

Profibus-Profinet COBRA / TAIPAN 365



USER MANUAL, CONFIGURATION INSTALLATION OF PROFIBUS/PROFINET NETWORK



2006/42/EEC

Product Overview

The purpose of this manual is to provide an aid in the configuration and management of the network between PLC and Profibus and Profinet Cobra Taipan - 365.

IMPORTANT: The unit does not support direct communication with the field via the PROFIBUS -DP and PROFINET but requires the installation of one of the two converter modules on the instrument.

The converter module's installation is an option to be requested during the ordering phase

The converter "CONV -PROFIBUS- DP" and "CONV- PROFINET" translate the PROFIBUS -NET strings to strings MODBUS -RTU which can be understood by the instrument.

As we will see below the converter does not need to be configured, so it doesn't has an address in either of the networks in which it operates. For that reason it is necessary to install a converter card for each device on the network.

In this manual are examples of read / write are presented. Records refer to the Cobra 365 instrument, for the Taipan the process is the same but the address of the registers may be different. For complete tables of registers and Taipan Cobra 365 365 refer to the end of this manual .

The instruments have a default standard configuration of the areas with 2 pages of INPUT and 8 pages of OUTPUT already compiled.

Alternatively, through a dedicated application PWIN75 , you can compose the I / O areas: the application allows to associate to each register a parameter.

You can customize up to 2 pages of INPUT and 1 page of OUTPUT

Presentation of the PROFIBUS hardware

PROFIBUS interface can either be internally embended to the instrument or installed externally (module S125 connected to serial RS422 through COM1)

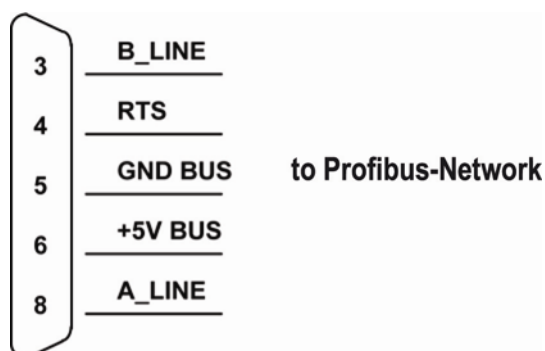
Connection between COBRA 365 e external module Profibus-CONV:

Profibus-CV		COBRA 365	
		(COM1 RS422)	
	pin		nr.
TXD-	7	RXD-	11
TXD+	9	RXD+	10
RXD-	6	TXD-	9
RXD+	4	TXD+	8
GND	/	GND	/



Power supply	12/24Vcc (+/-5%)
Consumption	2W (80mA max)
Working temperature	-10°C ÷ +40°C
Humidity	max 85% condensate free
Storage temperature	-20°C ÷ +50°C
Dimension	71 x 90 x 58 mm
Mounting	Omega/DIN rail
IP protection	IP40
RS422 max lenght	500m
Profibus max lenght	Network dependent

CONNECTOR SUB 9 PIN WIRING



The communication between the instrument and the PROFIBUS interface is effectuated via Modbus RTU serial protocol. The address (Modbus slave) of the module is fixed at 01, the communication baud rate is fixed at 38400 bits / s and is forced as soon as you select the PROFIBUS protocol on COM1

Presentation of PROFINET hardware

The PROFINET interface is always mounted internally.

Connection Timeout Min 30 seconds - 90 seconds Max

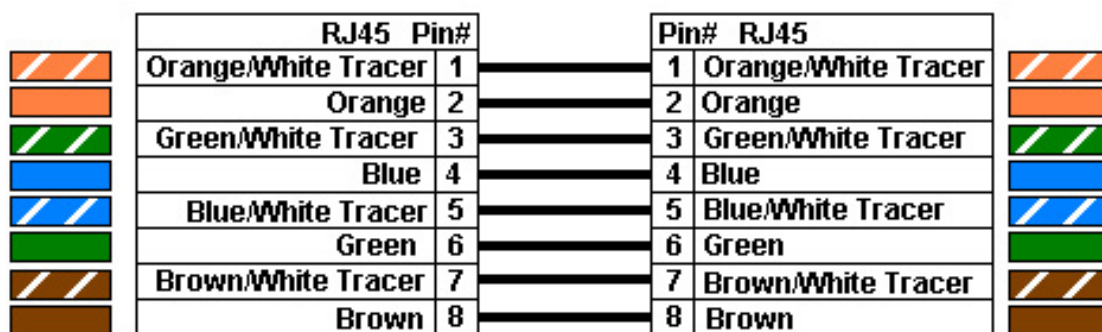
Link Timeout (cable disconnected) 30/2

Features:

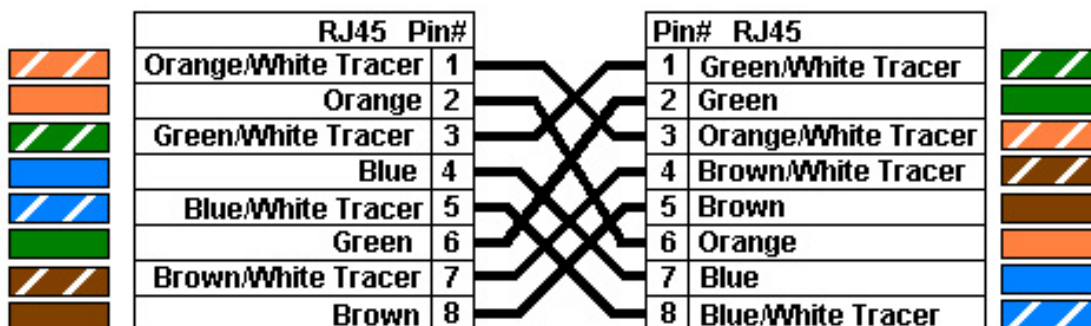
Transmission speed	10 Mbps
Network	Compatible with 10/100/1000 Base-T networks
Ethernet protocols	TCP, Modbus/TCP, UDP, IP, ICMP, ARP
Communication modes	TCP server
LED lights (2)	Line presence and communication / diagnostics
Buffer size	256 byte
Connection Timeout	Min 30 sec - Max 90 sec
Link Timeout (cavo scollegato)	30 seci

- The Ethernet cable RJ45 has a variable maximum length, depending on the type of cable. A common Cat5 shielded cable may have a maximum length of about 180 m.
- It is possible to connect the PROFINET communication port directly to the PC without going to other network devices (routers, switches, hubs , LAN -bridge or whatever), but should be used with special RJ45 cables , called "crossover" cables.
- Normally the cables are "direct" and allow the connection to network devices such as routers or hubs, but do not directly connect two PLCs (although currently there are network adapters with auto-sensing technology , which recognize the type of the cable and the type of connection allowing direct connections PC - PC also using cables not "crossover" type).
- In the following table shows the patterns of the two types of cables and cited the relevant connection diagram .
- The cable must not be channeled with other cables (eg. outputs connected to contactors or power cables), but possibly should follow their own path .

DIRECT CABLE WIRING



CROSSOVER CABLE WIRING



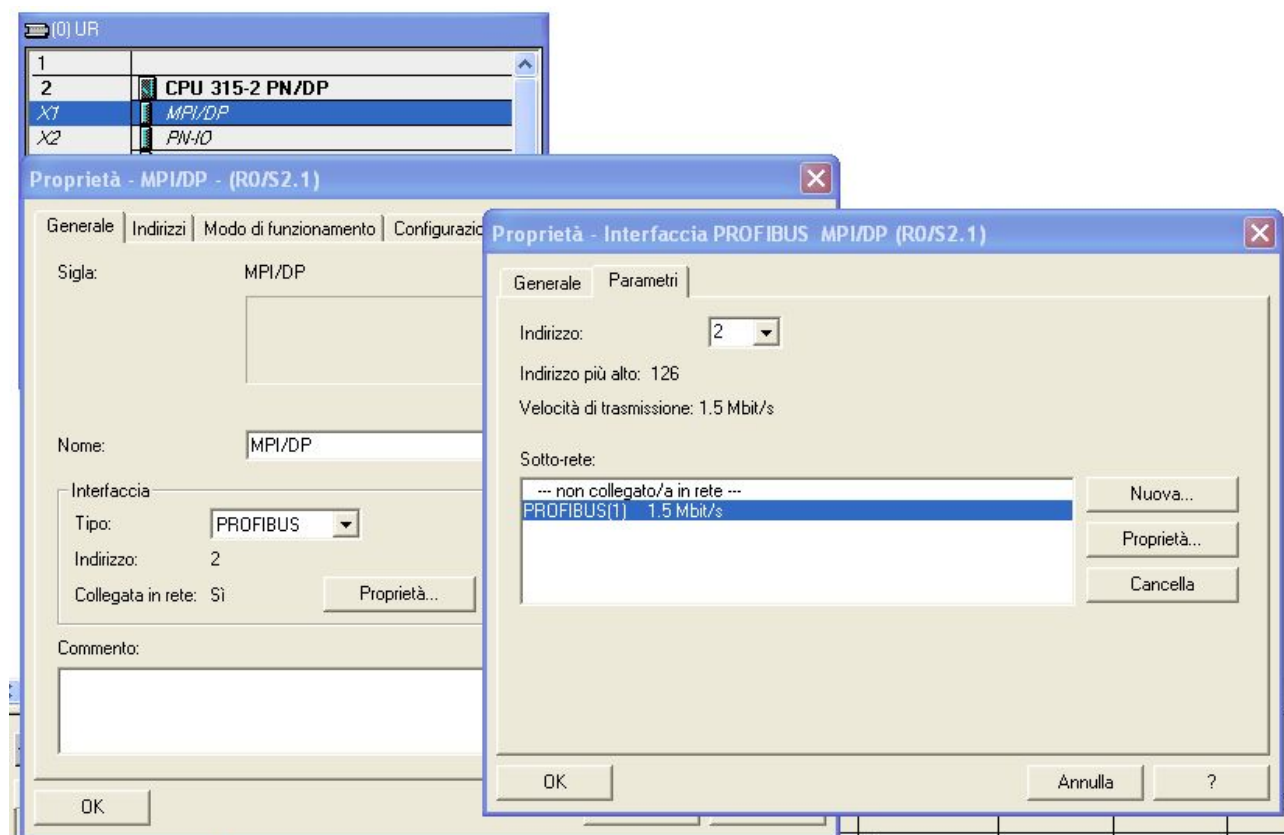
The communication between instrument and PROFINET interface with Modbus RTU serial protocol, address (Modbus slave) module is fixed at 01, the communication baud rate is fixed at 38400 bit/s is forced as soon as you select the PROFINET protocol on COM1

PROFIBUS-DP Network

Communication configuration from PLC side

In this network, the PLC performs the function of PROFIBUS-DP master and the controller COBRA 365 acts as a slave unit. So, first thing you need is to configure the PROFIBUS-DP communication between the master and the slave.

In the "Hardware Configuration" software within the Simatic Manager, we will insert the PLC CPU and we will configure the network as follows:



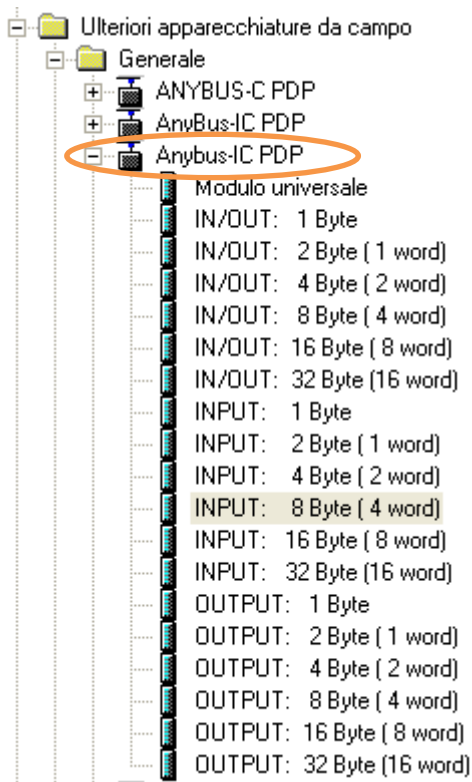
As you see from the image, it is COMPULSORY to configure the network at a speed of 1.5 Mbit/s.

At this point we insert in the configuration of the PROFIBUS-DP network, the controller.

As mentioned previously, the COBRA 365 does not communicate directly to the PROFIBUS-DP network, but it uses a network adapter, which is why in the configuration of the DP network will insert the network adapter and not the COBRA unit 365.

Once you install the GSD file (provided by STAD) of the "Module PROFIBUS-DP" navigate to the "Catalog" window in the following location:

PROFIBUS-DP -> Other field appliances -> General



Once you insert the module in a network configuration, a screen will ask the PROFIBUS-DP address to be assigned to the module (in this example has been assigned to the module address 3)

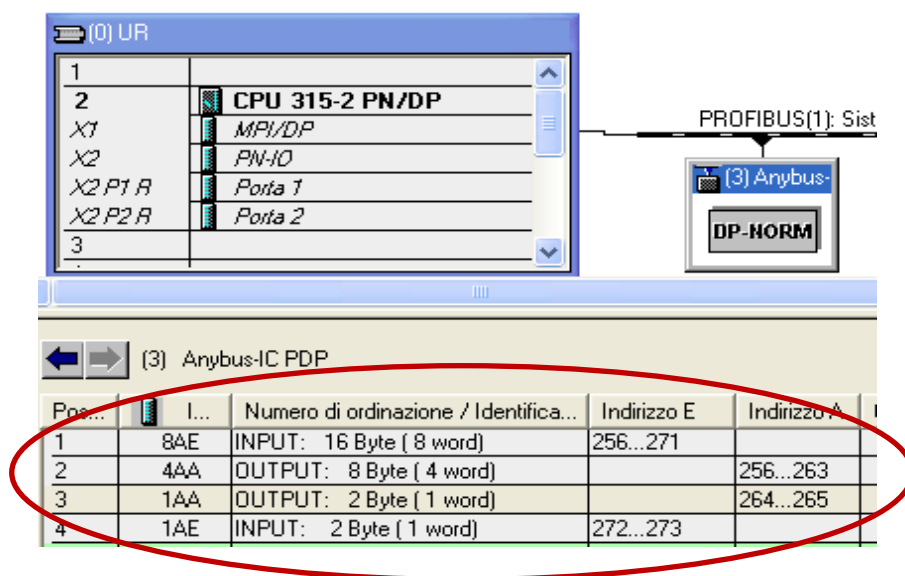
How many bytes of data exchange input?

At this point we have to insert the bytes of IN and OUT necessary to read and write the registers of the COBRA unit 365.

The amount of bytes to be exchanged between the PLC and the network master control unit weighing depends on how many records we want to use in the management software of the machine.

It is possible to enter IN and OUT modules without a specific order, even mixing them. The PLC will sort the data in a consistent way and make them available to the user program.

Below is a sample configuration of devices, unsorted:



Configuring the communication unit 365 COBRA

As previously stated the network adapter "Module PROFIBUS-DP" must not be configured in any way. The configurations to be done are all in the instrument COBRA 365.

To configure the network in the weighing control unit, we navigate to the following location:

Menu -> TECHNICAL MENU -> COMM. PORTS

On this page we have to configure the communication protocol PROFIBUS-DP for the COM1 port and PROFIBUS-DP address of the instrument.

The communication parameters must be set in the following way:

Protocol on COM1: PROFIBUS

COM1 Baud Rate: 38400

Frame data COM1: N-8-1

At this point must be entered the address of the PROFIBUS-DP instrument:

Addr. PROFIBUS: xxx (setting depend on network configuration)

WARNING: Because the tool does not communicate directly with the PROFIBUS-DP network, but carries out the exchange data only with the converter "Module PROFIBUS-DP" by messages MODBUS-RTU, you MUST SET AT 1 THE PARAMETER "COM Address.". If you do not provide this configuration data exchange with the PROFIBUS-DP network will not be established.

PROFINET Network

Configurazione della comunicazione centralina COBRA 365

To configure the network in the weighing control unit, we navigate to the following location:

Menu -> TECHNICAL MENU -> COMM. PORTS

On this page we have to configure the communication protocol PROFINET for the COM1 port and PROFINET IP and PRIFINET S.MASK address of the instrument.

The communication parameters must be set in the following way:

Protocol on COM1: PROFINET

Profinet IP:

Frame data COM1: N-8-1

Protocollo COM1 : PROFINET

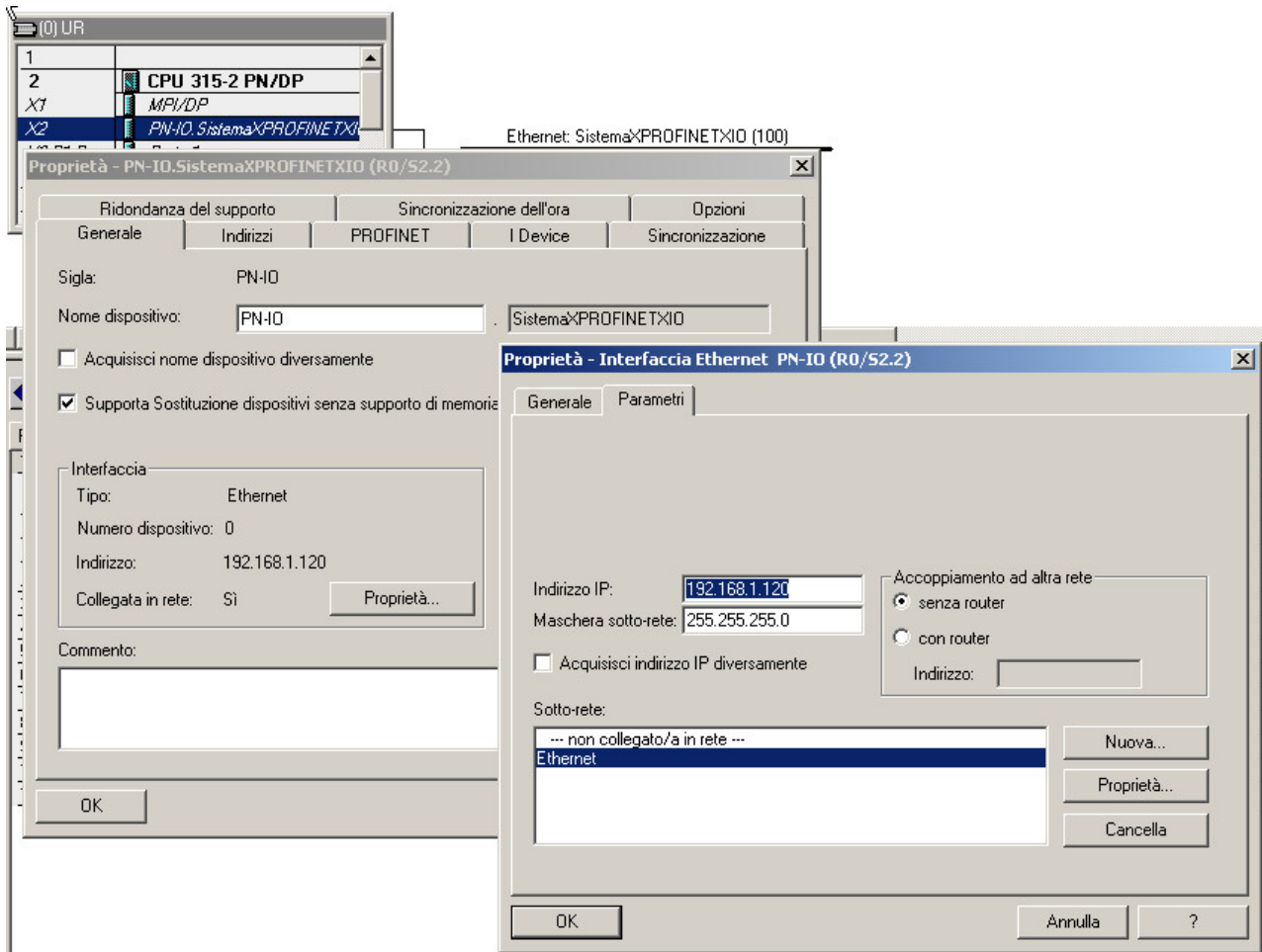
Profinet IP: unique and of the same family as the PROFINET network in which the instrument is inserted

Profinet S.Mask: depends on the PROFINET network in which it is inserted COBRA 365 (normally 255.255.255.0)

After entering the new information, click the ESC key until you reach the page of data storage and save to confirm the changes made.

Communication configuration from PLC side

In the "Hardware Configuration" software within the Simatic Manager, we will insert the PLC CPU and we will configure the network as follows:

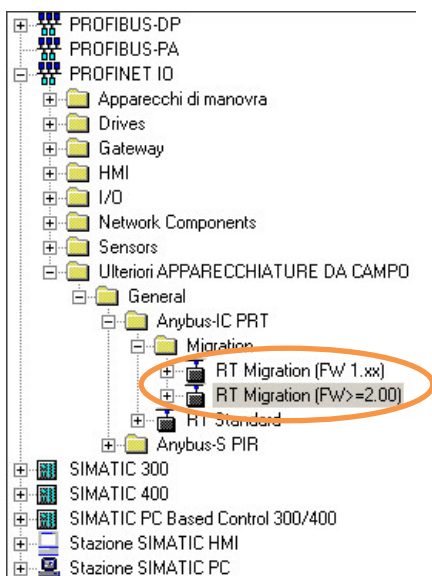


At this point we insert in the configuration of the PROFINET network, the COBRA 365 controller.

The COBRA 365 communicates on the PROFINET network via a network adapter Anybus-IC PRT mounted on the same COBRA 365, for this reason, in the configuration of the PROFINET network will insert the network adapter and not the COBRA unit 365.

Once installed, the file GSDML (GSDML-V2.2-HMS-ABICPRT, provided by STAD) of the "PROFINET module", select the PROFINET network and navigate to the "Catalog" window under the following path:

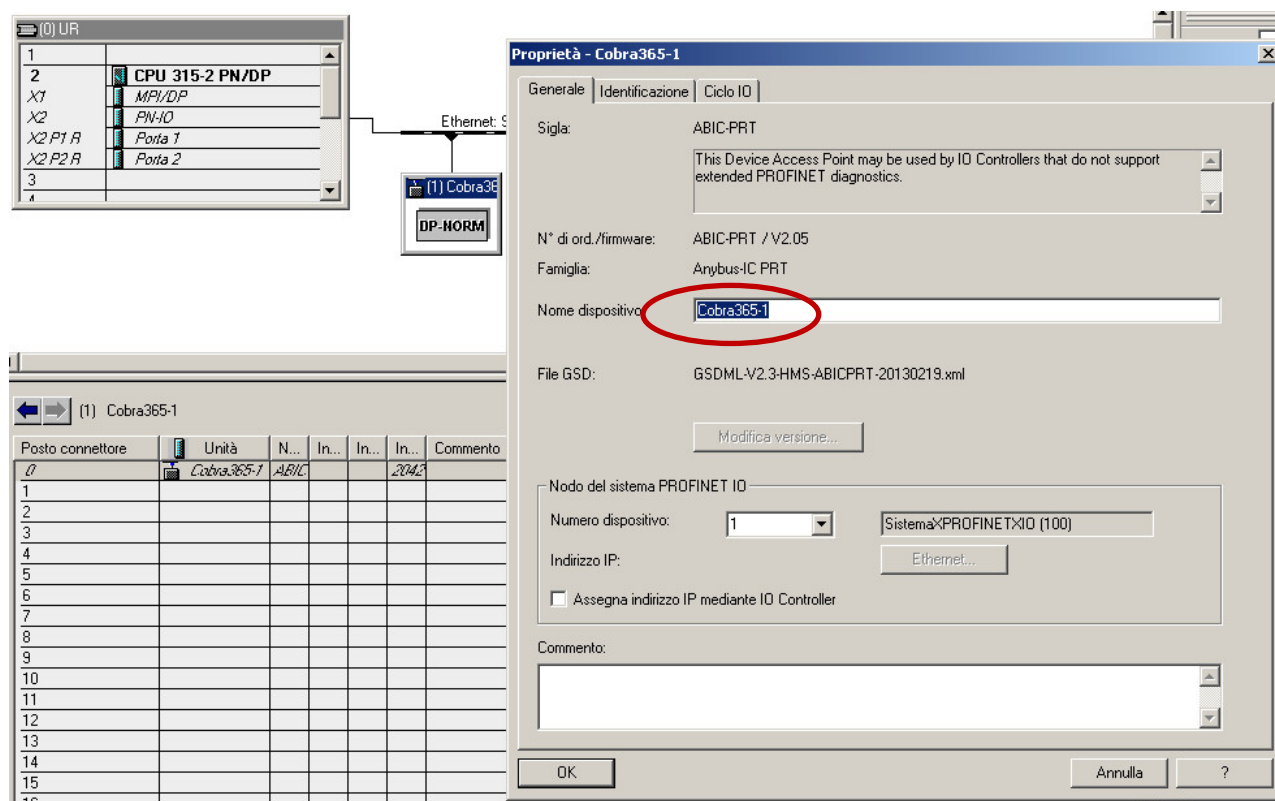
PROFINET IO -> Further field instruments -> General -> Anybus-IC PRT -> Migration

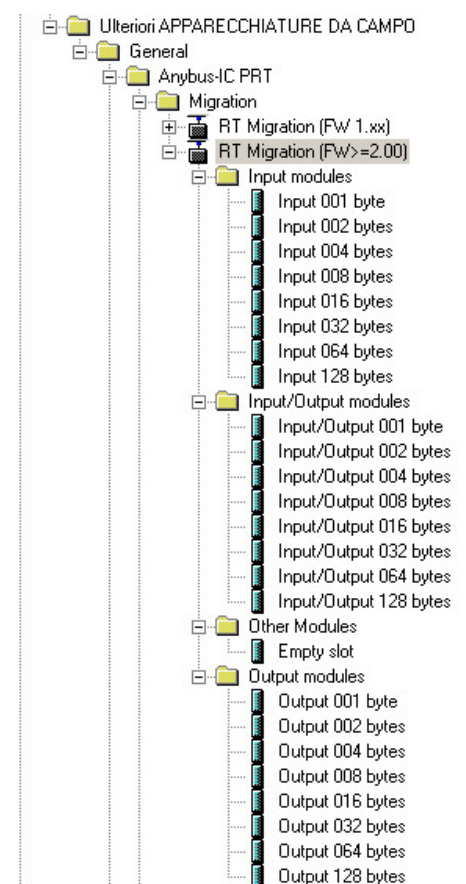


You can choose between 2 different versions of 'RT Migration' depending on whether you should insert an instrument with firmware version less than or greater than 2.

Once you insert the module into the network, it automatically will be assigned an identifying name and possibly an IP address (the latter is not strictly necessary).

In the example below, the name assigned is Cobra365-1. If you have multiple instruments on the PROFINET network, keep in mind that the identifying name must be unique.





How many bytes of data exchange input?

At this point we have to insert the bytes of IN and OUT necessary to read and write the registers of the COBRA unit 365, paying attention to insert the corresponding modules according to the coherent firmware version with the previously inserted RT.

The amount of bytes to be exchanged between the PLC Master and the weighing control unit depends on how many records we want to use in the management software of the machine.

Max. number of bytes for INPUT is 128 and for OUTPUT is 64

The PLC will sort the data in a consistent way and make them available to the user program

In the example below, configuration regards:

128 byte of INPUT starting from PEW300

64 byte of OUTPUT starting from PAW300

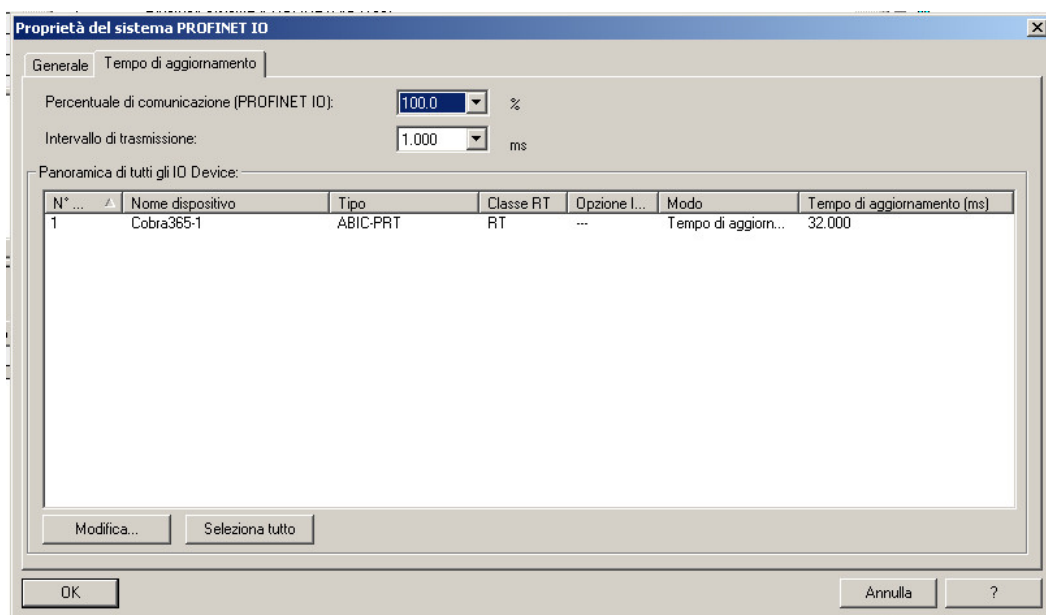
(1) Cobra365-1						
Posto connettore	Unità	Numero di ordina...	Indirizzo E	Indirizzo A	Indir...	Commento
0	Cobra365-1	ARIC-FRT			2048	
1	Input 128 bytes		300...427			
2	Output 064 bytes			300...363		

The moment you insert a device on the PROFINET network, the Simatic Manager automatically assigns to each of them an **update time** of 4ms. In the case of the 365 Cobra update time must be set to at least 32ms (this value is also dependent on the extent and the articulation of the PROFINET network in which the Cobra 365 are inserted).

To change the update time of each Cobra 365, access the properties of the PROFINET network (as shown below), *Section Update time*.

Select the device Cobra 365 that you want to change the values and:

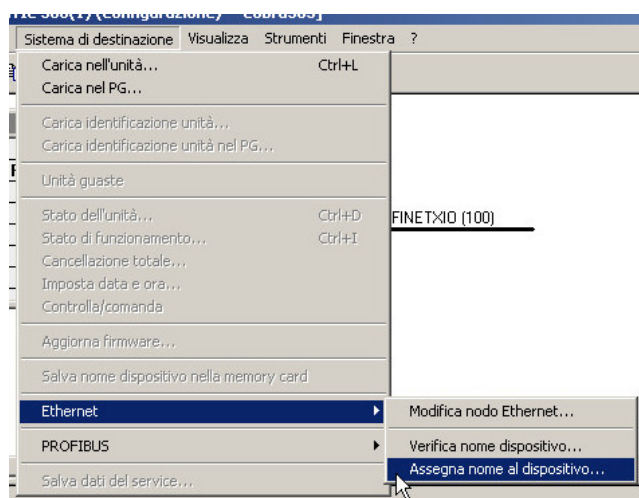
- In the **Mode** column, change from *Automatic* to *update time*
- In the column **Update Time (ms)**, change the default value (4ms) in 32ms. As mentioned earlier, this value may also depend on the same network, then you may need to increase it further.



At this point, the hardware configuration(s) of devices is complete and can be loaded into the PLC.

Once physically made the PROFINET network with various devices, you should proceed to the configuration of the same equipment, ie it must be given the identifying name as per hardware configuration.

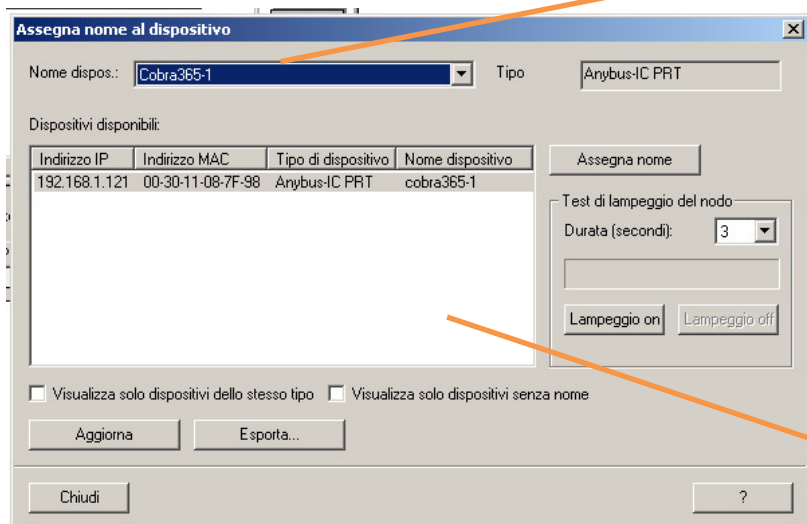
To assign the identifier name, proceed as follows:



Enter the menu:

- Tools destination
- Ethernet
- Assign name identifier

This will open a window similar to the following figure.



List of configured devices

List of detected devices

If you have never configured an instrument, in the **Device Name** column of the window of the *available devices* there is no name.

At this point it is sufficient to select the device you want to configure from the list of devices configured, select a name, then click "**Assign name**".

PROFIBUS + PROFINET

Configuration data exchange area PLC <-> COBRA 365

Normally, data is exchanged via two predefined areas already present in the instrument requiring no configuration :

- INPUT DATA AREA (128 bytes- 64 Registers) Area LAW master PLC data unit
- OUTPUT DATA AREA (64 bites -32 Registers) Area WRITES master PLC data unit

Both areas are divided into groups (called PAGES) of registers.

INPUT DATA AREA consists of 2 pages, while the OUTPUT DATA AREA consists of 8 pages .

For the sizes of pages , refer to the appropriate chapter .

Note: You can also configure the instrument which and how many records you want to read and write from the master using a specific application (see " Mapping Custom I / O areas ").

> SEE END USER FOR THE COMPLETE LIST INPUT / OUTPUT DATA AREA <

Custom mapping areas of input / output

It's possible to configure the I / O areas of fieldbus PROFIBUS DP and PROFINET IO , so to have an ordered list of parameters according to the specific needs of the system.

This configuration is done using a special utility PCWIN75 connected to the RS232 port COM2 of the instrument (selectable communication parameters) .

The configurator PCWIN75 has easy to use graphical interface through which compose the areas of I / O : each register can be associate a parameter chosen by a special pop-up menu .

It is possible to customize up to 2 pages of INPUT and OUTPUT 1 page .

The application can be downloaded in ns . website.

PROGRAMMING AREAS I / O (PC -> Touchscreen)

From LOAD PROFIBUS IO accessible from the Setup Menu when turned on, the touch screen prepares the configuration to be received .

Proceed with sending data by pressing the SEND button on the form of the configurator .

READING AREAS I / O (PC <- Touchscreen)

Set your PC to receive data by pressing the button on the form GET configurator .

Through the SAVE function PROFIBUS IO accessible from the Setup Menu when turned on, the touch screen proceed with sending the configuration currently stored in memory .

RESTORE THE AREAS OF I / O TO DEFAULT VALUES

Through the password 1012 in FACTORY SETUP, accessible from the Setup Menu on power , is possible to restore areas of INPUT to the default values reported in the following pages . This operation also causes the cancellation of the customized OUTPUT settings.

COMPATIBILITY ' WITH PREVIOUS VERSIONS SW

We ensure full compatibility with older software .

- Area of INPUT : thanks to the function that forces the configuration to default values
- Area OUTPUT: compatibility is always guaranteed because the meaning of the registers

area always depends on the value of the command register .

DETAILS MAPPING

- Area of INPUT : The first register of the Input always identifies the page number , the next 63 registers are customizable. And ' possible but not mandatory to define up to two virtual pages customized .
- Area OUTPUT: The first register of the Output is always the Command Register.


Maintains the logic according to which the value of the Command Register identifies the significance of the next 63 registers available . It set a new command "activation area of personalized Output " (**7FFFh**) : as long as the Command Register contains this command, the following registers are 63 direct-access and correspond to the parameters set by the user . You can define a custom single page of output .


Example of an customized Input page:


PWIN75 Rev.0.0


File Impostazioni ?


COBRA 365 PWTS04 Rev.2.00 INPUT AREA 1


Cancella
selezioni


Apri


Salva


Invia


Ricevi

Registro	Indirizzo e Descrizione	Registro	Indirizzo e Descrizione
1	Input page number = 1	33	
2	13 - Total Batch	34	
3	15 - 2nd Analog Out	35	
4	17 - Analog Input	36	
5	15 - 2nd Analog Out	37	
6	153 - Load Cells Cap. (High)	38	
7		39	
8		40	
9		41	
10		42	
11		43	
12		44	
13		45	
14		46	
15		47	
16		48	
17		49	
18		50	
19		51	
20		52	
21		53	
22		54	
23		55	
24		56	
25		57	
26		58	
27		59	
28		60	
29		61	
30		62	
31		63	
32		64	

Reading registers on COBRA 365 instrument

The division of records into groups makes it impossible to read only one at a time.

The instrument passes the network master the values of the registers of the active PAGE respecting their order within the PAGE itself. So (for example) can not be read only register the " set point " , but it is necessary to provide the receipt for all the logs in the PAGE and above the value that we want to receive . Below, and an example that should help you better understand the mechanism of reading data from the COBRA 365:

If you read the log 3016 " Set Point" , from the PLC side you must configure at least 7 words read . This is because the communication converter transmits to PLC registers PAGE INPUT DATA AREA, ALWAYS starting from the first register pre- configured in the same PAGE (then log 6001 "Input page number").

Then (assuming you have configured the periphery of the Master PLC with address from PEW256) data exchange will be as follows :

COBRA 365 INPUT DATA AREA [01]		PLC Master PROFIBUS-DP
6001 - Input page number	----->	PEW 256
3011 - Floware	----->	PEW 258
3012 - Total H	----->	PEW 260
3013 - Total L	----->	PEW 262
3014 - Grand Total H	----->	PEW 264
3015 - Grand Total L	----->	PEW 266
3016 - Set point	----->	PEW 268

This is the only procedure to read any registry tool COBRA 365 makes available through the PROFIBUS-DP network.

To read the records of a page in the INPUT DATA AREA not active, write the page number to be activated in the register 5001 "Command Register" of the OUTPUT DATA AREA (the procedure is explained in the next chapter).

Tabella COMMAND REGISTER	
Valore	Comando
01	<i>Selezione INPUT DATA AREA pag. 1</i>
02	<i>Selezione INPUT DATA AREA pag. 2</i>

Writing records from the control unit 365 COBRA

The write registers can be performed in two ways:

1. Write ONE register to fly
2. Write a PAGE ALL logs at the same time

Each page of the OUTPUT DATA AREA starts with 3 registers that are used to make the scriptures on the instrument:

OUTPUT DATA AREAS

OUTPUT DATA AREA [01]		
5001	Command Register	0-1
-	Reg. generico per program. parametri H	2-3
-	Reg. generico per program. parametri L	4-5

To stop any active write, set "Command Register" to 0.

Change the contents of a register

To edit the contents of a register is necessary to write the new value in the registers "Register for generic programming Parameters" and the address of the register in the "Command Register".

If, for example, I wanted to write the number 100 in register 4013 "Manual Out," and I had configured the periphery of the Master PLC with address from starting PAW256, the PLC should make the following entries:

COBRA 365		PLC Master PROFIBUS-DP
5001 – Command Register	<-----	PAW 256 = 4013
General registry for parameters programming H	<-----	PAW 258 = 0
General registry for parameters programming L	<-----	PAW 260 = 100

Caution: in order to avoid the continuous updating of the parameters, most of which are written in E2PROM, is present a control.

To make 2 consecutive writes of the same parameter must first write 0 in the command register. Example: after writing 100 in the register 4013 "Manual Out (see example above), I want to change the parameter and write 50.

To do this, the PLC must make the following entries:

COBRA 365		PLC Master PROFIBUS-DP
5001 – Command Register	<-----	PAW 256 = 0
General registry for parameters programming H	<-----	PAW 258 = 0
General registry for parameters programming L	<-----	PAW 260 = 50
5001 – Command Register	<-----	PAW 256 = 4013

Edit the contents of an entire PAGE

To edit the contents of all registers of a page in the need to write the new value in bytes of the periphery corresponding to the location of the logs in the PAGE, and the necessary command in the "Command Register".

Below is an example of writing PAGE 1:

COBRA 365 OUTPUT DATA AREA [01]		PLC Master PROFIBUS-DP
5001 – Command Register	<-----	PAW 256 = 4010
General registry for parameters programming H	<-----	PAW 258
General registry for parameters programming L	<-----	PAW 260
Test Register	<-----	PAW 262
Num. Set	<-----	PAW 264
Auto / Man	<-----	PAW 266
Manual Out	<-----	PAW 268
Var. Setpoint	<-----	PAW 270
Peso specifico	<-----	PAW 272
Modulo IO ext. 1 INPUT	<-----	PAW 274
Modulo IO ext. 1 OUTPUT	<-----	PAW 276
Modulo IO ext. 2 INPUT	<-----	PAW 278
Modulo IO ext. 2 OUTPUT	<-----	PAW 280

The command written in 4010 "Command Register" in the example above is used to write PAGE 1 of OUTPUT DATA AREA. To write the other pages available were prepared special commands, all the commands of writing whole pages are listed in the following table:

Table COMMAND REGISTER	
Value	Command
4010	<i>Programmazione intera OUTPUT DATA AREA pag. 1</i>
2040	<i>Programmazione intera OUTPUT DATA AREA pag. 2</i>
2000	<i>Programmazione intera OUTPUT DATA AREA pag. 3</i>
1000	<i>Programmazione intera OUTPUT DATA AREA pag. 4</i>
1040	<i>Programmazione intera OUTPUT DATA AREA pag. 5</i>
150	<i>Programmazione intera OUTPUT DATA AREA pag. 6</i>
10	<i>Programmazione intera OUTPUT DATA AREA pag. 7</i>
5000	<i>Programmazione intera OUTPUT DATA AREA pag. 8</i>

WARNING: using the write command of all registers of a HOME page will be overwritten! Pay particular attention to the use of this feature to avoid unnecessary change records!

Special commands

For certain operations on the instrument using the PROFIBUS-DP network, you must use special commands.

Basically you have to write the code for the command in the two general-purpose registers and the register address to operate on the command in the "Command Register".

In this case the register where it has to work is the "Command Register" same, then the inside must be written to the value 5001.

The special commands are available:

Reset total – command code 1

COBRA 365 OUTPUT DATA AREA [01]		PLC Master PROFIBUS-DP
5001 – Command Register	<-----	PAW 256 = 5001
General registry for parameters programming H	<-----	PAW 258 = 0
General registry for parameters programming L	<-----	PAW 260 = 1

Reset belt – command code 2

COBRA 365 OUTPUT DATA AREA [01]		PLC Master PROFIBUS-DP
5001 – Command Register	<-----	PAW 256 = 5001
General registry for parameters programming H	<-----	PAW 258 = 0
General registry for parameters programming L	<-----	PAW 260 = 2

Save data – command code 3

COBRA 365 OUTPUT DATA AREA [01]		PLC Master PROFIBUS-DP
5001 – Command Register	<-----	PAW 256 = 5001
General registry for parameters programming H	<-----	PAW 258 = 0
General registry for parameters programming L	<-----	PAW 260 = 3

Activate custom output area – command code 7FFFh

COBRA 365 OUTPUT DATA AREA [01]		PLC Master PROFIBUS-DP
5001 – Command Register	<-----	PAW 256 = 5001
General registry for parameters programming H	<-----	PAW 258 = 0
General registry for parameters programming L	<-----	PAW 260 = 7FFFh

Command instrument's RUN

To give the RUN command to the instrument via PROFIBUS-DP network must be set to ON bit 0 of register 5002 .

As for the special commands you have to write the required value in the two general-purpose registers and the register address to operate on the command in the "Command Register" .

The RUN command to the instrument may be given in two ways:

1. closing the input " In1 " of the control unit 365 through COBRA electromechanical circuit
2. passing the command via the network

Since the two situations listed above must act on a single control unit , you must specify the controller which of the two systems has priority over the other. To do this it must be used bit 15 of register 5002 .

In practice putting to ON bit 15 of register 5002 the COBRA unit 365 assigns the priority of the command to the PROFIBUS-DP network . Otherwise , priority is assigned to the input controlled via electro .

So to give the RUN command to the instrument via the PROFIBUS- DP is to write the hex value 8001 in register 5002 :

COBRA 365 OUTPUT DATA AREA [01]		PLC Master PROFIBUS-DP
5001 – Command Register	<-----	PAW 256 = 5002
General registry for parameters programming H	<-----	PAW 258 = 0
General registry for parameters programming L	<-----	PAW 260 = 8001 HEX

To remove the RUN mode the instrument will be necessary to lower the bit 0 of register 5002 writing inside the hexadecimal value 8000:

COBRA 365 OUTPUT DATA AREA [01]		PLC Master PROFIBUS-DP
5001 – Command Register	<-----	PAW 256 = 5002
General registry for parameters programming H	<-----	PAW 258 = 0
General registry for parameters programming L	<-----	PAW 260 = 8000 HEX

The moment you want to return the priority of the command all'ingressi In1 we will put the controller in the OFF bit 15 of register 5002 writing inside the Hex value 0000:

COBRA 365 OUTPUT DATA AREA [01]		PLC Master PROFIBUS-DP
5001 – Command Register	<-----	PAW 256 = 5002
General registry for parameters programming H	<-----	PAW 258 = 0
General registry for parameters programming L	<-----	PAW 260 = 0000 HEX

Diagnostics PLC Communication Master - 365 COBRA unit

The control unit 365 COBRA is seen by the Master PLC network as a normal PROFIBUS node .

For this reason it is possible to perform network diagnostics via the FCs and FBs special available from Siemens .

This system makes diagnosing network transparent to the user program of the PLC , and does not require a long time to be implemented in the program .

Another way to make the diagnosis of communication is to exploit the logs " Test Register" .

In practice it is possible to write a known value in the register of the INPUT DATA AREA and the instrument shall copy the number set in the "Test Register" of the OUTPUT DATA AREA . In this way we can be sure that the instrument has received the data and that , therefore, the communication is working.

In the case in which the communication PROFIBUS fall the value "Test Register" of the OUTPUT DATA AREA is not modified by generating a false positive in the test network . So you need to change the number in the register of the INPUT DATA AREA (hence expecting to find the corresponding number in the register of the OUTPUT DATA AREA) , only in this way can we be sure that the network is really active .

Fieldbus Alarm

In the case of parameter 0114 on (Fieldbus Alarm) , alarm 8 (connection to PROFIBUS / PROFINET) is also activated in the event of a communication timeout from the master . In this case, the parameter 7001 (Test Register) should be updated by the master PROFIBUS / PROFINET with a different value at a frequency above 0.5Hz , if the value of parameter 7001 remains unchanged for more than 2 seconds , the tool reports the error network connection PROFIBUS / PROFINET .

In case of alarm PROFIBUS / PROFINET (code 6-7-8) and only in the case of parameter 0114 on (Fieldbus Alarm) , the tool performs the following actions:

- The running of the tape is stopped ;
- The outputs of the modules 1-2-3-4 external I / O are disabled.

Depending on the selection of parameter 1030 (ALARM ALWAYS ON) , we can have 2 modes of the same .

- If 1030 = NO (0) : The alarm is activated only when the instrument is in RUN:
- If YES = 1030 (1) : The alarm is always active.

MANAGEMENT OF ERRORS

[Err . PROFIBUS] Error failure to communicate with Modbus module S125 : chased to 5 consecutive timeouts communication . It runs automatically attempt to restore the communication, even if it fails, the error is displayed and you can groped to manually reset by pressing the RESET button.

[NoCom . PROFIBUS] Error PROFIBUS network off-line , for example in case of failure to connect the module to the S125 Profibus network . This error is acknowledged automatically reset to the normal connection.

[CRC PROFIBUS] CRC error in the ModBus communication .

The timeout on the response in the module is set at 100mS .

NOTE RECORDS

In some parameters selectable options are shown in parentheses , followed by the description.

5001 Command Reg : program registers the value corresponding to the command you want to execute :

7FFFh = enable custom output area

1 = resets the total;

2 = reset belt ;

3 = save data.

After programming the parameters , send the command 3 (save data) in order to enter into memory the changes made

The only parameters are automatically saved in the 0143, 4011, 4012 , 4013 and 4015 .

5002 RUN Command Reg : program registers the value corresponding to the command you want to execute .
The meaning of the programmable values is the following:

Bit 15 indicates the priorities of the command to the Protocol with respect to the logic 01 march (1 = start - controlled protocol , 0 = gear driven by logic input) ;

Bit 0 indicates the status of command (1 = start , 0 = off).

Eg by programming the value 0x8001, the instrument goes in RUN (bit 0 = 1) and ignores the state of the logic input (Bit15 = 1).

3018 - state inputs :

bit15-6	bit5	bit4	bit3	bit2	bit1	bit0	
—		in6	in5	in4	in3	in2	in1 (0 = open, 1 = close)

3019 - state outputs:

— bit15-6 bit5 bit4 bit3 bit2 bit1 bit0
 out6 out5 out4 out3 out2 out1 (0 = non active, 1 = active)

3030/3031 : based on the value of the registers 3030 and 3031 you may identify units of measure and no. decimal data flow and total. For coding, use the following table :

Register value	1	2	3	4	5	6
Decimal no.	1	2	3	1	2	3
Measure Unit	kg - kg/h	kg - kg/h	kg - kg/h	T - T/h	T - T/h	T - T/h

PROTOCOLLO PROFIBUS DP e PROFINET IO (COBRA)

INPUT DATA AREAS

INPUT DATA AREA [01] - Factory settings		
<u>Rif. indirizzo</u>	<u>Variabili</u>	<u>Mappatura bytes</u>
6001	Input page number	0-1
3011	Flowrate	2-3
3012	Total H	4-5
3013	Total L	6-7
3014	Grand Total H	8-9
3015	Grand Total L	10-11
3016	Setpoint	12-13
3017	Alarm C0de	14-15
3018	Input	16-17
3019	Output	18-19
3020	Speed H	20-21
3021	Speed L	22-23
3022	Current Weight H	24-25
3023	Current Weight L	26-27
3024	Analog Out 1	28-29
3025	Analog Out 2	30-31
3026	Analog Input	32-33
3027	Test Status	34-35
3028	Run Status	36-37
3029	Decimali Portata	38-39
3030	Decimali Totale	40-41
3031	Decimali peso	42-43
4011	Num. Set	44-45
4012	Auto / Man	46-47
4013	Manual Out	48-49
4014	Var. Setpoint	50-51
2041	Setpoint 1	52-53
2042	Manual Out Set 1	54-55
2043	Setpoint 2	56-57
2045	Setpoint 3	58-59
2047	Setpoint 4	60-61
2049	Setpoint 5	62-63

PROTOCOLLO PROFIBUS DP e PROFINET IO (COBRA)

(...segue) INPUT DATA AREA [01] - Factory settings

<u>Rif. indirizzo</u>	<u>Variabili</u>	<u>Mappatura bytes</u>
2051	Setpoint 6	64-65
2053	Setpoint 7	66-67
2055	Setpoint 8	68-69
2057	Setpoint 9	70-71
2059	Setpoint 10	72-73
2061	Setpoint 11	74-75
2063	Setpoint 12	76-77
2065	Setpoint 13	78-79
2067	Setpoint 14	80-81
2069	Setpoint 15	82-83
2001	Total Set H	84-85
2002	Total Set L	86-87
2003	Total Preset H	88-89
2004	Total Preset L	90-91
2005	Total Flying H	92-93
2006	Total Flying L	94-95
1001	Sampling Time	96-97
1002	Proportional Constant	98-99
1003	Cost. Integrale	100-101
1004	Dead Band	102-103
1005	Flowrate Limit	104-105
1006	Dead Band %	106-107
1007	Flowrate Limit %	108-109
1041	Stop Delay	110-111
1042	Timeout Peso	112-113
1043	Ritardo Regolazione	114-115
1044	Flow Limit Delay	116-117
1045	Limit Init Delay	118-119
1063	Min. Weight	120-121
5002	Run Command Reg	122-123
7001	Test Register	124-125

PROTOCOLLO PROFIBUS DP e PROFINET IO (COBRA)

INPUT DATA AREA [02] - Factory settings		
<u>Rif. indirizzo</u>	<u>Variabili</u>	<u>Mappatura bytes</u>
6001	Input page number	0-1
11	Operat. Function	2-3
131	Modo Operativo	4-5
132	Tempo Giro	6-7
133	Lunghezza Giro	8-9
134	Tara	10-11
135	Max Tara Remota	12-13
141	Fattore K	14-15
143	Fattore KK	16-17
151	Max Flowrate H	18-19
152	Max Flowrate L	20-21
163	Dead Band Unit	22-23
164	Tolerance Unit	24-25
181	Reale portata Max. H	26-27
182	Reale portata Max. L	28-29
7001	Test Register	30-31
3032	Peso / metro H	32-33
3033	Peso / metro L	34-35
3034	Densità	36-37
3035	Sistema pronto	38-39
4015	Peso Specifico	40-41
4016	Modulo IO ext. 1 Input	42-43
4017	Modulo IO ext. 1 output	44-45
4018	Modulo IO ext. 2 Input	46-47
4019	Modulo IO ext. 2 output	48-49

PROTOCOLLO PROFIBUS DP e PROFINET IO (COBRA)

OUTPUT DATA AREAS

OUTPUT DATA AREA [01]

<u>Rif. indirizzo</u>	<u>Variabili</u>	<u>Mappatura bytes</u>
5001	Command Register	0-1
-	Registro generico per programmazione parametri H	2-3
-	Registro generico per programmazione parametri L	4-5
7001	Test Register	6-7
4011	Num. Set	8-9
4012	Auto / Man	10-11
4013	Manual Out	12-13
4014	Var. Setpoint	14-15
4015	Peso Specifico	16-17
4016	Modulo IO ext. 1 Input	18-19
4017	Modulo IO ext. 1 output	20-21
4018	Modulo IO ext. 2 Input	22-23
4019	Modulo IO ext. 2 output	24-25

OUTPUT DATA AREA [02]

<u>Rif. indirizzo</u>	<u>Variabili</u>	<u>Mappatura bytes</u>
5001	Command Register	0-1
-	Registro generico per programmazione parametri H	2-3
-	Registro generico per programmazione parametri L	4-5
7001	Test Register	6-7
2041	Setpoint 1	8-9
2042	Manual Out Set 1	10-11
2043	Setpoint 2	12-13
2045	Setpoint 3	14-15
2047	Setpoint 4	16-17
2049	Setpoint 5	18-19
2051	Setpoint 6	20-21
2053	Setpoint 7	22-23
2055	Setpoint 8	24-25
2057	Setpoint 9	26-27
2059	Setpoint 10	28-29
2061	Setpoint 11	30-31
2063	Setpoint 12	32-33
2065	Setpoint 13	34-35
2067	Setpoint 14	36-37
2069	<u>Setpoint 15</u>	<u>38-39</u>

PROTOCOLLO PROFIBUS DP e PROFINET IO (COBRA)**OUTPUT DATA AREA [03]**

<u>Rif. indirizzo</u>	<u>Variabili</u>	<u>Mappatura bytes</u>
5001	Command Register	0-1
-	Registro generico per programmazione parametri H	2-3
-	Registro generico per programmazione parametri L	4-5
7001	Test Register	6-7
2001	Total Set H	8-9
2002	Total Set L	10-11
2003	Total Preset H	12-13
2004	Total Preset L	14-15
2005	Total Flying H	16-17
2006	Total Flying L	18-19

OUTPUT DATA AREA [04]

<u>Rif. indirizzo</u>	<u>Variabili</u>	<u>Mappatura bytes</u>
5001	Command Register	0-1
-	Registro generico per programmazione parametri H	2-3
-	Registro generico per programmazione parametri L	4-5
7001	Test Register	6-7
1001	Sampling Time	8-9
1002	Proportional Constant	10-11
1003	Cost. Integrare	12-13
1004	Dead Band	14-15
1005	Flowrate Limit	16-17
1006	Dead Band %	18-19
1007	Flowrate Limit %	20-21

OUTPUT DATA AREA [05]

<u>Rif. indirizzo</u>	<u>Variabili</u>	<u>Mappatura bytes</u>
5001	Command Register	0-1
-	Registro generico per programmazione parametri H	2-3
-	Registro generico per programmazione parametri L	4-5
7001	Test Register	6-7
1041	Stop Delay	8-9
1042	Timeout Peso	10-11
1043	Ritardo Regolazione	12-13
1044	Flow Limit Delay	14-15
1045	Limit Init Delay	16-17
1063	Min. Weight	18-19

PROTOCOLLO PROFIBUS DP e PROFINET IO (COBRA)

OUTPUT DATA AREA [06]

<u>Rif. indirizzo</u>	<u>Variabili</u>	<u>Mappatura bytes</u>
5001	Command Register	0-1
-	Registro generico per programmazione parametri H	2-3
-	Registro generico per programmazione parametri L	4-5
7001	Test Register	6-7
151	Max Flowrate H	8-9
152	Max Flowrate L	10-11
163	Dead Band Unit	12-13
164	Tolerance Unit	14-15
181	Reale portata Max H	16-17
181	Reale portata Max L	18-19

OUTPUT DATA AREA [07]

<u>Rif. indirizzo</u>	<u>Variabili</u>	<u>Mappatura bytes</u>
5001	Command Register	0-1
-	Registro generico per programmazione parametri H	2-3
-	Registro generico per programmazione parametri L	4-5
7001	Test Register	6-7
11	Operat. Function	8-9
131	Modo Operativo	10-11
132	Tempo Giro	12-13
133	Lunghezza Giro	14-15
134	Tara	16-17
135	Max Tara Remota	18-19
141	Fattore K	20-21
143	Fattore KK	22-23

OUTPUT DATA AREA [08]

<u>Rif. indirizzo</u>	<u>Variabili</u>	<u>Mappatura bytes</u>
5001	Command Register	0-1
-	Registro generico per programmazione parametri H	2-3
-	Registro generico per programmazione parametri L	4-5
7001	Test Register	6-7
5002	Run Command Reg	8-9

PROTOCOLLO PROFIBUS DP o PROFINET IO (TAIPAN)

INPUT DATA AREAS

INPUT DATA AREA [01] - Factory settings		
<u>Rif. indirizzo</u>	<u>Variabili</u>	<u>Mappatura bytes</u>
6001	Input page number	0-1
3011	Flowrate	2-3
3012	Total H	4-5
3013	Total L	6-7
3014	Grand Total H	8-9
3015	Grand Total L	10-11
3016	Setpoint	12-13
3017	Alarm C0de	14-15
3018	Input	16-17
3019	Output	18-19
3020	Effective Max FLOW	20-21
3021	Dosed	22-23
3022	Current Weight H	24-25
3023	Current Weight L	26-27
3024	Analog Out 1	28-29
3025	Analog Out 2	30-31
3026	Analog Input	32-33
3027	Test Status	34-35
3028	Run Status	36-37
3029	Decimali Portata	38-39
3030	Decimali Totale	40-41
3031	Decimali peso	42-43
4011	Num. Set	44-45
4012	Auto / Man	46-47
4013	Manual Out	48-49
2041	Setpoint 1	50-51
2042	Manual Out Set 1	52-53
2043	Setpoint 2	54-55
2045	Setpoint 3	56-57
2047	Setpoint 4	58-59
2049	Setpoint 5	60-61
2051	Setpoint 6	62-63

PROTOCOLLO PROFIBUS DP o PROFINET IO (TAIPAN)

(...segue) INPUT DATA AREA [01] - Factory settings

<u>Rif. indirizzo</u>	<u>Variabili</u>	<u>Mappatura bytes</u>
2053	Setpoint 7	64-65
2055	Setpoint 8	66-67
2057	Setpoint 9	68-69
2059	Setpoint 10	70-71
2061	Setpoint 11	72-73
2063	Setpoint 12	74-75
2065	Setpoint 13	76-77
2067	Setpoint 14	78-79
2069	Setpoint 15	80-81
2001	Total Set H	82-83
2002	Total Set L	84-85
2003	Total Preset H	86-87
2004	Total Preset L	88-89
2005	Total Flying H	90-91
2006	Total Flying L	92-93
1001	Sampling Time	94-95
1002	Proportional Constant	96-97
1003	Flowrate Sensitivity	98-99
1004	Dead Band	100-101
1005	Flowrate Limit	102-103
1006	Dead Band %	104-105
1007	Flowrate Limit %	106-107
1041	Start Delay	108-109
1042	Stop Delay	110-111
1043	Loading Timeout	112-113
1044	Flow Limit Delay	114-115
1045	Limit Init Delay	116-117
5002	Run Command Reg	118-119
5003	Refilling Cmd Reg	120-121
7001	Test Register	122-123

PROTOCOLLO PROFIBUS DP o PROFINET IO (TAIPAN)

INPUT DATA AREA [02] - Factory settings		
<u>Rif. indirizzo</u>	<u>Variabili</u>	<u>Mappatura bytes</u>
6001	Input page number	0-1
11	Operat. Function	2-3
131	Flowrate @ 20%	4-5
132	Flowrate @ 30%	6-7
133	Flowrate @ 40%	8-9
134	Flowrate @ 50%	10-11
135	Flowrate @ 60%	12-13
136	Flowrate @ 70%	14-15
137	Flowrate @ 80%	16-17
151	Max Flowrate H	18-19
152	Max Flowrate L	20-21
155	Lower Level H	22-23
156	Lower Level L	24-25
157	Upper Level H	26-27
158	Upper Level L	28-29
160	Tare Weight	30-31
163	Dead Band Unit	32-33
164	Tolerance Unit	34-35
1063	Minimum Flowrate	36-37
1064	Min Analog Out	38-39
7001	Test Register	40-41
3032	Sistema pronto	42-43
4014	Modulo IO ext. 1 Input	44-45
4015	Modulo IO ext. 1 output	46-47
4016	Modulo IO ext. 2 Input	48-49
4017	Modulo IO ext. 2 output	50-51

PROTOCOLLO PROFIBUS DP o PROFINET IO (TAIPAN)

OUTPUT DATA AREAS

OUTPUT DATA AREA [01]		
<u>Rif. indirizzo</u>	<u>Variabili</u>	<u>Mappatura bytes</u>
5001	Command Register	0-1
-	Registro generico per programmazione parametri H	2-3
-	Registro generico per programmazione parametri L	4-5
7001	Test Register	6-7
4011	Num. Set	8-9
4012	Auto / Man	10-11
4013	Manual Out	12-13
4014	Modulo IO ext. 1 Input	14-15
4015	Modulo IO ext. 1 output	16-17
4016	Modulo IO ext. 2 Input	18-19
4017	Modulo IO ext. 2 output	20-21

OUTPUT DATA AREA [02]		
<u>Rif. indirizzo</u>	<u>Variabili</u>	<u>Mappatura bytes</u>
5001	Command Register	0-1
-	Registro generico per programmazione parametri H	2-3
-	Registro generico per programmazione parametri L	4-5
7001	Test Register	6-7
2041	Setpoint 1	8-9
2042	Manual Out Set 1	10-11
2043	Setpoint 2	12-13
2045	Setpoint 3	14-15
2047	Setpoint 4	16-17
2049	Setpoint 5	18-19
2051	Setpoint 6	20-21
2053	Setpoint 7	22-23
2055	Setpoint 8	24-25
2057	Setpoint 9	26-27
2059	Setpoint 10	28-29
2061	Setpoint 11	30-31
2063	Setpoint 12	32-33
2065	Setpoint 13	34-35
2067	Setpoint 14	36-37
2069	Setpoint 15	38-39

PROTOCOLLO PROFIBUS DP o PROFINET IO (TAIPAN)

OUTPUT DATA AREA [03]

<u>Rif. indirizzo</u>	<u>Variabili</u>	<u>Mappatura bytes</u>
5001	Command Register	0-1
-	Registro generico per programmazione parametri H	2-3
-	Registro generico per programmazione parametri L	4-5
7001	Test Register	6-7
2001	Total Set H	8-9
2002	Total Set L	10-11
2003	Total Preset H	12-13
2004	Total Preset L	14-15
2005	Total Flying H	16-17
2006	Total Flying L	18-19

OUTPUT DATA AREA [04]

<u>Rif. indirizzo</u>	<u>Variabili</u>	<u>Mappatura bytes</u>
5001	Command Register	0-1
-	Registro generico per programmazione parametri H	2-3
-	Registro generico per programmazione parametri L	4-5
7001	Test Register	6-7
1001	Sampling Time	8-9
1002	Proportional Constant	10-11
1003	Flowrate Sensitivity	12-13
1004	Dead Band	14-15
1005	Flowrate Limit	16-17
1006	Dead Band %	18-19
1007	Flowrate Limit %	20-21

OUTPUT DATA AREA [05]

<u>Rif. indirizzo</u>	<u>Variabili</u>	<u>Mappatura bytes</u>
5001	Command Register	0-1
-	Registro generico per programmazione parametri H	2-3
-	Registro generico per programmazione parametri L	4-5
7001	Test Register	6-7
1041	Start Delay	8-9
1042	Stop Delay	10-11
1043	Loading Timeout	12-13
1044	Flow Limit Delay	14-15
1045	Limit Init Delay	16-17

PROTOCOLLO PROFIBUS DP o PROFINET IO (TAIPAN)

OUTPUT DATA AREA [06]

<u>Rif. indirizzo</u>	<u>Variabili</u>	<u>Mappatura bytes</u>
5001	Command Register	0-1
-	Registro generico per programmazione parametri H	2-3
-	Registro generico per programmazione parametri L	4-5
7001	Test Register	6-7
11	Operat. Function	8-9
131	Flowrate @ 20%	10-11
132	Flowrate @ 30%	12-13
133	Flowrate @ 40%	14-15
134	Flowrate @ 50%	16-17
135	Flowrate @ 60%	18-19
136	Flowrate @ 70%	20-21
137	Flowrate @ 80%	22-23

OUTPUT DATA AREA [07]

<u>Rif. indirizzo</u>	<u>Variabili</u>	<u>Mappatura bytes</u>
5001	Command Register	0-1
-	Registro generico per programmazione parametri H	2-3
-	Registro generico per programmazione parametri L	4-5
7001	Test Register	6-7
151	Max Flowrate H	8-9
152	Max Flowrate L	10-11
155	Lower Level H	12-13
156	Lower Level L	14-15
157	Upper Level H	16-17
158	Upper Level L	18-19
160	Tare Weight	20-21
163	Dead Band Unit	22-23
164	Tolerance Unit	24-25

PROTOCOLLO PROFIBUS DP o PROFINET IO (TAIPAN)

OUTPUT DATA AREA [08]

<u>Rif. indirizzo</u>	<u>Variabili</u>	<u>Mappatura bytes</u>
5001	Command Register	0-1
-	Registro generico per programmazione parametri H	2-3
-	Registro generico per programmazione parametri L	4-5
7001	Test Register	6-7
1063	Minimum Flowrate	8-9
1064	Min Analog Out	10-11

OUTPUT DATA AREA [09]

<u>Rif. indirizzo</u>	<u>Variabili</u>	<u>Mappatura bytes</u>
5001	Command Register	0-1
-	Registro generico per programmazione parametri H	2-3
-	Registro generico per programmazione parametri L	4-5
7001	Test Register	6-7
5002	Run Command Reg	8-9
5003	Refilling Cmd Reg	10-11