



INSTALLATION AND OPERATION MANUAL

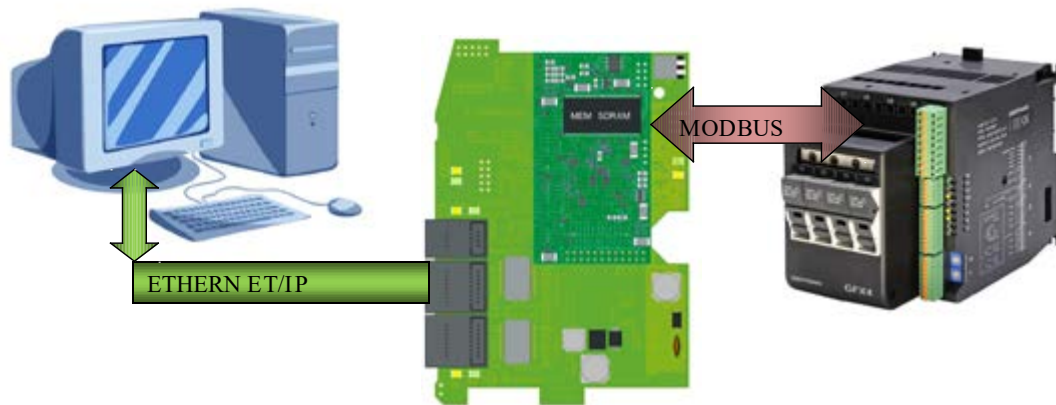
Software Version: 1.1

Code: **80383A** / Edition **01** - **01-2021** **ENG**

1 • Introduction

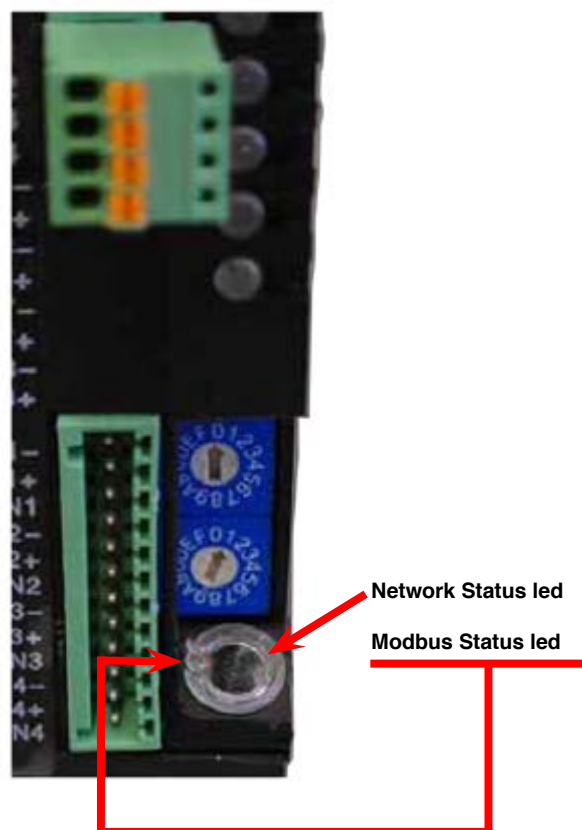
The RTE (Real Time Ethernet) card is a device that connects slaves for data transmission and reception with the Ethernet/Ip protocol.

The connection diagram is shown below.



we have:

- An Ethernet/IP scanner connected to an Ethernet/IP adapter (Gefran RTE Ethernet/IP adapter Bridge) connected via the Ethernet/IP protocol
- a Modbus RTU Master running on RTE (Gefran RTE Ethernet/IP adapter Bridge) connected via serial line to a Modbus RTU slave (GFX4-IRHeat Controller)



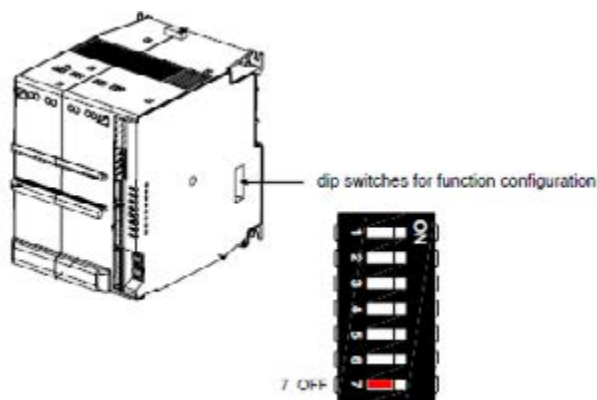
Network Status indicator = NS (Red/Green), Module Status indicator = MS (Red/Green)

Indicators behavior at power-up					
Time	MS Green	MS Red	NS Green	NS Red	Note
t=0 ms	Off	Off	Off	Off	
t = 250 ms	On	Off	Off	Off	
t = 500 ms	Off	On	Off	Off	
t = 750 ms	Off	Off	On	Off	
t = 1000 ms	Off	Off	Off	On	
t = 1250 ms	Off	Off	Off	Off	

MS Indicators behavior			
State	MS Green	MS Red	Note
No-power	Off	Off	
Device standby	On/Off	Off	MS Green flashing (500msec on , 500 msec off)
Device Operational	On	Off	MS green steady on
Minor Fault	Off	On/Off	MS Red flashing (500msec on , 500 msec off). Serial operation fault
Major Fault	Off	On	MS Red steady on : dip switch S7 is not in OFF position or Rotary switch is not equal to 01
Duplicate ip	Off	On/Off	MS Red flashing (500msec on , 500 msec off). IP address is already in use

NS Indicators behavior			
State	NS Green	NS Red	Note
No-power No-IP address	Off	Off	
No connection	On/Off	Off	NS Green flashing (500msec on , 500 msec off)
Connected	On	Off	NS green steady on
Connection timeout	Off	On/Off	NS Red flashing (500msec on , 500 msec off)
Duplicate ip	Off	On	NS Red steady on: the device detected that its IP address is already in use

- Power supply 24v dc
- S7 off
- Rotary switch must be equal to 1



Serial communication time constraints in Modbus RTU

The following time constraints must be complied with in order to allow correct serial data exchange with the device:

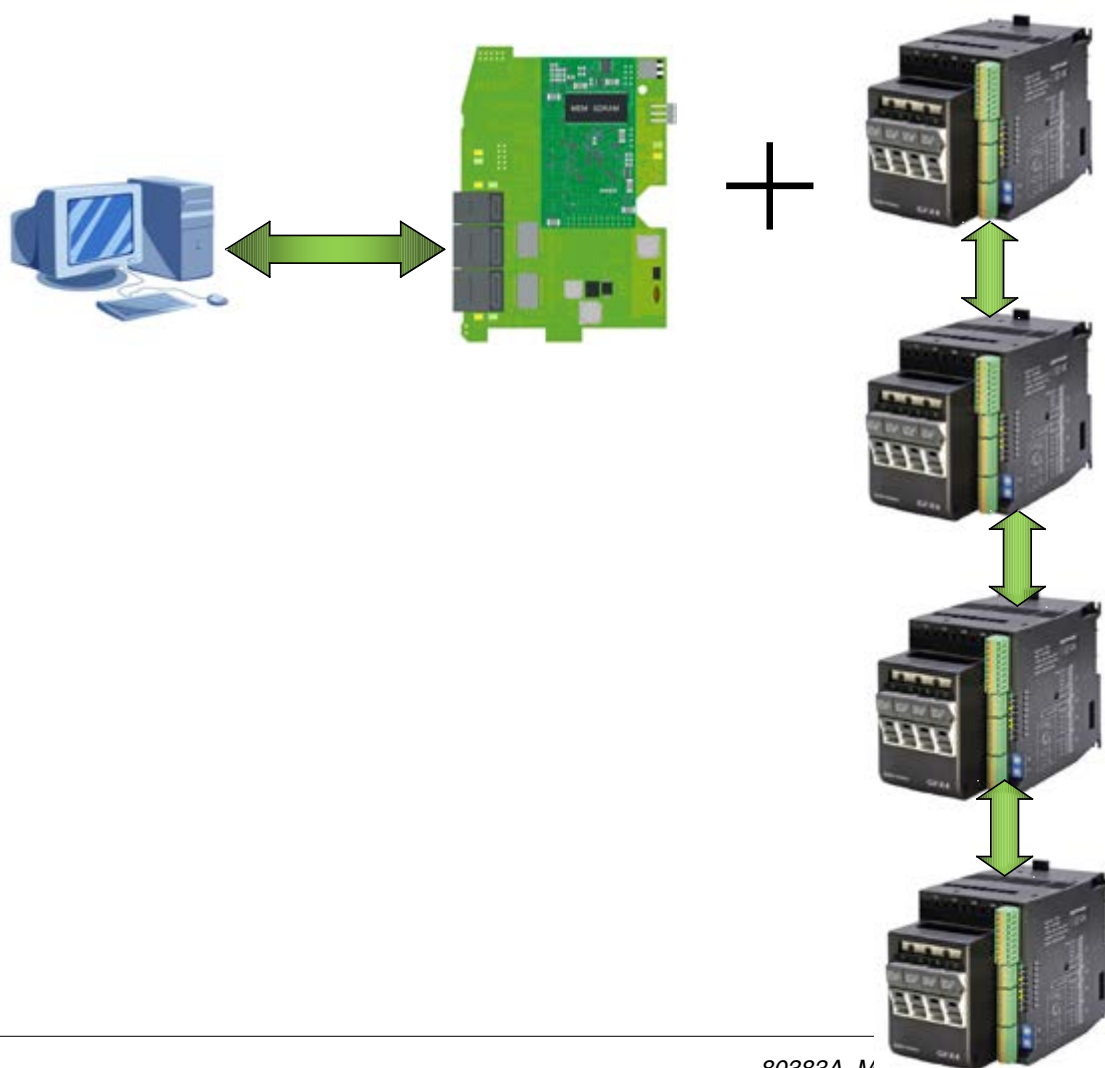
Reading Word/Register parameters: Reading N consecutive parameters, with N from 1 to 16, requires a time of almost 50 ms. In this case the following read and write Modbus command, to the same node, must be sent after this interval time.

Writing Word/Register parameters: Writing N consecutive parameters, with N ranging from 1 to 16, if all values (maximum 16) on the device are updated, will take a time of: $50\text{ms} + N \times 80\text{ms}^{(*)}$ with N from 1 to 16. The times reported refer to the case in which the Baudrate of the serial line (parameter bAu Modbus address 45) is 19200.

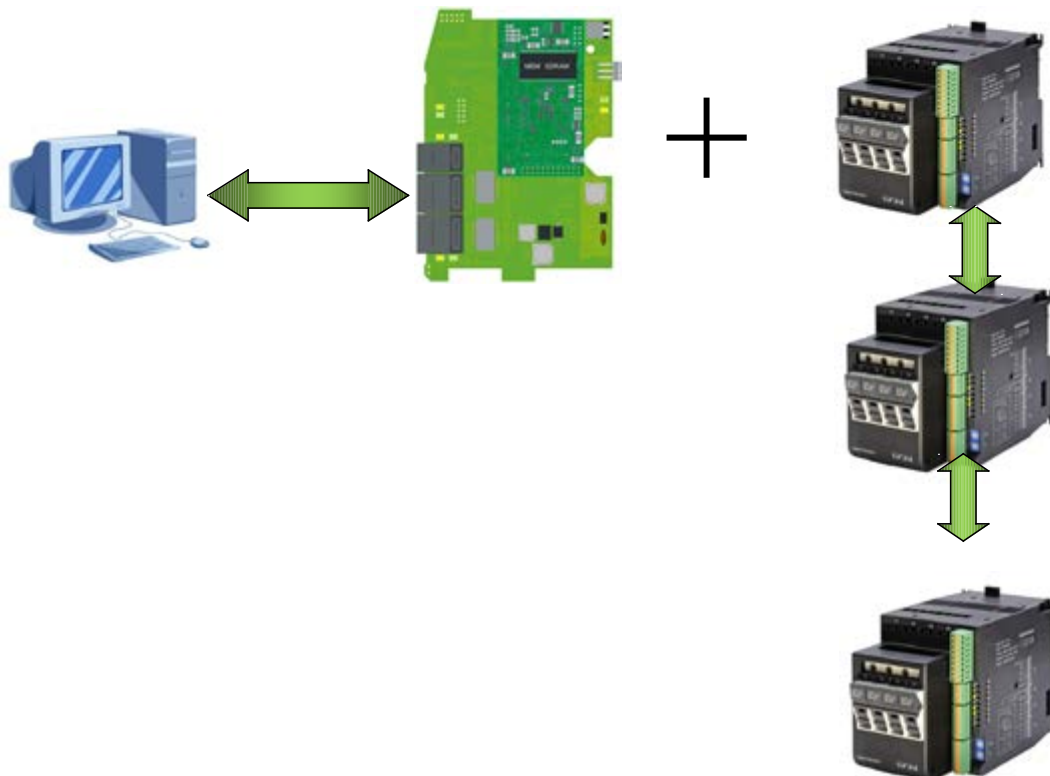
(*) If STATUS_W parameters (Modbus address 305) are included in the write request and their value is different from the one currently present in the slave, the time required to write each one will be 240ms (instead of 80ms).

Main characteristics

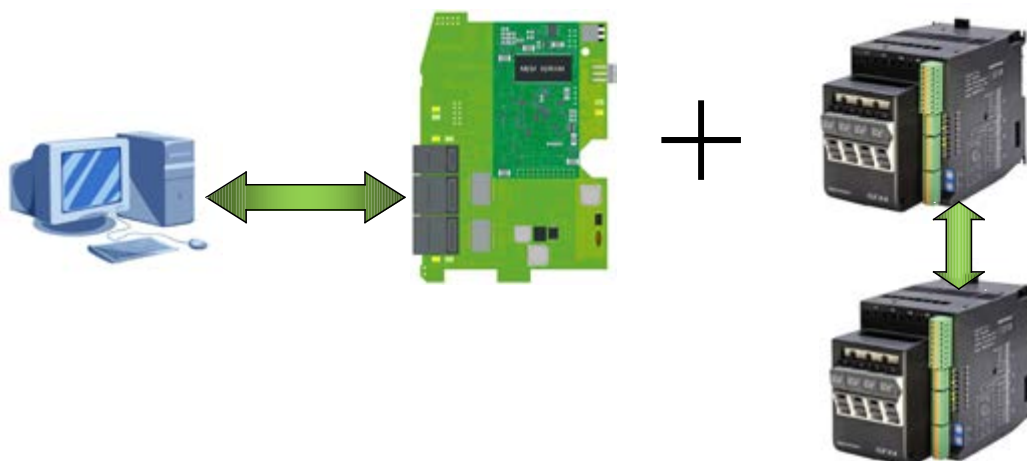
- Gefran vendor specific Modbus Class (Ethernet/IP adapter to Modbus Master RTU)
- Integrated Internal switch
- DLR support
- 1 IO connection Exclusive owner , default RPI 2 msec
- Configuration assembly
- Output /Input: 16 words (16 bits) for one GFX4-IR module
- Up to 4 GFX4-IR connected as:
(1st GFX4-IR with Rotary=01, 2nd GFX4-IR with rotary=02 , 3rd GFX4-IR with rotary=03 ,
4th GFX4-IR with rotary=04 and switch S7 off, base +3 expansion units)



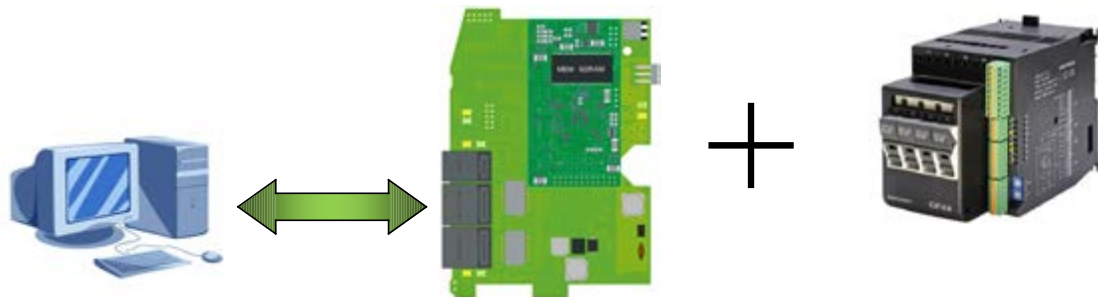
✓ (1st GFX4-IR with Rotary=01, 2nd GFX4-IR with rotary=02 , 3rd GFX4-IR with rotary=03 , and switch S7 off, base + 2 expansion units)



✓ (1st GFX4-IR with Rotary=01, 2nd GFX4-IR with rotary=02 and switch S7 off, base +1 expansion units)



✓ (1st GFX4-IR with Rotary=01 and switch S7 off, base only)



- Support for explicit Messages
- Support for Unconnected Message Manager
- Predefined Standard Identity object

Instance	Name	Attribute Id	Name	Supported Services		
				Get Attribute Single	Get Attribute All	Set Attribute Single
0	Class	1	Revision	Yes	Yes	No
		2	Max.Instance	Yes		
		5	Opt. Service List	Yes		
		6	Max. Class Attrib.	Yes		
		7	Max. Instance Attrib.	Yes		
1	Instance Attributes	1	Vendor ID	Yes	Yes	No
		2	Device Type	Yes		No
		3	Product Code	Yes		No
		4	Major Revision	Yes		No
		5	Minor Revision	Yes		No
		6	Status	Yes		No
		7	Serial Number	Yes		No
		8	Product Name	Yes		No
		9	Conf. Consist. Value	Yes		
		10	Heart Interval	Yes		

- Predefined Standard Message Router object
- Predefined Standard Assembly object

Instance	Name	Attribute Id	Name	Supported Services	
				Get Attribute Single	Set Attribute Single
0	Class	1	Revision	Yes	No
		2	Max.Instance	Yes	
1-X	Instance Attributes	3	Data	Yes	Yes
		4	Size	Yes	No

- Predefined Standard Connection Manager object
- Predefined Standard Ethernet Link object

Instance	Name	Attribute Id	Name	Supported Services		
				Get Attribute Single	Get Attribute All	Set Attribute Single
0	Class	1	Revision	Yes	No	No
		2	Max.Instance	Yes		
1	Instance Attributes	1	Interface speed	Yes	Yes	No
		2	Interface Flags	Yes		No
		3	Physical Address	Yes		No
		4	Interface Counters	No		No
		5	Media Counters	No		No
		6	Interface Control	Yes		No
		10	Interface label	Yes		No

- Predefined Standard TCP/IP object

Instance	Name	Attribute Id	Name	Supported Services		
				Get Attribute Single	Get Attribute All	Set Attribute Single
0	Class	1	Revision	Yes	No	No
		2	Max.Instance	Yes		

Instance	Name	Attribute Id	Name	Supported Services		
1	Instance Attributes	1	Status	Yes	Yes	No
		2	Configuration Capability	Yes		No
		3	Configuration control	Yes		Yes
		4	Physical Link Object	Yes		No
		5	Interface config	Yes		Yes
		6	Host Name	Yes		Yes
		7	Safety Network Number	Yes		No
		8	TTL Value	Yes		No
		9	Multicast config	Yes		
		10	Select ACD	Yes		
		11	Last Conflict			

- Predefined Standard DLR object

The DLR Object provides the mechanism to configure a network with ring topology according to the DLR (Device Level Ring) part of the EtherNet/IP specification.

Note 1: GFX4-IR devices running an EtherNet/IP firmware are not able to act as a ring supervisor

Note 2: GFX4-IR devices running an EtherNet/IP firmware always run as a beacon-based ring node

Instance	Name	Attribute Id	Name	Supported Services		
				Get Attribute Single	Get Attribute All	Set Attribute Single
0	Class	1	Revision	Yes	No	No

Instance	Name	Attribute Id	Name	Supported Services		
1	Instance Attributes	1	Network Topology	Yes	Yes	No
		2	Network Status	Yes		
		10	Active Supervisor Address	Yes		
		12	Capability Flags	Yes		

- DHCP supported
- Bootp supported
- ACD Address conflict Detection supported
- Reset services supported
- Module status Indicator available (Red and Green)
- Network status indicator available (Red and Green)
- Default Ip address 192.168.1.100
- Default NetMask 255.255.255.0
- Gf_Net SetIp tool

I/O Data Structure			
Tag Component Name Sample/Suggested Naming	Parameter Number	Suggested Data Type	Accumulated Number of Bytes
Input Data (see also GFX4-IR modbus manual)			
Adapter_Status (Bit 0-7 slave ready & Configured)	1	DWORD	4
Device_1_Status (Bit 0 Serial Comm Fault, Bit 1 last write error)	10	DWORD	8
Channel_1_Status_1st_Device (default modbus add = 467 Ch status)	11	WORD	10
Actual_Value_1_Channel_1_1st_Device (default modbus add = 0 Process Value)	12	INT	12
Actual_Value_2_Channel_1_1st_Device (default modbus add = 2 Output power)	13	INT	14
Actual_Value_3_Channel_1_1st_Device (default modbus add = 468 ammeter input value)	14	INT	16
Channel_2_Status_1st_Device (default modbus add 467 Ch status)	15	WORD	18
Actual_Value_1_Channel_2_1st_Device (default modbus add = 0 Process Value)	16	INT	20
Actual_Value_2_Channel_2_1st_Device (default modbus add = 2 Output power)	17	INT	22
Actual_Value_3_Channel_2_1st_Device (default modbus add = 468 ammeter input value)	18	INT	24
Channel_3_Status_1st_Device (default modbus add 467 Ch status)	19	WORD	26
Actual_Value_1_Channel_3_1st_Device (default modbus add = 0 Process Value)	20	INT	28
Actual_Value_2_Channel_3_1st_Device (default modbus add = 2 Output power)	21	INT	30
Actual_Value_3_Channel_3_1st_Device (default modbus add = 468 ammeter input value)	22	INT	32
Channel_4_Status_1st_Device (default modbus add 467 Ch status)	23	WORD	34
Actual_Value_1_Channel_4_1st_Device (default modbus add = 0 Process Value)	24	INT	36
Actual_Value_2_Channel_4_1st_Device (default modbus add = 2 Output power)	25	INT	38

I/O Data Structure			
Tag Component Name Sample/Suggested Naming	Parameter Number	Suggested Data Type	Accumulated Number of Bytes
Actual_Value_3_Channel_4_1st_Device (default modbus add = 468 ammeter input value)	26	INT	40
Device_2_Status (Bit 0 Serial Comm Fault, Bit 1 last write error)	30	DWORD	44
Channel_1_Status_2nd_Device (default modbus add 467 Ch status)	31	WORD	46
Actual_Value_1_Channel_1_2nd_Device (default modbus add = 0 Process Value)	32	INT	48
Actual_Value_2_Channel_1_2nd_Device (default modbus add = 2 Output power)	33	INT	50
Actual_Value_3_Channel_1_2nd_Device (default modbus add = 468 ammeter input value)	34	INT	52
Channel_2_Status_2nd_Device (default modbus add 467 Ch status)	35	WORD	54
Actual_Value_1_Channel_2_2nd_Device (default modbus add = 0 Process Value)	36	INT	56
Actual_Value_2_Channel_2_2nd_Device (default modbus add = 2 Output power)	37	INT	58
Actual_Value_3_Channel_2_2nd_Device (default modbus add = 468 ammeter input value)	38	INT	60
Channel_3_Status_2nd_Device (default modbus add 467 Ch status)	39	WORD	62
Actual_Value_1_Channel_3_2nd_Device (default modbus add = 0 Process Value)	40	INT	64
Actual_Value_2_Channel_3_2nd_Device (default modbus add = 2 Output power)	41	INT	66
Actual_Value_3_Channel_3_2nd_Device (default modbus add = 468 ammeter input value)	42	INT	68
Channel_4_Status_2nd_Device (default modbus add 467 Ch status)	43	WORD	70
Actual_Value_1_Channel_4_2nd_Device (default modbus add = 0 Process Value)	44	INT	72
Actual_Value_2_Channel_4_2nd_Device (default modbus add = 2 Output power)	45	INT	74
Actual_Value_3_Channel_4_2nd_Device (default modbus add = 468 ammeter input value)	46	INT	76
Device_3_Status (Bit 0 Serial Comm Fault, Bit 1 last write error)	50	DWORD	80
Channel_1_Status_3rd_Device (default modbus add 467 Ch status)	51	WORD	82
Actual_Value_1_Channel_1_3rd_Device (default modbus add = 0 Process Value)	52	INT	84
Actual_Value_2_Channel_1_3rd_Device (default modbus add = 2 Output power)	53	INT	86
Actual_Value_3_Channel_1_3rd_Device	54	INT	88
Channel_2_Status_3rd_Device (default modbus add 467 Ch status)	55	WORD	90
Actual_Value_1_Channel_2_3rd_Device (default modbus add = 0 Process Value)	56	INT	92
Actual_Value_2_Channel_2_3rd_Device (default modbus add = 2 Output power)	57	INT	94
Actual_Value_3_Channel_2_3rd_Device (default modbus add = 468 ammeter input value)	58	INT	96
Channel_3_Status_3rd_Device (default modbus add 467 Ch status)	59	WORD	98

I/O Data Structure			
Tag Component Name Sample/Suggested Naming	Parameter Number	Suggested Data Type	Accumulated Number of Bytes
Actual_Value_1_Channel_3_3rd_Device (default modbus add = 0 Process Value)	60	INT	100
Actual_Value_2_Channel_3_3rd_Device (default modbus add = 2 Output power)	61	INT	102
Actual_Value_3_Channel_3_3rd_Device	62	INT	104
Channel_4_Status_3rd_Device (default modbus add 467 Ch status)	63	WORD	106
Actual_Value_1_Channel_4_3rd_Device (default modbus add = 0 Process Value)	64	INT	108
Actual_Value_2_Channel_4_3rd_Device (default modbus add = 2 Output power)	65	INT	110
Actual_Value_3_Channel_4_3rd_Device (default modbus add = 468 ammeter input value)	66	INT	112
Device_4_Status (Bit 0 Serial Comm Fault, Bit 1 last write error)	70	DWORD	116
Channel_1_Status_4th_Device (default modbus add 467 Ch status)	71	WORD	118
Actual_Value_1_Channel_1_4th_Device (default modbus add = 0 Process Value)	72	INT	120
Actual_Value_2_Channel_1_4th_Device (default modbus add = 2 Output power)	73	INT	122
Actual_Value_3_Channel_1_4th_Device (default modbus add = 468 ammeter input value)	74	INT	124
Channel_2_Status_4th_Device (default modbus add 467 Ch status)	75	WORD	126
Actual_Value_1_Channel_2_4th_Device (default modbus add = 0 Process Value)	76	INT	128
Actual_Value_2_Channel_2_4th_Device (default modbus add = 2 Output power)	77	INT	130

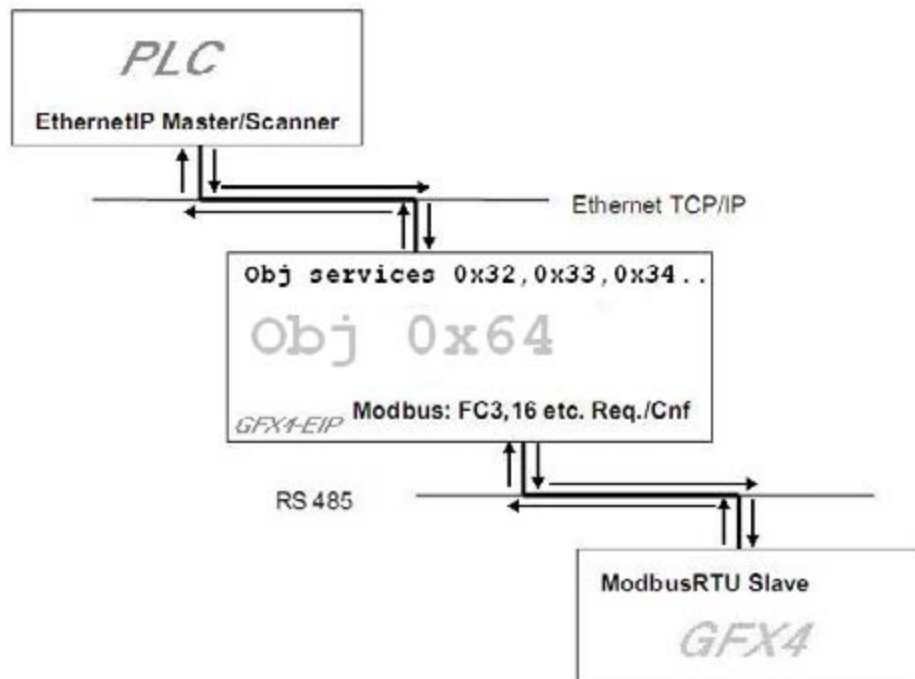
I/O Data Structure			
Tag Component Name Sample/Suggested Naming	Parameter Number	Suggested Data Type	Accumulated Number of Bytes
Actual_Value_3_Channel_2_4th_Device (default modbus add = 468 ammeter input value)	78	INT	132
Channel_3_Status_4th_Device (default modbus add 467 Ch status)	79	WORD	134
Actual_Value_1_Channel_3_4th_Device (default modbus add = 0 Process Value)	80	INT	136
Actual_Value_2_Channel_3_4th_Device (default modbus add = 2 Output power)	81	INT	138
Actual_Value_3_Channel_3_4th_Device (default modbus add = 468 ammeter input value)	82	INT	140
Channel_4_Status_4th_Device (default modbus add 467 Ch status)	83	WORD	142
Actual_Value_1_Channel_4_4th_Device (default modbus add = 0 Process Value)	84	INT	144
Actual_Value_2_Channel_4_4th_Device (default modbus add = 2 Output power)	85	INT	146
Actual_Value_3_Channel_4_4th_Device (default modbus add = 468 ammeter input value)	86	INT	148
Output Data(see also GFX4-IR modbus manual			
Adapter_Command (not used)	2	DWORD	4
Device_1_Command (not used)	110	DWORD	8
Channel_1_Command_1st_Device (default modbus add = 305 Status command)	111	WORD	10
Set_Value_1_Channel_1_1st_Device (default modbus add = 16 Local Set point)	112	INT	12
Set_Value_2_Channel_1_1st_Device (default modbus add = 252 Manual Output power)	113	INT	14
Set_Value_3_Channel_1_1st_Device (default modbus add = 12 Alarm 1 Set point)	114	INT	16
Channel_2_Command_1st_Device (default modbus add = 305 Status command)	115	WORD	18
Set_Value_1_Channel_2_1st_Device (default modbus add = 16 Local Set point)	116	INT	20
Set_Value_2_Channel_2_1st_Device (default modbus add = 252 Manual Output power)	117	INT	22
Set_Value_3_Channel_2_1st_Device (default modbus add = 12 Alarm 1 Set point)	118	INT	24
Channel_3_Command_1st_Device (default modbus add = 305 Status command)	119	WORD	26
Set_Value_1_Channel_3_1st_Device (default modbus add = 16 Local Set point)	120	INT	28
Set_Value_2_Channel_3_1st_Device (default modbus add = 252 Manual Output power)	121	INT	30
Set_Value_3_Channel_3_1st_Device (default modbus add = 12 Alarm 1 Set point)	122	INT	32
Channel_4_Command_1st_Device (default modbus add = 305 Status command)	123	WORD	34
Set_Value_1_Channel_4_1st_Device (default modbus add = 16 Local Set point)	124	INT	36
Set_Value_2_Channel_4_1st_Device (default modbus add = 252 Manual Output power)	125	INT	38
Set_Value_3_Channel_4_1st_Device (default modbus add = 12 Alarm 1 Set point)	126	INT	40
Device_2_Command (not used)	130	DWORD	44

I/O Data Structure			
Tag Component Name Sample/Suggested Naming	Parameter Number	Suggested Data Type	Accumulated Number of Bytes
Channel_1_Command_2nd_Device (default modbus add = 305 Status command)	131	WORD	46
Set_Value_1_Channel_1_2nd_Device (default modbus add = 16 Local Set point)	132	INT	48
Set_Value_2_Channel_1_2nd_Device (default modbus add = 252 Manual Output power)	133	INT	50
Set_Value_3_Channel_1_2nd_Device (default modbus add = 12 Alarm 1 Set point)	134	INT	52
Channel_2_Command_2nd_Device (default modbus add = 305 Status command)	135	WORD	54
Set_Value_1_Channel_2_2nd_Device (default modbus add = 16 Local Set point)	136	INT	56
Set_Value_2_Channel_2_2nd_Device (default modbus add = 252 Manual Output power)	137	INT	58
Set_Value_3_Channel_2_2nd_Device (default modbus add = 12 Alarm 1 Set point)	138	INT	60
Channel_3_Command_2nd_Device (default modbus add = 305 Status command)	139	WORD	62
Set_Value_1_Channel_3_2nd_Device (default modbus add = 16 Local Set point)	140	INT	64
Set_Value_2_Channel_3_2nd_Device (default modbus add = 252 Manual Output power)	141	INT	66
Set_Value_3_Channel_3_2nd_Device (default modbus add = 12 Alarm 1 Set point)	142	INT	68
Channel_4_Command_2nd_Device (default modbus add = 305 Status command)	143	WORD	70
Set_Value_1_Channel_4_2nd_Device (default modbus add = 16 Local Set point)	144	INT	72
Set_Value_2_Channel_4_2nd_Device (default modbus add = 252 Manual Output power)	145	INT	74
Set_Value_3_Channel_4_2nd_Device (default modbus add = 12 Alarm 1 Set point)	146	INT	76
Device_3_Command (not used)	150	DWORD	80
Channel_1_Command_3rd_Device (default modbus add = 305 Status command)	151	WORD	82
Set_Value_1_Channel_1_3rd_Device (default modbus add = 16 Local Set point)	152	INT	84
Set_Value_2_Channel_1_3rd_Device (default modbus add = 252 Manual Output power)	153	INT	86
Set_Value_3_Channel_1_3rd_Device (default modbus add = 12 Alarm 1 Set point)	154	INT	88
Channel_2_Command_3rd_Device (default modbus add = 305 Status command)	155	WORD	90
Set_Value_1_Channel_2_3rd_Device (default modbus add = 16 Local Set point)	156	INT	92
Set_Value_2_Channel_2_3rd_Device (default modbus add = 252 Manual Output power)	157	INT	94
Set_Value_3_Channel_2_3rd_Device (default modbus add = 12 Alarm 1 Set point)	158	INT	96
Channel_3_Command_3rd_Device (default modbus add = 305 Status command)	159	WORD	98
Set_Value_1_Channel_3_3rd_Device (default modbus add = 16 Local Set point)	160	INT	100
Set_Value_2_Channel_3_3rd_Device (default modbus add = 252 Manual Output power)	161	INT	102

I/O Data Structure			
Tag Component Name Sample/Suggested Naming	Parameter Number	Suggested Data Type	Accumulated Number of Bytes
Set_Value_3_Channel_3_3rd_Device (default modbus add = 12 Alarm 1 Set point)	162	INT	104
Channel_4_Command_3rd_Device (default modbus add = 305 Status command)	163	WORD	106
Set_Value_1_Channel_4_3rd_Device (default modbus add = 16 Local Set point)	164	INT	108
Set_Value_2_Channel_4_3rd_Device (default modbus add = 252 Manual Output power)	165	INT	110
Set_Value_3_Channel_4_3rd_Device (default modbus add = 12 Alarm 1 Set point)	166	INT	112
Device_4_Command (not used)	170	DWORD	116
Channel_1_Command_4th_Device (default modbus add = 305 Status command)	171	WORD	118
Set_Value_1_Channel_1_4th_Device (default modbus add = 16 Local Set point)	172	INT	120
Set_Value_2_Channel_1_4th_Device (default modbus add = 252 Manual Output power)	173	INT	122
Set_Value_3_Channel_1_4th_Device (default modbus add = 12 Alarm 1 Set point)	174	INT	124
Channel_2_Command_4th_Device (default modbus add = 305 Status command)	175	WORD	126
Set_Value_1_Channel_2_4th_Device (default modbus add = 16 Local Set point)	176	INT	128
Set_Value_2_Channel_2_4th_Device (default modbus add = 252 Manual Output power)	177	INT	130
Set_Value_3_Channel_2_4th_Device (default modbus add = 12 Alarm 1 Set point)	178	INT	132
Channel_3_Command_4th_Device (default modbus add = 305 Status command)	179	WORD	134
Set_Value_1_Channel_3_4th_Device (default modbus add = 16 Local Set point)	180	INT	136
Set_Value_2_Channel_3_4th_Device (default modbus add = 252 Manual Output power)	181	INT	138
Set_Value_3_Channel_3_4th_Device (default modbus add = 12 Alarm 1 Set point)	182	INT	140
Channel_4_Command_4th_Device (default modbus add = 305 Status command)	183	WORD	142
Set_Value_1_Channel_4_4th_Device (default modbus add = 16 Local Set point)	184	INT	144
Set_Value_2_Channel_4_4th_Device (default modbus add = 252 Manual Output power)	185	INT	146
Set_Value_3_Channel_4_4th_Device (default modbus add = 12 Alarm 1 Set point)	186	INT	148

Vendor specific Gefran_modbus Class (100)

Class 100, (0x64 hex) is the vendor-specific class that allows access to GFX4 / GFX4-IR parameters and this preliminary manual describes the mapping functionality of the GFX4-EIP EthernetIP Adapter to ModbusRTU Master via acyclic CIP messages.



For all general GFX4/GFX4-IR/GFXTERMO4 functionality refer to _Modbus_Memory_map manuals available for download at Gefran web site gefran.com.

Table 1 contains the vendor-specific classes and service codes used with the GFX4/GFX4-IR/GFXTERMO4 adapter. Additional information about these classes is provided in the next sections, as well as an example of the application of some service code.

Service Code	Class	Service Name	Description of Service
0x32	0x64	Read Discrete Inputs	Reads one or more contiguous discrete input(s)
0x33		Read Coils	Reads one or more contiguous coil(s)
0x34		Read Input Registers	Reads one or more contiguous input register(s)
0x35		Read Holding Registers	Reads one or more contiguous holding register(s)
0x36		Write Coils	Write one or more contiguous coil(s)
0x37		Write Holding Registers	Write one or more contiguous holding register(s)

Table 1

According the Modbus Object Services following functions are supported. Each Modbus command is represented by a CIP service code of the Gefran_Modbus Object (0x64).

The list of predefined functions from the specification and the supported services by the GFX4-EIP are defined in the tables below.

List of supported Modbus Object Services

Vendor Service	Corresponding Modbus Fuction Code	Supported	Note
0x32	FC 2	Yes	FC 1 and 2 are synonymous for GFX4 slave
0x33	FC 1	Yes	
0x34	FC 4	Yes	FC 3 and 4 are synonymous for GFX4 slave
0x35	FC 3	Yes	
0x36	FC 15	Yes	
0x37	FC 16	Yes	

GFX4/GFX4-IR ACCESS MODE (MODBUS)

		Custom parameters		Zone 1 parameters		Zone 2 parameters		Zone 3 parameters		Zone 4 parameters	
S7-7	Description	Device address	Data address 16bits	Device address	Data address 16bits	Device address	Data address 16bits	Device address	Data address 16bits	Device address	Data address 16bits
			Data address 1bit		Data address 1bit		Data address 1bit		Data address 1bit		Data address 1bit
OFF (0)	GFX4 standard	NODE	from CUSTOM MAP	NODE	1024 + address from ZONE MAP (16bits access)	NODE	2048 + address from ZONE MAP (16bits access)	NODE	4096 + address from ZONE MAP (16bits access)	NODE	8192 + address from ZONE MAP (16bits access)
			Disabled		1024 + address from ZONE MAP (1bit access)		2048 + address from ZONE MAP (1bit access)		4096 + address from ZONE MAP (1bit access)		8192 + address from ZONE MAP (1bit access)

NOTE:

The access mode is selected by the dipswitch S7-7 =Off .The value from the rotary switches defines the NOD

Example Modbus Function Code 16 : Preset Multiple Register

The class range is defined by the CIP common specification. Each modbus node is a separate instance of this class, so the modbus node number defines the instance.

In this example we want to write one register at address 402 , node 1, zone 1 with value in Fc16_ReqData

Message Configuration - CIPMsgSRV37_FC16

Configuration* | Communication | Tag

Message Type: CIP Generic

Service Type: Custom

Service Code: 37 (Hex) Class: 64 (Hex) Instance: Attribute: 1 (Hex)

Source Element: FC16_ReqData

Source Length: 12 (Bytes)

Destination Element: FC16_CnfData

New Tag...

Instance = Modbus Rtu node

☐ Enable
 ☐ Enable Waiting
 ☐ Start
 ☐ Done
 Done Length: 0

☐ Error Code:
 Extended Error Code:
 ☐ Timed Out

Error Path:

Error Text:

OK Annulla Applica ?

Controller tag name	Value	Remark
Fc16_ReqData[0]	1426 = (1024+402)	Address of GFX4 Controller parameter H1.S
Fc16_ReqData[1]	1	Quantity
Fc16_ReqData[2]	Value	Data

Example FC4/FC3 Read Input/Holding Register

In this example we want to read one register at modbus address 402

Register read value is stored in FC04CnfData

Message Configuration - CIPMsgSRV34_FC04

Configuration* | Communication | Tag

Message Type: CIP Generic

Service Type: Custom

Service Code: 34 (Hex) Class: 64 (Hex) Instance: Attribute: 1 (Hex)

Source Element: FC04ReqData

Source Length: 1 (Bytes)

Destination Element: FC04CnfData

New Tag...

Instance = Modbus Rtu node

☐ Enable
 ☐ Enable Waiting
 ☐ Start
 ☒ Done
 Done Length: 2

☐ Error Code:
 Extended Error Code:
 ☐ Timed Out

Error Path:

Error Text:

OK Annulla Applica ?

Controller tag name	Value	Remark
FC04_ReqData[0]	1426 = (1024+402)	Address of GFX4 Controller parameter HI.S
FC04_ReqData[1]	1	Quantity
FC04_ReqData[2]		

INSTALLING THE SetIPTools_1.1_Setup

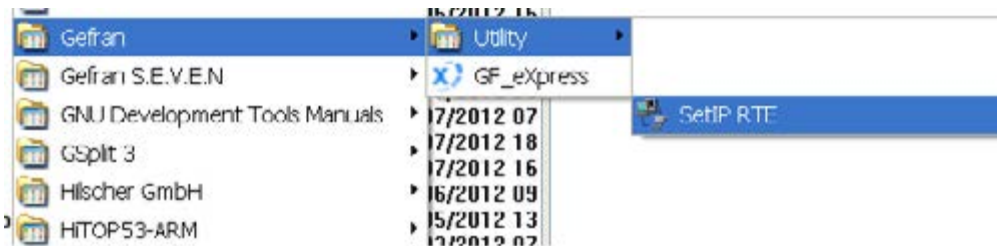
Double click on SetIPTools_1.1_Setup.exe file
With this tool is possible to setup the



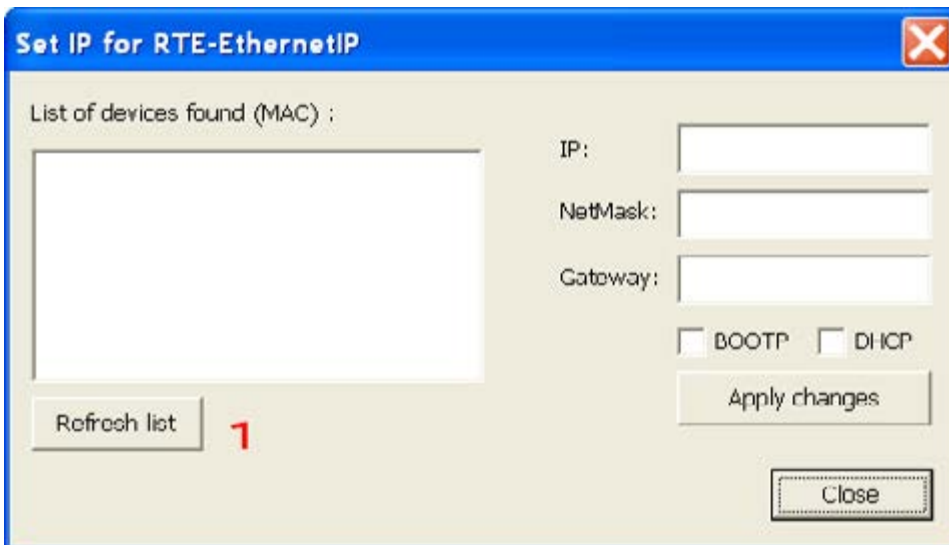
- Ip address
- Nemask
- Gateway
- DHCP or BOOTP

Note: Do not block UDP broadcast frames in your firewall!

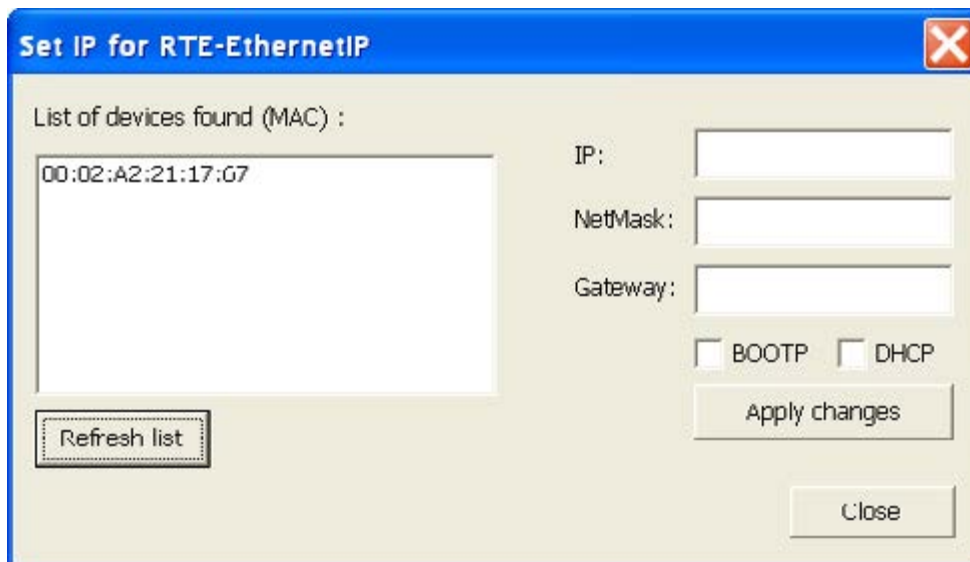
After the installation you can run the SetIp rte utility:



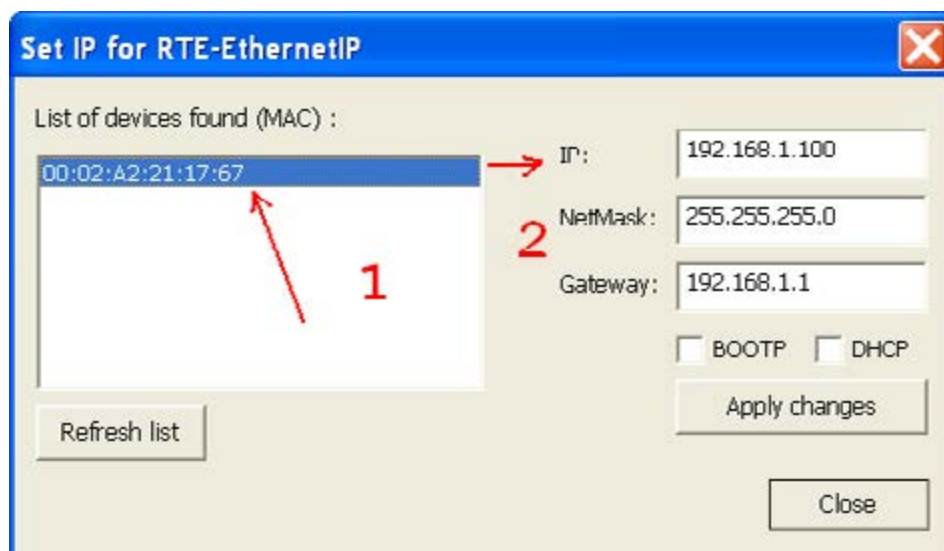
Step 1: Click on the **Refresh List** button



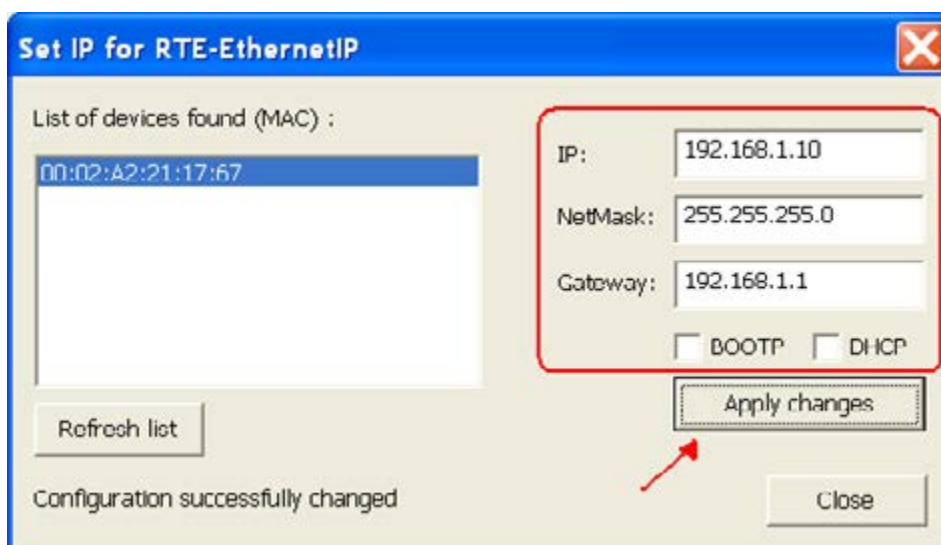
Step 2 : List of device found



Step 3 : Click on the mac address to get actual device setting



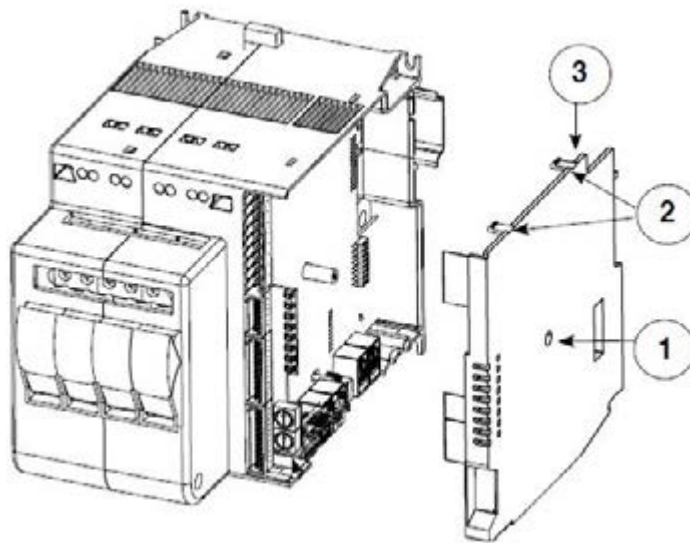
Step 4: Set your IP/NetMask and then click on the Apply changes button



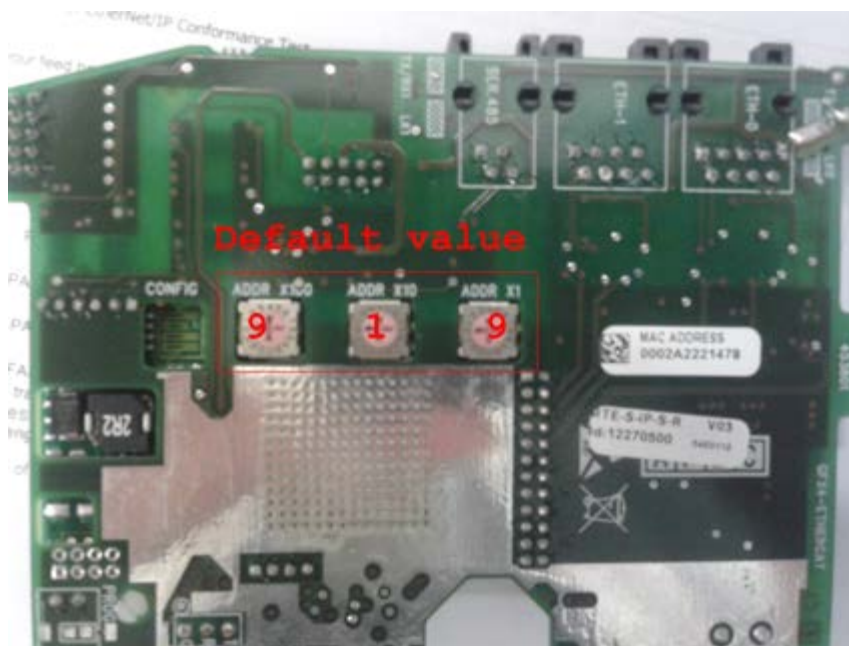
Resetting Parameters to Factory Defaults

At any moment, all of the GFX4-IR board parameters can be restored to the factory default settings.
To do so:

1. Switch off GFX4-IR
2. Unscrew screw 1, with a screwdriver , gently apply leverage at points 2 and remove cover 3



3. Set Rotary Switch addr X100 = 9 , Rotary Switch addr X10 = 1 , Rotary Switch addr X1 = 9



4. Restart GFX4-IR board and wait for about 30 secs
5. Switch off the GFX4-IR
6. Set Rotary Switch addr X100,X10, X1 to a value different from 919 value
7. Insert the cover
8. Restart GFX4-IR with default ip address 192.168.1.100 net mask 255.255.255.0