0mA ~ 20mA

Parameter	Value	Definition
Input value mode	Current value	Current value of the input signal in CH1 ~ CH4 on ELC-AN06AANN
	Average value	Average value of the input signals in CH1 ~ CH4 on ELC-AN06AANN
Set average times	1 ~ 4,096	The average times

(4) Configuration method for ELC-PT04ANNN

Refer to the figure below for the relevant parameters to configure ELC-PT04ANNN.

Properties - DP slave		
Address / ID Parameter Assignment		
Parameters Station parameters Device-specific parameters Temperature mode Temperature mode Temperature mode Hour value mode Hex parameter assignment	Value 0 Centigrade (°C ) Current value 10	
ОК	Cancel Help	

Parameter	Value	Definition
Location	0~7	The location of ELC-PT04ANNN at the right side of ELC-CAPBDP. The location of the first special I/O module at the right side of ELC-CAPBDP is 0, the second is 1 and so forth. This rule is only applicable on special I/O modules.
Temperature	Centigrade (°C)	Collecting temperature in Centigrade by CH1 ~ CH4 on ELC-PT04ANNN
mode	Fahrenheit (°F)	Collecting temperature in Fahrenheit by CH1 ~ CH4 on ELC-PT04ANNN
Input value	Current value	Current value of the collected temperature at CH1 ~ CH4 on ELC-PT04ANNN
mode	Average value	Average value of the collected temperatures at CH1 ~ CH4 on ELC-PT04ANNN
Average times	1 ~ 4,096	The average times.

(5) Configuration method for ELC-TC04ANNN

Refer to the figure below for the relevant parameters to configure ELC-TC04ANNN.

Properties - DP slave 🗙		
Address / ID Parameter Assignment		
Parameters         Station parameters         ■ Device-specific parameters         ■ Location         ■ CH1 input mode         ■ CH2 input mode         ■ CH3 input mode         ■ CH4 input mode         ■ Nput value mode         ■ Average times         ■ Temperature mode         ■ Hex parameter assignment	Value  0 J-type J-type J-type Current value 10 Centigrade (°C')	
OK	Cancel Help	

Parameter	Value	Definition
Location	0~7	The location of ELC-TC04ANNN at the right side of ELC-CAPBDP. The location of the first special I/O module at the right side of ELC-CAPBDP is 0, the second is 1 and so forth. This rule is only applicable on special I/O modules.
CH1 input mode	J, K, R, S, T	Thermocouple type for CH1 on ELC-TC04ANNN
CH2 input mode	J, K, R, S, T	Thermocouple type for CH2 on ELC-TC04ANNN
CH3 input mode	J, K, R, S, T	Thermocouple type for CH3 on ELC-TC04ANNN
CH4 input mode	J, K, R, S, T	Thermocouple type for CH4 on ELC-TC04ANNN
Input value	Current value	Current value of the collected temperature at CH1 ~ CH4 on ELC-TC04ANNN
mode	Average value	Average value of the collected temperatures at CH1 ~ CH4 on ELC-TC04ANNN
average times	1 ~ 4,096	The average times
Temperature mode	Centigrade (°C)	Collecting temperature in Centigrade by CH1 ~ CH4 on ELC-TC04ANNN
	Fahrenheit (°F)	Collecting temperature in Fahrenheit by CH1 ~ CH4 on ELC-TC04ANNN

- Self-Defined Configuration Settings for Special I/O Modules
   In self-defined configuration, special I/O modules are named after their configurable
   number of control registers (CR). You can choose the CR in the special I/O module to
   be read or written when configuring. See the following paragraphs for the meanings of
   each configuration item.
  - (1) Configuration method for 8AI, 4AI, 2AI and 1AI modules

Refer to the figure below for the relevant parameters to configure an 8AI module. 8AI, 4AI, 2AI and 1AI modules have the same parameters to set, except that the number of configurable CRs in 1AI, 2AI and 4AI modules is different from that of 8AI module (Therefore, only the parameter settings for 8AI are introduced in this section).

Properties - DP slave		
Address / ID Parameter Assignment		
Parameters	Value	
	0	
IEI Module IEI Input CR number 1:Slave->Master	ELC-AN04ANNN 0	
-────────────────────────────────────	1 2	
- 🗐 Input CR number 4	3	
- Input CR number 6	11 12	
□ Input CR number 8	13	
OK	Cancel Help	

Parameter	Value	Definition
Location	0 ~ 7	The location of the special I/O module at the right side of ELC-CAPBDP. The location of the first special I/O module at the right side of ELC-CAPBDP is 0, the second is 1 and so forth. This rule is only applicable on special I/O modules.
Module	ELC-AN04ANNN ELC-AN06ANNN ELC-AN02NANN ELC-AN04NANN ELC-AN06AANN ELC-PT04ANNN ELC-TC04ANNN ELC-TC04ANNN ELC-MC01	Special I/O module in use

Parameter	Value	Definition
Input CR number 1: Slave $\rightarrow$ Master	0 ~ 48	
Input CR number 2	0 ~ 48	
Input CR number 3	0 ~ 48	
Input CR number 4	0 ~ 48	No. of the CR in special I/O module to
Input CR number 5	0 ~ 48	be read by PROFIBUS DP master
Input CR number 6	0 ~ 48	
Input CR number 7	0 ~ 48	
Input CR number 8	0 ~ 48	

(2) Configuration method for 8AO, 4 AO, 2AO and 1AO modules

Refer to the figure below for the relevant parameters to configure an 8AI module. 8AO, 4AO, 2AO and 1AO modules have the same parameters to set, except that the number of configurable CRs in 1AO, 2AO and 4AO modules is different from that of 8AO module (Therefore, only the parameter settings for 8AO are introduced in this section).

Properties - DP slave	X
Address / ID Parameter Assignment	
Decembers	Mahar
	0
Module     Module     Master > Slave	
Output Ch number 1.Master25lave	7
	0
Output CR number 3	
Output CR number 4	10
Compare CP number 5	10
Output Ch number 6	13
	20
OK	CancelHelp

Parameter	Value	Definition
Location	0~7	The location of the special I/O module at the right side of ELC-CAPBDP. The location of the first special I/O module at the right side of ELC-CAPBDP is 0, the second is 1 and so forth. This rule is only applicable on special I/O modules.

Parameter	Value	Definition
Module	ELC-AN04ANNN ELC-AN06ANNN ELC-AN02NANN ELC-AN04NANN ELC-AN06AANN ELC-PT04ANNN ELC-TC04ANNN ELC-TC04ANNN ELC-MC01	Special I/O module in use
Output CR number 1: Master $\rightarrow$ Slave	0 ~ 48	
Output CR number 2	0 ~ 48	
Output CR number 3	0 ~ 48	
Output CR number 4	0 ~ 48	to be written by PROFIBUS DP master
Output CR number 5	0 ~ 48	
Output CR number 6	0 ~ 48	
Output CR number 7	0 ~ 48	
Output CR number 8	0 ~ 48	

(3) Configuration method for 8AIAO, 4AIAO, 2AIAO and 1AIAO modules Refer to the figure below for the relevant parameters to configure an 8AIAO module. 8AIAO, 4AIAO, 2AIAO and 1AIAO modules have the same parameters to set, except that the number of configurable CRs in 1AIAO, 2AIAO and 4AIAO modules is different from that of 8AIAO module (Therefore, only the parameter settings for 8AIAO are introduced in this section).

Properties - DP slave			
Address / ID Parameter Assignment			
	0.1		
	Value		
E Station parameters			
	-		
_≝ Location	0		
– <u>≡</u> Module	ELC-AN04NANN		
– Input CR number 1:Slave-≻Master	0		
– Input CR number 2	1		
– Input CR number 3	6		
– Input CR number 4	7		
– Input CR number 5	8		
–  Input CR number 6	9		
_ Input CR number 7	33		
–  Input CR number 8	34		
–  Output CR number 1:Master->Slave	6		
Output CR number 2	7		
Output CR number 3	8		
Output CB number 4	9		
Cutput CB number 5	1	<b>Y</b>	
UK	Cancel He.	ιp	

Definitions of configuration items:

Parameter	Value	Definition
Location	0~7	The location of the special I/O module on the right side of ELC-CAPBDP. The location of the first special I/O module on the right side of ELC-CAPBDP is 0, the second is 1 and so forth. This rule is only applicable on special I/O modules.
Module	ELC-AN04ANNN ELC-AN06ANNN ELC-AN02NANN ELC-AN04NANN ELC-AN06AANN ELC-PT04ANNN ELC-TC04ANNN ELC-TC04ANNN	Special I/O module in use
Input CR number 1: Slave $\rightarrow$ Master	0 ~ 48	
Input CR number 2	0 ~ 48	
Input CR number 3	0 ~ 48	
Input CR number 4	0 ~ 48	to be read by PROFIBUS DP
Input CR number 5	0 ~ 48	master
Input CR number 6	0 ~ 48	
Input CR number 7	0 ~ 48	
Input CR number 8	0 ~ 48	
Output CR number 1: Master $\rightarrow$ Slave	0 ~ 48	
Output CR number 2	0 ~ 48	
Output CR number 3	0 ~ 48	
Output CR number 4	0 ~ 48	No. of the CR in special I/O module to be written by PROFIBUS DP master
Output CR number 5	0 ~ 48	
Output CR number 6	0 ~ 48	
Output CR number 7	0~48	
Output CR number 8	0 ~ 48	

## • Modbus Configuration Settings

In Modbus configuration, parameters are named after the address of configurable Modbus device. See the following paragraphs for the meanings of each configuration item.

(1) Configuration method for Modbus 8 read address, Modbus 4 read address, Modbus 2 read address and Modbus 1 read address

Refer to the figure below for the relevant parameters to configure Modbus 8 read address. Modbus 8 read address, Modbus 4 read address, Modbus 2 read address

and Modbus 1 read address have the same parameters to set, except that the addresses of configurable Modbus device for Modbus 4 read address, Modbus 2 read address and Modbus 1 read address are different from that of Modbus 8 read address (Therefore, only the parameter settings for Modbus 8 read address are introduced in this section).

Pro	Properties - DP slave		
A	ddress / ID Parameter Assignment	1	
	Parameters	Value	
	🖃 🔄 Station parameters		
	🔁 🔄 Device-specific parameters		
	– Node ID	1	
	–🗒 Read address 1:Slave->Master	0	
	–📺 Read address 2	0	
	—📺 Read address 3	0	
	—📺 Read address 4	0	
	—🖹 Read address 5	0	
	– 🖺 Read address 6	0	
	–🖺 Read address 7	0	
	L∭ Read address 8	0	
	🗄 🧰 Hex parameter assignment		
'			
	OK	Cancel Help	

Definitions of configuration items:

Parameter	Value	Definition
Node ID	1 ~ 254	Address of Modbus device connected to ELC-CAPBDP
Read address 1: Slave $\rightarrow$ Master	0 ~ 65535	
Read address 2	0 ~ 65535	
Read address 3	0 ~ 65535	
Read address 4	0 ~ 65535	Parameter address of Modbus device to
Read address 5	0 ~ 65535	be read by PROFIBUS DP master
Read address 6	0 ~ 65535	
Read address 7	0 ~ 65535	
Read address 8	0 ~ 65535	

(2) Configuration method for Modbus8 write address, Modbus 4 write address, Modbus2 write address, and Modbus 1 write address

Refer to the figure below for the relevant parameters to configure Modbus 8 write address. Modbus 8 write address, Modbus 4 write address, Modbus 2 write address and Modbus 1 write address have the same parameters to set, except that the addresses of configurable Modbus device for Modbus 4 write address, Modbus 2 write address and Modbus 1 write address are different from that of Modbus 8 write address (Therefore, only the parameter settings for Modbus 8 write address are introduced in this section).

Properties - DP slave	×
Address / ID Parameter Assignment	
Parameters	Value
🖃 🔄 Station parameters	
Device-specific parameters	
–≝ Node ID	1
– Write address 1:Master->Slave	0
–📺 Write address 2	0
–📺 Write address 3	0
— 🗐 Write address 4	0
— 🗐 Write address 5	0
— 🕮 Write address 6	0
— 🗐 Write address 7	0
└── Write address 8	0
🕀 🧰 Hex parameter assignment	
OK	Cancel Help

Definitions of configuration items:

Parameter	Value	Definition
Node ID	1 ~ 254	Address of Modbus device connected to ELC-CAPBDP
Write address 1 : Master $\rightarrow$ Slave	0 ~ 65535	
Write address 2	0 ~ 65535	
Write address 3	0 ~ 65535	
Write address 4	0 ~ 65535	Parameter address of Modbus device to
Write address 5	0 ~ 65535	be written by PROFIBUS DP master
Write address 6	0 ~ 65535	
Write address 7	0 ~ 65535	
Write address 8	0 ~ 65535	

(3) Configuration method for Modbus 8 read & write address, Modbus 4 read & write address, Modbus 2 read & write address and Modbus 1 read & write address Refer to the figure below for the relevant parameters to configure Modbus 8 read & write address. Modbus 8 read & write address, Modbus 4 read & write address, Modbus 2 read & write address and Modbus 1 read & write address have the same parameters to set, except that the addresses of configurable Modbus device for Modbus 4 read & write address, Modbus 2 read & write address, Modbus 2 read & write address and Modbus 2 read & write address (Therefore, only the parameter settings for Modbus 8 read & write address are introduced in

## this section).

Ртор	erties - DP slave		×
Ado	dress / ID Parameter Assignment		1
	Parameters	Value 🔨	
E	🖃 🔄 Station parameters		
	🛱 🔄 Device-specific parameters		
	– Node ID	1	
	– Read address 1:Slave->Master	0	
	– Read address 2	0	
	– Read address 3	0	
	– Read address 4	0	
	– Read address 5	0	
	–🖺 Read address 6	0	
	– Read address 7	0	
	– Read address 8	0	
	– Write address 1:Master->Slave	0	
	–🗐 Write address 2	0	
	—🗐 Write address 3	0	
	—🗐 Write address 4	0	
	–≝) Write address 5	0	
	f≊] Write address R	0	
	OK	Cancel Help	

Parameter	Value	Definition
Node ID	1 ~ 254	Address of Modbus device connected to ELC-CAPBDP
Read address 1: Slave $\rightarrow$ Master	0 ~ 65535	
Read address 2	0 ~ 65535	Parameter address of Modbus device to
Read address 3	0 ~ 65535	be read by PROFIBUS DP master
Read address 4	0 ~ 65535	
Read address 5	0 ~ 65535	
Read address 6	0 ~ 65535	Parameter address of Modbus device to
Read address 7	0 ~ 65535	be read by PROFIBUS DP master
Read address 8	0 ~ 65535	
Write address 1: Master $\rightarrow$ Slave	0 ~ 65535	
Write address 2	0 ~ 65535	
Write address 3	0 ~ 65535	
Write address 4	0 ~ 65535	Parameter address of Modbus device to
Write address 5	0 ~ 65535	be written by PROFIBUS DP master
Write address 6	0 ~ 65535	
Write address 7	0 ~ 65535	
Write address 8	0 ~ 65535	

# 3.6 Application example: Exchange data with Siemens S7-300 PLC

S7-300 as the PROFIBUS DP master; ELC-CAPBDP as the slave. See the PROFIBUS DP network in the figure below.



- 1. Set the PROFIBUS address of ELC-CAPBDP to "1".
- Connect ELC-CAPBDP to ELC-EX16NNDT, ELC-EX08NNDT, ELC-AN04ANNN and ELC-AN02NANN in order at its right hand side. Make sure the connection and wiring between ELC-CAPBDP and the special I/O modules and to the entire network is correct.

## 3.6.1 Configuring the ELC-CAPBDP (software configuration):

■ Create a new project

Open SIMATIC Manager.

SIMATIC Manager	
File PLC View Options Window Help	
🗅 🖆   🏭 🐖   🎾   😂   📢	
Press F1 to get Help.	11

1. Select "File" => "New Project Wizard".

SIMATIC Manager		
File PLC View Options Window Help		
New	Ctrl+N	
'New Project' Wizard		
Open	Ctrl+O	
S7 Memory Card	+	
Memory Card File	+	
Delete		
Reorganize		
Manage		
Archive		
Retrieve		
Page Setup		
1 ELC-CAPBDP (Project) C:\\Siemens\Step7\s7proj\S7_Pro1		
Exit	Alt+F4	
Creates a new project step-by-step with the help of a wizard.		

2. Click "Next" in the wizard.

STEP 7 Wizard: "New Project" 🛛 🛛 🗙				
🌾 Introduction		1(4)		
Electric Conductor	STEP 7 Wizard: "Ilew Project" You can create STEP 7 projects quickly and easily using the STEP 7 Wizard. You can then start programming immediately. Click one of the following options: "Next" to create your project step-by-step "Finish" to create your project according to the preview.			
Display Wizard on starting	the SIMATIC Manager	Previe <u>w</u> <<		
S7_Pro1     Block Name     Symbolic Name       SIMATIC 300 Station     OB1     Cycle Execution       CPU312C(1)     S7 Program(1)     Blocks				
< <u>B</u> ack <u>N</u> ext ≻	Finish	Cancel Help		

3. Select "CPU315-2 DP" for CPU as we are using the S7-300 model. Click "Next".

STEP 7 Wizard: "New Project"				
Which CPU are you usin	ng in your project?		2(4)	
CP <u>U</u> :	CPU Type CPU314C-2 PtP CPU315 CPU315-2 DP CPU315-2 DP CPU316-2 DP CPU318-2 DP	Order No 6ES7 314-6BF00-0A 6ES7 315-1AF03-0A 6ES7 315-2AG10-0A 6ES7 316-2AG00-0A 6ES7 318-2AJ00-0A	.80 \80 \80 \80 \80 \80	
<u>C</u> PU name: MPI <u>a</u> ddress:	CPU315-2 DP(1) 2 VVork m instruct	emory 128KB; 0.1ms/1	000 on (DP	
S7_Pro1           Image: SIMATIC 300 Station           Image: SIMATIC 300 Statio	Block Name	Symbolic Name Cycle Execution		
< <u>B</u> ack <u>N</u> ext >	Finish	Cancel	Help	

4. Select the block we need and click "Next".

STEP 7 Wizard: "New Project" 🛛 🗙				
Which blocks do you want to add? 3(4)				
Bloc <u>k</u> s:	Block Name           ♥ 0B1           0B10           0B11           0B12           0B13	Symbolic Name Cycle Execution Time of Day Interrupt 0 Time of Day Interrupt 1 Time of Day Interrupt 2 Time of Day Interrupt 3	Help on <u>O</u> B	
			⊖ <u>f</u> bd	
Create with <u>s</u> ource files			Previe <u>w</u> <<	
S7_Pro2 SIMATIC 300 Station CPU315-2 DP(1) S7 Program(1 S7 Program(1)	Block Nam DB1	ne Symbolic Name Cycle Execution		
< <u>B</u> ack <u>N</u> ext >	<u>F</u> inish	Cancel	Help	

5. Enter the project name and click "Finish".

STEP 7 Wizard: "New Project"				
What do you want to call your project? 4(4)				
Project name:	ELC-CAPBDP	—		
Existing projects:				
Check your new project in the preview. Click "Finish" to create the project with the displayed structure. Previe <u>w</u> <<				
ELC-CAPBDP	Block Name Symbolic Name			
SIMATIC 300 Station - 1 CPU315-2 DP(1) - 1 S7 Program(1 - 2 Blocks	OB1 Cycle Execution			
< <u>B</u> ack Next >	Finish Cancel Help			

6. A new window will appear after the project is created.

SIMATIC Manager - ELC-CAPBDP	
File Edit Insert PLC View Options Window Help	
🗅 🧀 🎥 🛲   X 🗈 🖻 🕍 🔍 🗣 🏪 🖭 🔛 🏦 💼 🔍 < No Filter >	- 🏹   器 🗐
ELC-CAPBDP C:\Program Files\Siemens\Step7\s7proj\ELC-CA-1	
ELC-CAPBDP SIMATIC 300 Station CPU315-2 DP(1) Sources Blocks	
Press F1 to get Help.	

## • Add PROFIBUS DP bus

1. Select "SIMATIC 300 Station" in the project created. Double click "Hardware" and a new window (HW-Config) will appear.



2. In the "HW Config" window, double click "DP" in the left-hand side column and a dialog box will appear.

🙀 HW Config - [SIMATIC 300 Station (Configuration) I	ELC-CAPBDP]	
🕅 Station Edit Insert PLC View Options Window Help		_ @ ×
🗅 😅 💱 🖩 🦷 🎒 🎒 🛍 🛍 📳 📼 😤	<b>N</b> ?	
1       2       CPU315-2 DP(1)       X2       DP       3       4       5       6       7		nd:
(0) UR		
Slot         I         Module         Order num         Fi         M         I           1	Q C	
2 CPU315-2 DP(1) 6ES7 315-24V2.0 2 X2 DP 224		ROFIBUS-DP slaves for SIMATIC S7, 7, and C7 (distributed rack)
3		
Press F1 to get Help.		Chg //

3. Click "Properties" in the dialog box, leading to another dialog box.

Properties - DP - (RC	D/S2.1)	
General Addresses (	Dperating Mode Configuration	
Short Description:	DP	
		~
Name:	DP	
_ Interface		
Type: PR	OFIBUS	
Address: 2		
Networked: No	Properties	
Comment:		
		<u>^</u>
		~
OK	Cancel	Help

4. Select "Address" in the dialog box to be the address of the master. Then Click "New" to go to the next dialog box.

Properties	- PROFIBU	S interface	DP (R0/S2.1)	X
General	Parameters			
Address:		2 🗸	If a subnet is selected, the next available address is suggested.	
Subnet:				
not	networked		Properties Delete	
ОК			Cancel Hel	p

5. Select communication speed and bus type, and then click "OK".

Pro	operties - New subnet P	ROFIBUS	×
[	General Network Settings		_
	Highest PROFIBUS Address:	126 Change	
	Transmission Rate:	9.6 Kbps 19.2 Kbps 45.45 (31.25) Kbps 93.75 Kbps 187.5 Kbps 500 Kbps	
	Profile:	DP Standard Universal (DP/FMS) User-Defined Bus Parameters	
	OK ]	CancelHelp	

Confirm the communication speed and master address for PROFIBUS DP bus, then click "OK".

Properties - PROFIBUS interface DP (R0/S2	2.1)		X
General     Parameters       Address:     2       Highest address:     126       Transmission rate:     9.6 Kbps	If a subnet is selected, the next available add	ress is suggested.	
Subnet: not networked PROFIBUS(1) 9.6 Kbp	15	New Properties Delete	
	Car	ncel Help	

7. Confirm the information on the PROFIBUS DP bus in the dialog box and click "OK".

Properties - DP - (R	80/52.1)	×
General Addresses	Operating Mode Configuration	
Short Description:	DP	
		•
Name:	DP	—
- Interface		
Type: F	ROFIBUS	
Address: 2		
Networked: Y	'es Properties	
Comment:		
		~
		~
(OK)	Cancel	Help

8. Once all the parameters are set, a PROFIBUS DP bus will appear after the UR window.



## Add GSD file

1. Select "Options" => "Install GSD File" in the HW Config window.

🖳 HW Config - [SIMATIC 300 Sta	tion (Configuration) ELC-CAPBDP]			
🗓 Station Edit Insert PLC View	Options Window Help	_ 8 ×		
n 🚅 🐎 🛢 🖫 🎒   🐴   🐴 r	Customize Ctrl+Alt+E			
	Specify Module Configure Network Symbol Table Ctrl+Alt+T Report System Error			
X2 DP 3 4	Edit Catalog Profile Update Catalog	PROFIBUS DP		
5	Install HW Updates Install GSD File	PROFINET IO		
	Find in Service & Support	SIMATIC 400 SIMATIC PC Based Control 300/400 SIMATIC PC Based Control 300/400		
	Create GSD file for I-Device	SIMATIC PC Station		
(0) UR				
Slot Module 0	Irder num Fi M I Q C			
2 CPU315-2 DP(1) 6E X2 DP 3	ES7 315-24V2.0 2 = = = = = = = = = = = = = = = = = = =	PROFIBUS-DP slaves for SIMATIC S7, M7, and C7 (distributed rack)		
Installs new GSD files in the system and up	bdates the contents of the catalog.	Chg		

2. Find the path of the GSD file, select it and click "Install" to add the GSD file needed.

Install GSD Files	
Install GSD Files: from the directory	
	Province
je:vr=enu	DIOWSe
File Release Version Languages	
ELC-CAPBDP (ELC-CAPBDP)	
Install Show Log Select All Deselect All	
Close	Help

3. We can then see ELC-CAPBDP in the right-hand side column. ELC-CAPBDP is the module added.



## Add ELC-CAPBDP slave and set up parameters

 Select PROFIBUS DP on the right-hand side column and double click "ELC-CAPBDP" to open a dialog box.



2. In the dialog box, select the address of ELC-CAPBDP slave. The address has to be the same as the setting of address setup switch on ELC-CAPBDP. Click "OK".

Properties - PROFIBUS interface ELC-CAPBDP	
General Parameters	
Address:	
Transmission rate: 9.6 Kbps	
Subnet	
not networked PROFIBUS(1) 9.6 Kbps	New
	Properties
	Delete
Ca	ancel Help

3. Add PROFIBUS DP bus to ELC-CAPBDP.

HW Config - [SIMATIC 300 Station (Configuration) ELC_CAPBDP]	
🗓 Station Edit Insert PLC Yiew Options Window Help	_ <b>B</b> ×
I         PROFIBUS(1): DP master system (1)           X2         DP           3         Image: CPU315-2 DP(1)           4         Image: CPU315-2 DP(1)           5         Image: CPU315-2 DP(1)           6         Image: CPU315-2 DP(1)           PROFIBUS(1): DP master system (1)         Image: CPU315-2 DP(1)           9         Image: CPU315-2 DP(1)           1         Image: CPU315-2 DP(1)           2         Image: CPU315-2 DP(1)           3         Image: CPU315-2 DP(1)           4         Image: CPU315-2 DP(1)           5         Image: CPU315-2 DP(1)           6         Image: CPU315-2 DP(1)           1         Image: CPU315-2 DP(1)           1         Image: CPU315-2 DP(1)           2         Image: CPU315-2 DP(1)           3         Image: CPU315-2 DP(1)           4         Image: CPU315-2 DP(1)           5         Image: CPU315-2 DP(1)           6         Image: CPU315-2 DP(1)           1         Image: CPU315-2 DP(1)	Profile Standard  PROFIBUS DP  Additional Field Devices  Additional Field Devices  IO  IO  E  IO  E  E  C  C  C  C  C  C  C  C  C  C  C
	DEC     D
(1) ELC-CAPBDP	
Slot     Module /     Order number     I Address     Q Address     Comment       0	DP V0 slaves DP/AS-i DP/ALink CCCAPBDP ELC-CAPBDP ELC-CAPBDP
Press F1 to get Help.	Chg //

- B HW Config [SIMATIC 300 Station (Configuration) -- ELC-CAPBDP] 💵 Station Edit Insert PLC View Options Window Help ъ× 🗅 😂 🖫 🖳 🎒 👘 🗈 🔛 🏜 👘 🗔 器 🕺 ~ 믜뇌 😑 (0) UF Eind: m‡ mi CPU315-2 DP(1) 2 Profile: Standard • DP X2 PROFIBUS(1): DP master system (1) Modbus 8 write addre 木 3 4 Modbus 1 read & writ 5 Modbus 2 read & writ 🚡 (1) ELC-CAI Modbus 4 read & writ 6 Modbus 8 read & writ DP-NORM ELC-EX08NNDN ELC-EX08NNNR/T ELC-EX08NNDR/T ELC-EX16NNDR/T < > ELC-EX08NNSN ELC-8 DI 🗲 📄 (1) ELC-CAPBDP ELC-8 DO Slot DP ID Order Number / Designation > I Address Q... C. ₹₹ -3 Press F1 to get Help. Chg
- 4. Select Slot 0 and double click "ELC-EX16NNDR/T" in the right-hand side column.

5. Configure ELC-EX16NNDR/T to Slot 0.



 Configure other slots as Slot 0 was configured. To configure, select one of the slots and double click on the items to be configured in the right-hand side column. Apply it to configure Slot 0 ~ Slot 4.

	нч	Config - [SIMA	TIC 300 Station (Configura	tion) EL	C_CAPBDP]				_ 🗆 ×	]
00	<u>]</u> <u>S</u> tat	ion <u>E</u> dit <u>I</u> nsert <u>I</u>	<u>PLC V</u> iew <u>Options W</u> indow	<u>H</u> elp					_ & ×	۲.
Г	٦la	; 🔐 🖬 😡 🖉	3 BIR Salah E	- IA - 188	N2					
	(U) 1 2 3 4 5 6 7	DUR  CPU315-2  DP  DP		PROFIBUS(I)	): DP master sy C-C/	stem (1)		Profile Standard	Modbus 4 read address Modbus 8 read address Modbus 1 write address Modbus 2 write address Modbus 4 write address Modbus 1 read & write ( Modbus 2 read & write ( Modbus 2 read & write ( Modbus 4 read & write (	
<							>		ELC-EX08NNDN ELC-EX08NNNR/T	
		(1) ELC-CAPB	DP						ELC-EXU8NNDR/T ELC-EX16NNDR/T	
	Slot	🚺 Module /	Order number	I Address	Q Address	Comment		l f	ELC-EXO8NNSN	
	0	8DX	ELC-EX16NNDR/T	0	0		^	I	ELC-8 DI	
	1	8DX	ELC-8 DIDO	1	1			I T	ELC-8 DO	
	2	4AI	ELC-AN04ANNN	256263			_	I	ELC-8 DIDO	
	3	2AO	ELC-2 AO		256259		_	<		
ΙL	4	113	Modbus 2 read & write address	264267	260263		_		Ŧ.	1
	5									2
	6						- ~			
Pre	∞ F1 ·	to get Help.						J	Chg	//.

7. Slot 0 and Slot 1 are for the configuration of digital I/O modules. The configuration of digital I/O modules does not require other parameter settings. When you configure digital I/O modules by self-defined method, and if the number of I/O points is less than 8, the calculation will be based on the number 8. For example, Slot 1 is configured 8DIDO, and its corresponding digital I/O module is DVP08SP (4 input points and 4 output points). See the following paragraph for detailed corresponding relations between slots and I/O modules.

8. Double click the configured Slot 2 in "HW Config" window to open the dialog box in the figure below. Refer to the configuration chapter for the definition of every parameter in this dialog box.

Properties - DP slave	2
Address / ID Parameter Assignment	
ー国 CH1 input mode 一国 CH2 input mode	0 -10V~+10V -10V~+10V -10V/→+10V
–≝ CH3 input mode –≝ CH4 input mode –≝ Input value mode	-10V~+10V -10V~+10V Current value
L⊞ Average times 	10
OK	CancelHelp

9. Double click the configured Slot 3 in "HW Config" window to open the dialog box in the figure below. Refer to the configuration chapter for the definition of every parameter in this dialog box.

Properties - DP slave	
Address / ID Parameter Assignment	
Parameters	Value
🖃 🔄 Station parameters	
🛱 🔄 Device-specific parameters	
_≝ Location	0
	ELC-AN02NANN
–≝) Output CR number 1:Master->Slave	10
Lei Output CR number 2	
OK	Cancel Help

10. Double click the configured Slot 4 in "HW Config" window to open the dialog box in the figure below. Refer to the configuration chapter for the definition of every parameter in this dialog box.

Properties - DP slave			
Address / ID Parameter Assignment			
Parameters	Value		
E California Station parameters			
Device-specific parameters	-		
→ ■ Node ID	1		
E Read address 2	8450		
→ → → → → → → → → → → → → → → → → → →	8192		
L≣ Write address 2	8193		
🕀 🧰 Hex parameter assignment			
1			
		Concol	

11. After all the configuration items for ELC-CAPBDP are set, double click the ELC-CAPBDP slave on the PROFIBUS DP bus in "HW Config" window to open the dialog box in the figure below. Refer to 8.1 for the definition of every parameter in this dialog box.

Properties - DP slave	X
General Parameter Assignment	1
Parameters	Value
🖃 🔄 Station parameters	
🖨 🔄 Device-specific parameters	
-🚞 Acceleration mode	Disable
–≝ Modbus protocol	8,N,2
— 🕮 Modbus baudrate	19200 bps
- Modbus mode	RTU
— Loss comm with master	Hold I/O data
- Modbus slave error	Ignore & continue I/O exchange
- Loss modbus slave	Ignore & continue I/O exchange
– ≝ IO module error	Ignore & continue I/O exchange
<ul> <li>— Modbus timeout setting (ms)</li> </ul>	200
Diagnose cycle (s)	10
🕂 🧰 Hex parameter assignment	
OK	Cancel Help

- 12. After all the parameters are set, download the parameters, and once the master is connected to ELC-CAPBDP, the NET indicator on ELC-CAPBDP will constantly be On in green color.
- Data Mapping



See the table below for the data mapping relations under the parameter settings.

Register in S7-300 master	Data transmission direction in PROFIBUS DP network	Slave devices and addresses connected to ELC-CAPBDP
QB0 bit 0 ~ bit 7		Y0 ~ Y7 on ELC-EX16NNDT
QB1 bit 0 ~ bit 3		Y0 ~ Y3 on ELC-EX08NNDT
PQW256		Output value in CH1 on ELC-AN02NANN
PQW258		Output value in CH2 on ELC-AN02NANN
PQW260		Modbus address 8192
PQW262		Modbus address 8193
IB0 bit 0 ~ bit 7		X0 ~ X7 on ELC-EX16NNDT
IB1 bit 0 ~ bit 3		X0 ~ X3 on ELC-EX08NNDT
PIW256		Input value in CH1 on ELC-AN04ANNN
PIW258	<u> </u>	Input value in CH2 on ELC-AN04ANNN
PIW260		Input value in CH3 on ELC-AN04ANNN
PIW262		Input value in CH4 on ELC-AN04ANNN
PIW264		Modbus address 8449
PIW266		Modbus address 8450

### Program Example

- When M0.0 = ON, write 1 to Y0 ~ Y7 on ELC-EX16NNDT and Y0 ~ Y3 on ELC-EX08NNDT connected to ELC-CAPBDP.
- When M0.1 = ON, read the status on X0 ~ X7 on ELC-EX16NNDT connected to ELC-CAPBDP to MB0, and the status on X0 ~ X3 on ELC-EX08NNDT to MB1.
- You can also read or write other devices connected to ELC-CAPBDP by using MOVE instruction.

LAD/STL/FBD - [OB1 test/SIMATIC 300(1)/CPU 315-2 DP]	
🖅 File Edit Insert PLC Debug View Options Window Help	_ & ×
	╨つ▥┕⊐┶╴ҝ
Address     Declaration     Name     Twpe     Initial val       OB1 : "Main Program Sweep (Cycle)"       Comment:	Lue Comment
Network 1: Title:	Integer fct.
Comment:	Ploating-point fct.     P
Network 2: Title:	
MO.1 EN ENO IBO IN OUT-MBO	
IB1 - IN OUT - MB1	₹ <u>≺</u> ?