



## Profinet TU-RS485-PNTxRVXxx for 14 Thyristor units

Rev. 05/2021

0006



### CD Automation S.r.l.

Via Picasso, 34/36 - 20025 Legnano (MI)- Italy

Tel. +39 0331 577479 - Fax +39 0331 579479

E-mail: [info@cdautomation.com](mailto:info@cdautomation.com) - Web: [www.cdautomation.com](http://www.cdautomation.com)





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# 1 General description

**Please Note:**

The configuration of the product that leaves the Company is in line with the Customer request in the Order Code. To change the number of instruments configured, or any other configuration, please contact CD Automation Technical Support.

## FIELD BUS Module Order Code



**Technical Specification**

- Up to n\*14 REVEX can be connected for each terminal module
- Secondary communication port to connect REVO HMI
- Main process variable available
- 24Vdc Power Supply
- Simplified configuration

<b>ORDER CODE</b>	<b>1</b>	<b>2</b>		<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>		<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>
	T	U	-	R	S	4	8	5	-	-	-	-	-	-	-	-	-	-

FIELD BUS OR COMMUNICATION	8	9	10	
description	code		note	
N° 1 Modbus TCP + N° 1 Modbus RTU slave	T	C	P	
N° 1 ProfiNet IO + N° 1 Modbus RTU slave	P	N	T	
N° 1 ProfiBus DP + N° 1 Modbus RTU slave	P	D	P	
N° 1 Ethernet IP + N° 1 Modbus RTU slave	E	I	P	

SECONDARY COMMUNICATION PORT	11	
description	code	note
None	0	
Modbus TCP	1	1

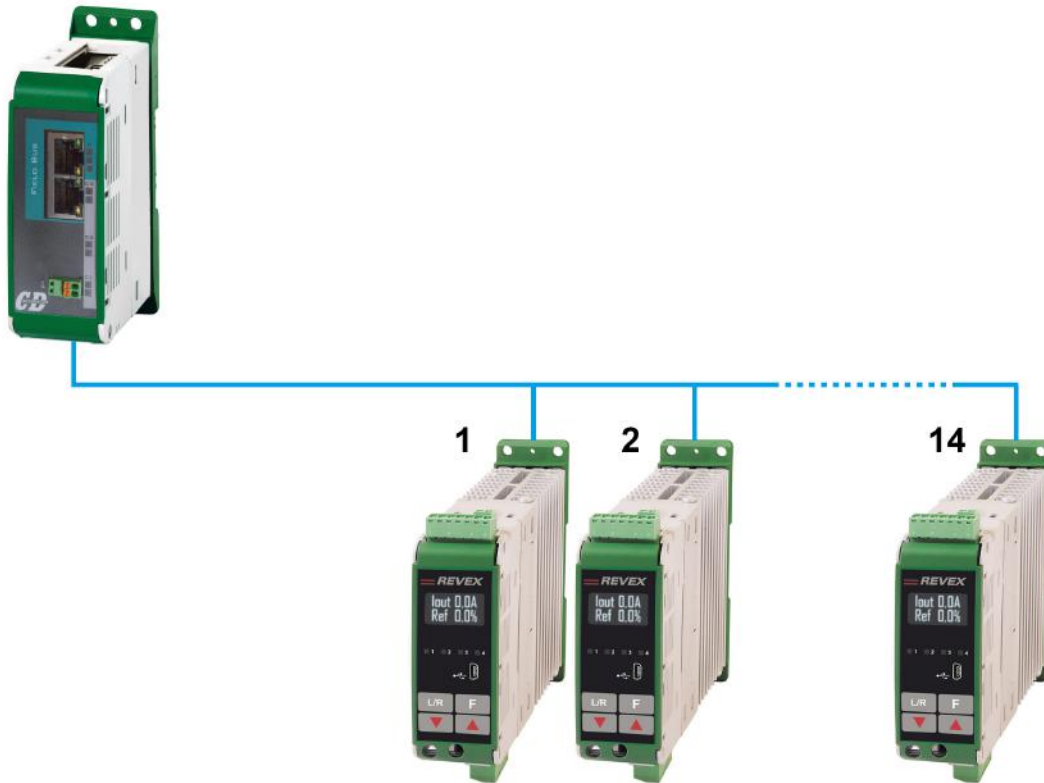
CONFIGURATION	12	13	14	
description	code			note
REVEX 1-2-3PH	R	V	X	

N° ZONES	15	16	
description	code		note
Not configured	0	0	2
1 zone	0	1	
2 zones	0	2	
3 zones	0	3	
4 zones	0	4	
5 zones	0	5	
6 zones	0	6	
7 zones	0	7	
8 zones	0	8	
9 zones	0	9	
10 zones	1	0	
11 zones	1	1	
12 zones	1	2	
13 zones	1	3	
14 zones	1	4	

Note (1): Not available with Modbus TCP Field Bus Communication (T-C-P on digit 8-9-10)

Note (2): It's possible to manage from 1 to 14 zones with basic read and write configuration (see the User Manual). If you need a different version please use the code "00".

### 1.1 System

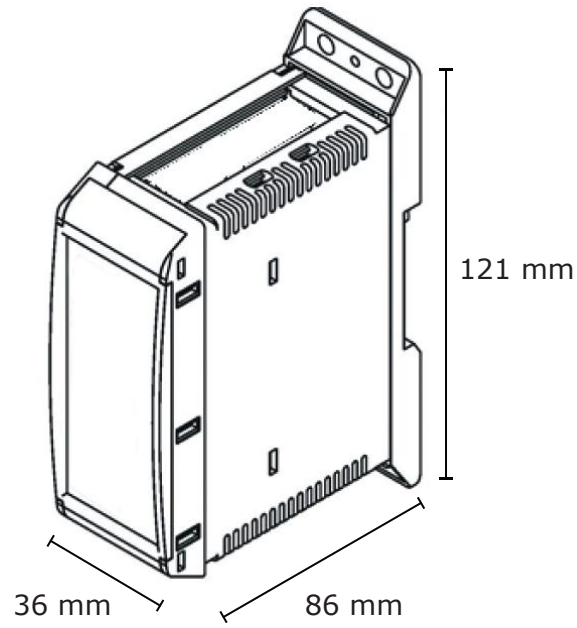


#### Communication settings

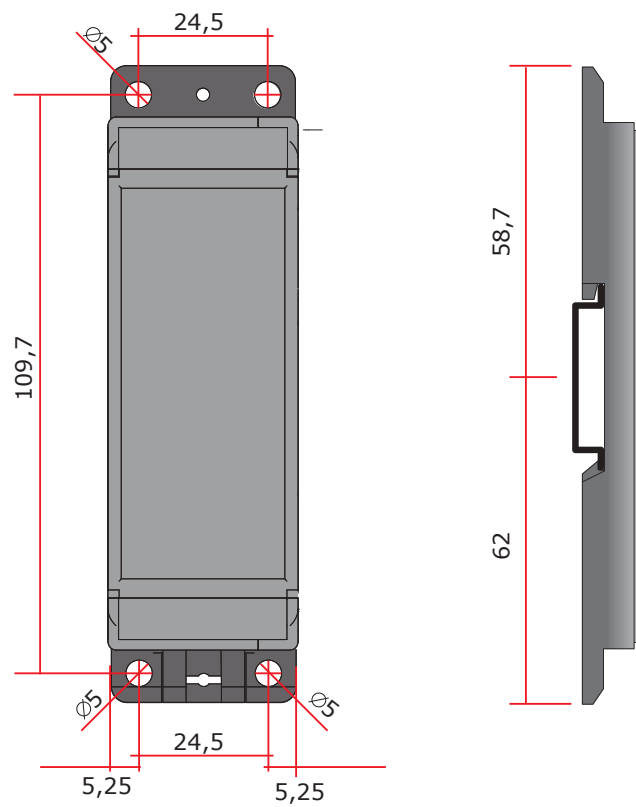
<b>TU-RS485-TCPoRVX14</b>
Modbus Master
Baud 115200
Bit data 8
Bit stop 1
Parity None

<b>REVEX</b>	<b>REVEX</b>	<b>...</b>	<b>REVEX</b>
Modbus Slave	Modbus Slave	...	Modbus Slave
Baud 115200	Baud 115200	...	Baud 115200
Bit data 8	Bit data 8	...	Bit data 8
Bit stop 1	Bit stop 1	...	Bit stop 1
Parity None	Parity None	...	Parity None
<b>Address 1</b>	<b>Address 2</b>	<b>...</b>	<b>Address 14</b>

### 1.2 Dimension

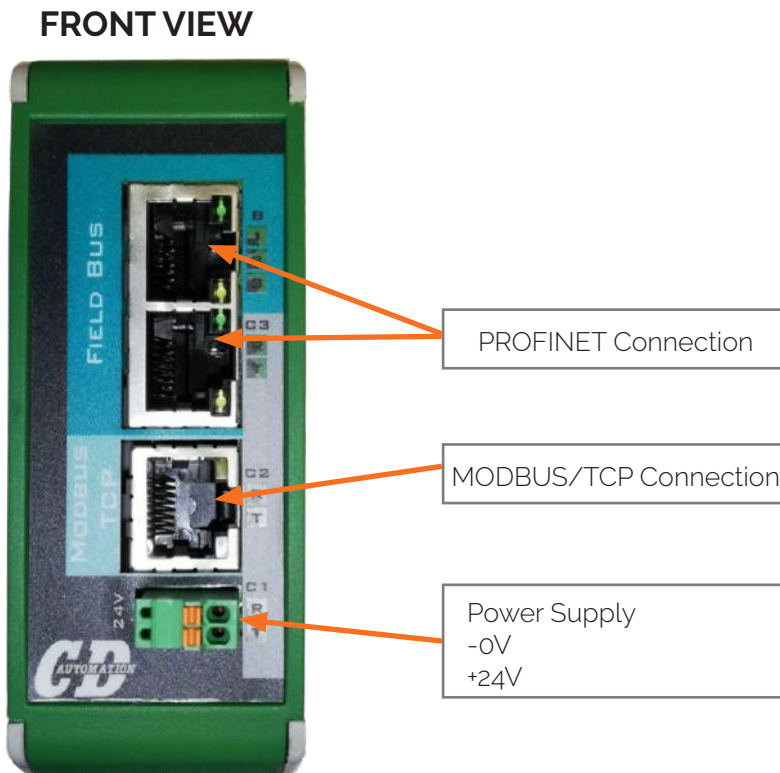
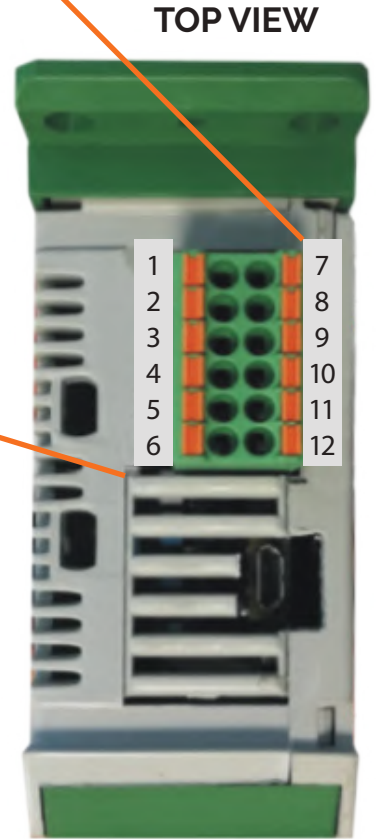


### 1.3 Fixing Holes



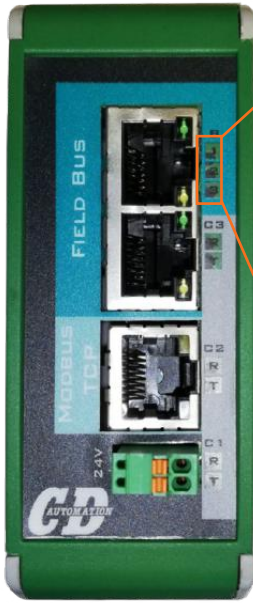
1.4 Connection

1	Slave 2 RS485 Tx/Rx-	7	Slave 2 RS485 Tx/Rx+
2	Slave 1 RS485 Tx/Rx-	8	Slave 1 RS485 Tx/Rx+
3	Master RS485 Tx/Rx-	9	Master RS485 Tx/Rx+
4	Not used	10	Not used
5	Not used	11	Not used
6	0V	12	+24Vdc / 250mA



Power supply can be connected from top connector or front connector

### 1.5 Led status



LED 1 colour		Meaning
	Orange Flashing	Led for find unit in Tia Portal
	Power off	Normal condition

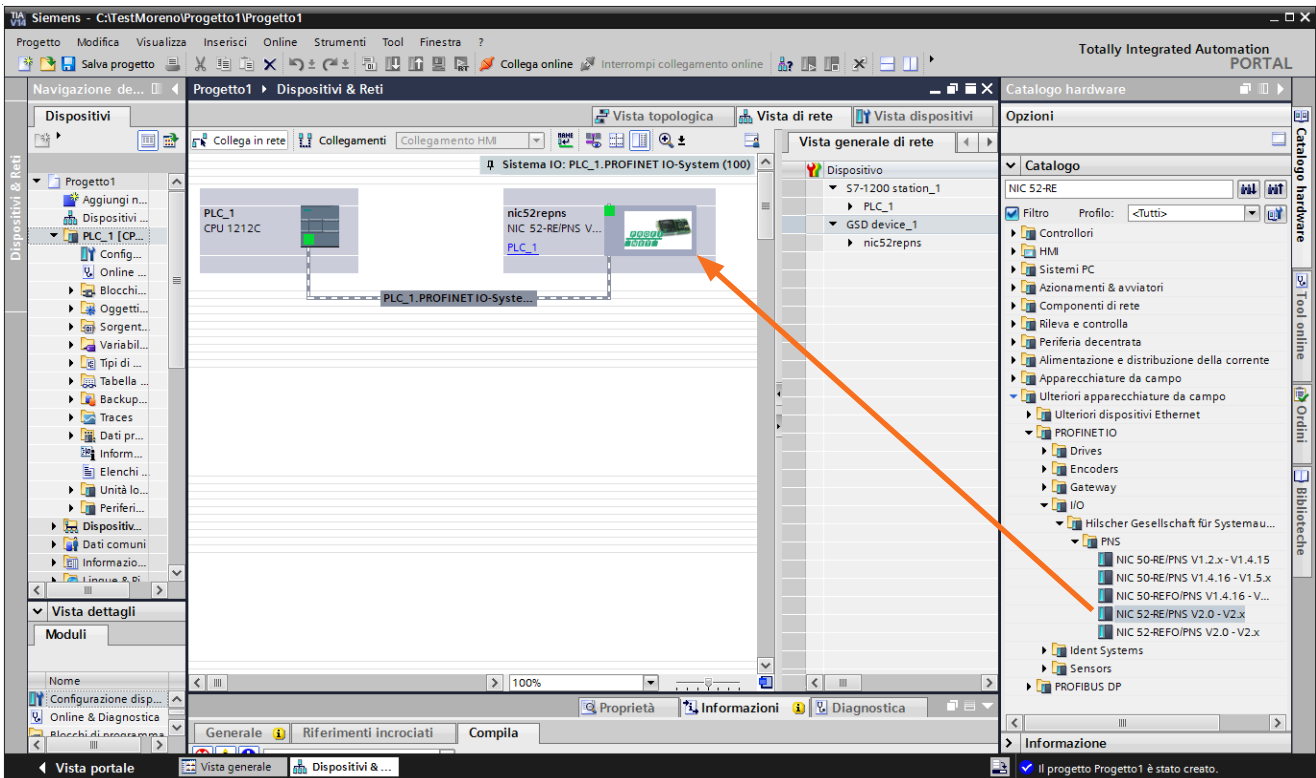
LED 2 colour		Meaning
	Power off	Always off

LED 3 colour		Meaning
	Red Fix	Not network connection
	Red Flashing	Wait master connection
	Power off	Connect with master

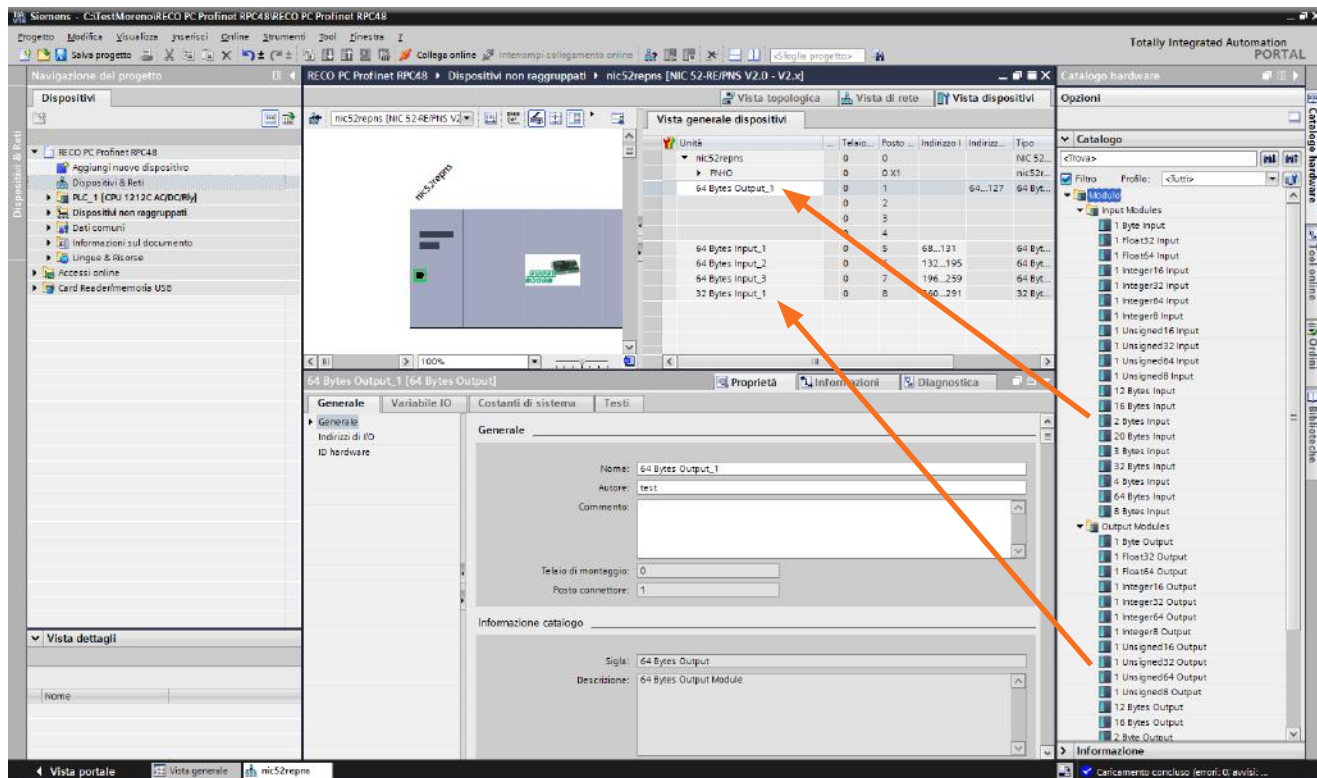
### 1.6 Profinet communication

With PROFINET connection it's possible to read value in cyclic mode.  
 To do this it is necessary to use the GSDML plc configuration file which describes the product and install it in the PLC configuration software environment.  
 If GSD file is not installed, please install it  
 When installed or after installation there will be (NIC 52-RE/PNS)  
 The GSDML file is named "GSDML-V2.32-HILSCHER-NIC 5X-RE PNS-20161102.xml"





Set output and Input with drag and drop



**NOTE:**

The modules must have the right sequence

- Is important the position, and the:
- Position 1 must be 64 Bytes OUT
  - Position 2 must be 64 Bytes OUT
  - Position 3 must be empty
  - Position 4 must be empty
  
  - Position 5 must be 64 Bytes IN
  - Position 6 must be 64 Bytes IN
  - Position 7 must be 64 Bytes IN
  - Position 8 must be 32 Bytes IN

### 1.7 Revex Connections

#### 1.7.1 For size from 30A to 40A 1-2-3PH/ 60A to 90A 1PH

The serial communication port RS485 is available on thyristor unit.



**Terminal block M3**

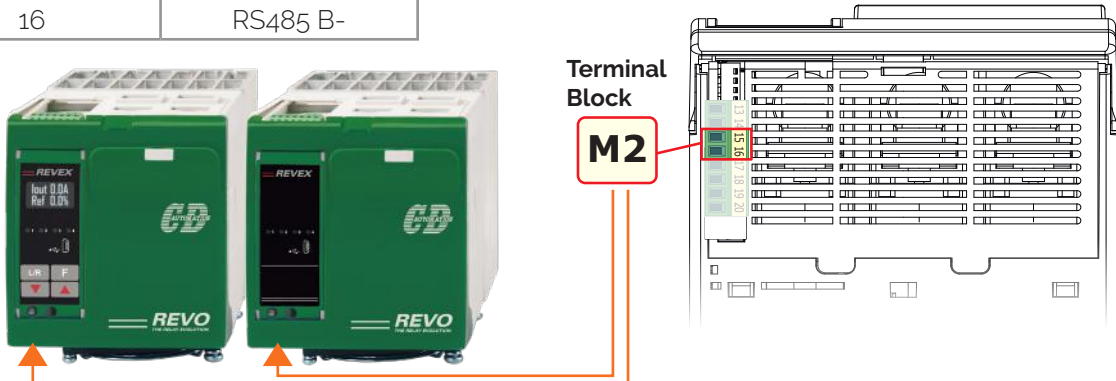
1	2	3	4	5	6	7
---	---	---	---	---	---	---

Terminal	Description
1	Auxiliary - 24Vdc 500mA Input power supply
2	Auxiliary + 24Vdc 500mA Input power supply
3	RS485 A+
4	RS485 B-
5	C - Common contact alarm relay output
6	NO - Normally Open contact alarm relay output (SC/HB)
7	NC - Normally Close contact alarm relay output (SC/HB)

#### 1.7.2 For size from 60A to 90A 2-3PH

M2 Terminal	Description
15	RS485 A+
16	RS485 B-

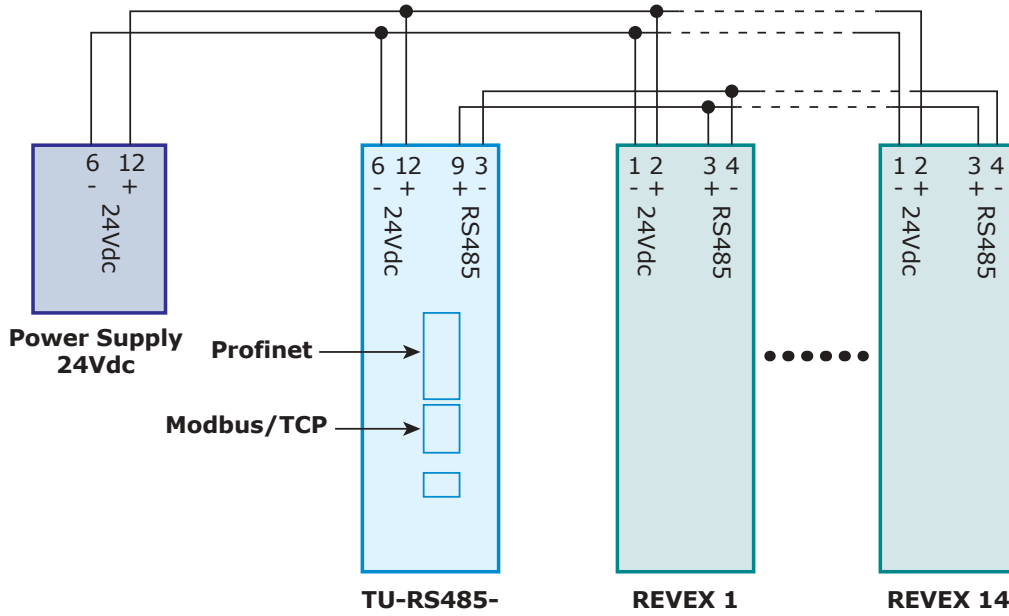
### DOWN VIEW



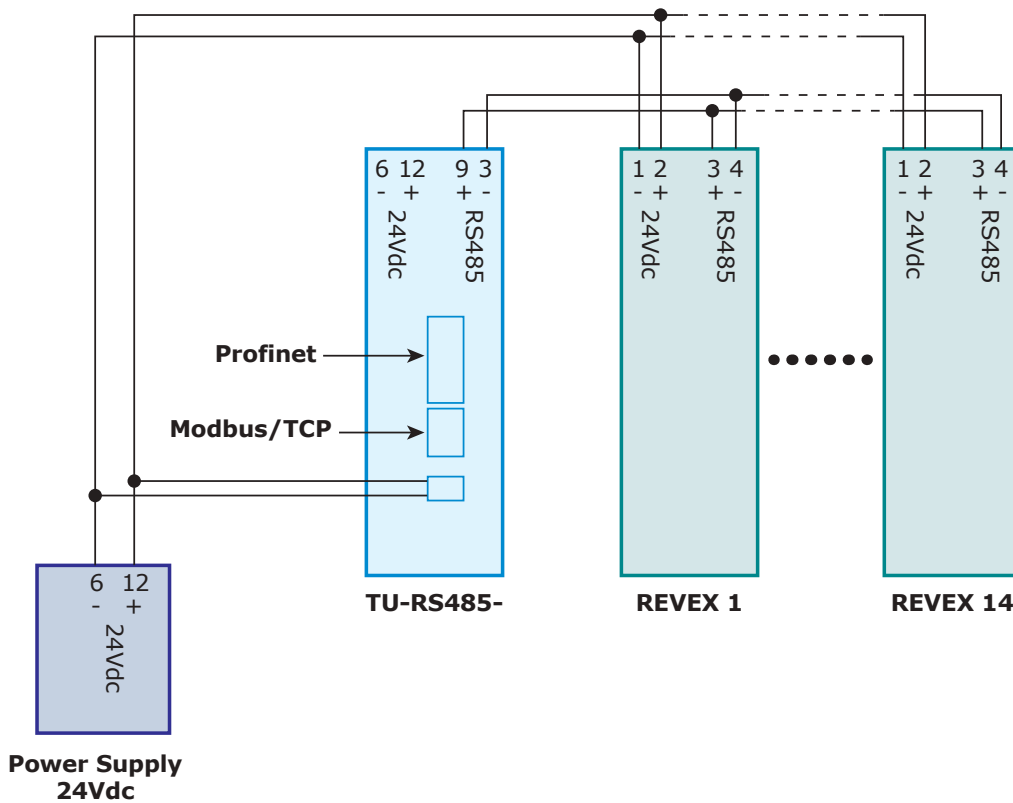
### 1.8 System Connections

examples with REVEX 30-40A 1-2-3PH

#### Solution 1



#### Solution 2



### 1.9 Data tables

<b>Offset Byte</b>	The number of bytes from the "0" address to the parameter start address
<b>Offset Word</b>	The number of "Words" offset from the "0" address.
<b>Modbus Add</b>	Modbus/TCP parameter address
<b>RX num</b>	Revex address
<b>PG</b>	The Modbus parameter number of single Revex
<b>Description</b>	Parameter description
<b>MIN</b>	the minimum actual value of the parameter.
<b>MAX</b>	the maximum actual value of the parameter.
<b>MIN UM</b>	The minimum value translated to its unit of measurement
<b>MAX UM</b>	The maximum value translated to its unit of measurement
<b>UM</b>	Unit of measurement

#### 1.9.1 Read Area

Offset Byte	Offset Word	Modbus Add	RX num	PG	Description	MIN	MAX	MIN UM	MAX UM	UM
0	0	0			Acyclic - Transmission Number	0	65635			
2	1	1			Acyclic - Error Code					
4	2	2			Acyclic -Function code executed	3 or 6				
6	3	3			Acyclic - Readed or Writed value	0	65635			
8	4	4			Comm status table Bit 0 → Address 1 Bit 1 → Address 2 Bit 2 → Address 3 Bit 3 → Address 4 Bit 4 → Address 5 Bit 5 → Address 6 Bit 6 → Address 7 Bit 7 → Address 8 Bit 8 → Address 9 Bit 9 → Address 10 Bit 10 → Address 11 Bit 11 → Address 12 Bit 12 → Address 13 Bit 13 → Address 14 0= ok / 1= in error		65635			
10	5	5	1	10	Voltage Output	0	1023	0	1023	V
12	6	6		11	Current Output	0	1023	0,0	102,3	A
14	7	7		12	Power Output	0	1023	0	1023	%
16	8	8		13	Status Table	See status table				
18	9	9		14	Command Table	See Command Table				
20	10	10		15	Digital SP	0	1023	0,0	100,0	%
22	11	11		131	kW real Time (kVA*cos phi)	0	65535	0	655,35	kW

Offset Byte	Offset Word	Modbus Add	RX num	PG	Description	MIN	MAX	MIN UM	MAX UM	UM
24	12	12	2	10	Voltage Output	0	1023	0	1023	V
26	13	13		11	Current Output	0	1023	0,0	102,3	A
28	14	14		12	Power Output	0	1023	0	1023	%
30	15	15		13	Status Table	See status table				
32	16	16		14	Command Table	See Command Table				
34	17	17		15	Digital SP	0	1023	0,0	100,0	%
36	18	18		131	kW real Time (kVA*cos phi)	0	65535	0	655,35	kW
38	19	19		3	10	Voltage Output	0	1023	0	1023
40	20	20	11		Current Output	0	1023	0,0	102,3	A
42	21	21	12		Power Output	0	1023	0	1023	%
44	22	22	13		Status Table	See status table				
46	23	23	14		Command Table	See Command Table				
48	24	24	15		Digital SP	0	1023	0,0	100,0	%
50	25	25	131		kW real Time (kVA*cos phi)	0	65535	0	655,35	kW
52	26	26	4		10	Voltage Output	0	1023	0	1023
54	27	27		11	Current Output	0	1023	0,0	102,3	A
56	28	28		12	Power Output	0	1023	0	1023	%
58	29	29		13	Status Table	See status table				
60	30	30		14	Command Table	See Command Table				
62	31	31		15	Digital SP	0	1023	0,0	100,0	%
64	32	32		131	kW real Time (kVA*cos phi)	0	65535	0	655,35	kW
66	33	33		5	10	Voltage Output	0	1023	0	1023
68	34	34	11		Current Output	0	1023	0,0	102,3	A
70	35	35	12		Power Output	0	1023	0	1023	%
72	36	36	13		Status Table	See status table				
74	37	37	14		Command Table	See Command Table				
76	38	38	15		Digital SP	0	1023	0,0	100,0	%
78	39	39	131		kW real Time (kVA*cos phi)	0	65535	0	655,35	kW
80	40	40	6		10	Voltage Output	0	1023	0	1023
82	41	41		11	Current Output	0	1023	0,0	102,3	A
84	42	42		12	Power Output	0	1023	0	1023	%
86	43	43		13	Status Table	See status table				
88	44	44		14	Command Table	See Command Table				
90	45	45		15	Digital SP	0	1023	0,0	100,0	%
92	46	46		131	kW real Time (kVA*cos phi)	0	65535	0	655,35	kW
94	47	47		7	10	Voltage Output	0	1023	0	1023
96	48	48	11		Current Output	0	1023	0,0	102,3	A
98	49	49	12		Power Output	0	1023	0	1023	%
100	50	50	13		Status Table	See status table				
102	51	51	14		Command Table	See Command Table				
104	52	52	15		Digital SP	0	1023	0,0	100,0	%
106	53	53	131		kW real Time (kVA*cos phi)	0	65535	0	655,35	kW

Offset Byte	Offset Word	Modbus Add	RX num	PG	Description	MIN	MAX	MIN UM	MAX UM	UM
108	54	54	8	10	Voltage Output	0	1023	0	1023	V
110	55	55		11	Current Output	0	1023	0,0	102,3	A
112	56	56		12	Power Output	0	1023	0	1023	%
114	57	57		13	Status Table	See status table				
116	58	58		14	Command Table	See Command Table				
118	59	59		15	Digital SP	0	1023	0,0	100,0	%
120	60	60		131	kW real Time (kVA*cos phi)	0	65535	0	655,35	kW
122	61	61		9	10	Voltage Output	0	1023	0	1023
124	62	62	11		Current Output	0	1023	0,0	102,3	A
126	63	63	12		Power Output	0	1023	0	1023	%
128	64	64	13		Status Table	See status table				
130	65	65	14		Command Table	See Command Table				
132	66	66	15		Digital SP	0	1023	0,0	100,0	%
134	67	67	131		kW real Time (kVA*cos phi)	0	65535	0	655,35	kW
136	68	68	10		10	Voltage Output	0	1023	0	1023
138	69	69		11	Current Output	0	1023	0,0	102,3	A
140	70	70		12	Power Output	0	1023	0	1023	%
142	71	71		13	Status Table	See status table				
144	72	72		14	Command Table	See Command Table				
146	73	73		15	Digital SP	0	1023	0,0	100,0	%
148	74	74		131	kW real Time (kVA*cos phi)	0	65535	0	655,35	kW
150	75	75		11	10	Voltage Output	0	1023	0	1023
152	76	76	11		Current Output	0	1023	0,0	102,3	A
154	77	77	12		Power Output	0	1023	0	1023	%
156	78	78	13		Status Table	See status table				
158	79	79	14		Command Table	See Command Table				
160	80	80	15		Digital SP	0	1023	0,0	100,0	%
162	81	81	131		kW real Time (kVA*cos phi)	0	65535	0	655,35	kW
164	82	82	12		10	Voltage Output	0	1023	0	1023
166	83	83		11	Current Output	0	1023	0,0	102,3	A
168	84	84		12	Power Output	0	1023	0	1023	%
170	85	85		13	Status Table	See status table				
172	86	86		14	Command Table	See Command Table				
174	87	87		15	Digital SP	0	1023	0,0	100,0	%
176	88	88		131	kW real Time (kVA*cos phi)	0	65535	0	655,35	kW
178	89	89		13	10	Voltage Output	0	1023	0	1023
180	90	90	11		Current Output	0	1023	0,0	102,3	A
182	91	91	12		Power Output	0	1023	0	1023	%
184	92	92	13		Status Table	See status table				
186	93	93	14		Command Table	See Command Table				
188	94	94	15		Digital SP	0	1023	0,0	100,0	%
190	95	95	131		kW real Time (kVA*cos phi)	0	65535	0	655,35	kW

Offset Byte	Offset Word	Modbus Add	RX num	PG	Description	MIN	MAX	MIN UM	MAX UM	UM
192	96	96	14	10	Voltage Output	0	1023	0	1023	V
194	97	97		11	Current Output	0	1023	0,0	102,3	A
196	98	98		12	Power Output	0	1023	0	1023	%
198	99	99		13	Status Table	See status table				
200	100	100		14	Command Table	See Command Table				
202	101	101		15	Digital SP	0	1023	0,0	100,0	%
204	102	102		131	kW real Time (kVA*cos phi)	0	65535	0	655,35	kW
206	104	104			Not used					
208	105	105			Not used					
210	106	106			Not used					
212	107	107			Not used					
214	108	108			Not used					
216	109	109			Not used					
218	110	110			Not used					
220	111	111			Not used					
222	112	112			Not used					
224	113	113			Not used					
226	114	114			Not used					
228	115	115			Not used					
230	116	116			Not used					
232	117	117			Not used					

**1.9.1.1. Status Table**

Bit	Values and Notes
0	= 1 → Short circuit on SCR
	= 0 → NO Short circuit on SCR
1	= 1 → Load Failure (HB Alarm)
	= 0 → NO Load Failure (HB Alarm)
2	= 1 → Output signal ON
	= 0 → Output signal Off
3	not used
4	= 1 → Current Limit Active
	= 0 → Current Limit Not Active
5	= 1 → Heat sink over temperature
	= 0 → NO Heat sink over temperature
6	= 1 → Communication Alarm (WD) Active
	= 0 → Communication Alarm (WD) Not Active
7	not used
8	= 1 → Digital input 1
	= 0 → Digital input 1
9	= 1 → Digital input 2
	= 0 → Digital input 2
10	= 1 → Phase unbalance alarm Active
	= 0 → Phase unbalance alarm Not Active
11	not used
12	not used
13	not used
14	= 1 → Bakeout Function Active
	= 0 → Bakeout Function Not Active
15	= 1 → Thermal alarm active
	= 0 → Thermal alarm Ok



1.9.2 Write Area

Offset Byte	Offset Word	Modbus Add	RTC num	PG	Description	MIN	MAX	MIN UM	MAX UM	UM
0	0	200			Transmission number	0	65635			
2	1	201			Not used	Not used				
4	2	202			Address to query (Fixed 1)	1	247			
6	3	203			Function to use	3 for read a value 6 for write a value				
8	4	204			Parameter number to read or write	0	65635			
10	5	205			If function 6 is the value to write	0	65635			
12	6	206	1	14	Command Table	See command table				
14	7	207		15	Digital Set Point	0	1023	0	100,0	%
16	8	208	2	14	Command Table	See command table				
18	9	209		15	Digital Set Point	0	1023	0	100,0	%
20	10	210	3	14	Command Table	See command table				
22	11	211		15	Digital Set Point	0	1023	0	100,0	%
24	12	212	4	14	Command Table	See command table				
26	13	213		15	Digital Set Point	0	1023	0	100,0	%
28	14	214	5	14	Command Table	See command table				
30	15	215		15	Digital Set Point	0	1023	0	100,0	%
32	16	216	6	14	Command Table	See command table				
34	17	217		15	Digital Set Point	0	1023	0	100,0	%
36	18	218	7	14	Command Table	See command table				
38	19	219		15	Digital Set Point	0	1023	0	100,0	%
40	20	220	8	14	Command Table	See command table				
42	21	221		15	Digital Set Point	0	1023	0	100,0	%
44	22	222	9	14	Command Table	See command table				
46	23	223		15	Digital Set Point	0	1023	0	100,0	%
48	24	224	10	14	Command Table	See command table				
50	25	225		15	Digital Set Point	0	1023	0	100,0	%
52	26	226	11	14	Command Table	See command table				
54	27	227		15	Digital Set Point	0	1023	0	100,0	%
56	28	228	12	14	Command Table	See command table				
58	29	229		15	Digital Set Point	0	1023	0	100,0	%
60	30	228	13	14	Command Table	See command table				
62	31	229		15	Digital Set Point	0	1023	0	100,0	%
64	32	228	14	14	Command Table	See command table				
66	33	229		15	Digital Set Point	0	1023	0	100,0	%
68	34	229			Not used					
70	35	229			Not used					
72	36	229			Not used					
74	37	229			Not used					
76	38	229			Not used					
78	39	229			Not used					
80	40	229			Not used					
82	41	229			Not used					
84	42	229			Not used					

Offset Byte	Offset Word	Modbus Add	RTC num	PG	Description	MIN	MAX	MIN UM	MAX UM	UM
86	43	229			Not used					
88	44	229			Not used					
90	45	229			Not used					
92	46	229			Not used					
94	47	229			Not used					
96	48	229			Not used					
98	49	229			Not used					
100	50	229			Not used					
102	51	229			Not used					
104	52	229			Not used					
106	53	229			Not used					
108	54	229			Not used					
110	55	229			Not used					
112	56	229			Not used					
114	57	229			Not used					
116	58	229			Not used					
118	59	229			Not used					
120	60	229			Not used					
122	61	229			Not used					
124	62	229			Not used					
126	63	229			Not used					

**1.9.2.1. Command table**

Bit	Values and Notes
0	not used
1	= 1 → (L/R) SP from serial link
	= 0 → (L/R) SP from Terminal
2	= 1 → Enabled
	= 0 → Disabled
3	not used
4	= 1 → Current limit from serial link
	= 0 → Current limit from Terminal
5	not used
6	internal use
7	internal use
8	not used
9	not used
10	not used
11	not used
12	not used
13	not used
14	not used
15	not used

## 2

## Indirect Actions function

This function is used to read or write a value that is not in programmed in read or write area.  
This function is placed in write area from offset byte 0 to offset byte 10.

PROFIBUS		PROFINET		Min	Max	Description
Byte Bus Offset	Word Bus Offset	Min	Max			
0	0	0	65635	Acyclic - Transmission number		
2	1	-	-	Not used		
4	2	1	128	Acyclic - Address to query Fixed 1		
6	3	3 or 6		Function to use 3 for read a value 6 for write a value		
8	4	0	65635	Parameter number to read or write		
10	5	0	65635	If function 6 set, is the value to write		

And the answers are in the read form

PROFIBUS		PROFINET		Min	Max	Description
Byte Bus Offset	Word Bus Offset	Min	Max			
0	0	0	65635	Acyclic - Transmission Number		
2	1	0	65635	Acyclic - Error Code		
4	2	3 or 6		Acyclic -Function code executed 3 read action executed 6 write action executed		
6	3	0	65635	Acyclic - Readed or Writed value		

### 2.1 How to write a value

To write a value you need to:

- 1) Set Byte offset 2 fixed to 0
- 2) Set Byte offset 4 (Address) fixed to 1
- 3) Set Byte offset 6 (Function) to value 6
- 4) Set Byte offset 8 (Par Number) number of parameter in column "Parameter Number"
- 5) Set Byte offset 10 (Value to write)
- 6) Send the value increase the offset 0 (transmission number)

### 2.2 How to read a value

To Read a value you need to:

- 1) Set Byte offset 2 fixed to 0
- 2) Set Byte offset 4 (Address) fixed to 1
- 3) Set Byte offset 6 (Function) to value 3
- 4) Set Byte offset 8 (Par Number) number of parameter in column "Parameter Number"
- 5) Send the value increase the offset 0 (transmission number)



**CD Automation S.r.l.**

Via Picasso, 34/36 - 20025 Legnano (MI)- Italy

Tel. +39 0331 577479 - Fax +39 0331 579479

E-mail: [info@cdautomation.com](mailto:info@cdautomation.com) - Web: [www.cdautomation.com](http://www.cdautomation.com)