

Instruction manual

EXP-ETH2-IP-ADV200 EtherNet/IP interface expansion board



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1. Introduction

This manual describes the option board **EXP-ETH2-IP-ADV200** (cod. **S5L92**) to connect ADV200 series drives to Industrial Ethernet with EtherNet/IP protocol networks.

Only one fieldbus per drive expansion card can used.

This manual is intended for technicians and designers responsible for the maintenance, initial start-up and operation of Industrial Ethernet systems. A basic knowledge of Industrial Ethernet is therefore required.

The **EXP-ETH2-IP-ADV200** card can only be used with drives with firmware version **7.7.22 or higher**.

1.1 Features

- 2 EtherNet/IP 100 Mbit/s RJ-45 ports available simultaneously
- Beacon-based Device Level Ring (DLR)
- Control cycle duration from 1ms to 3200 ms
- Maximum input data length 32 bytes
- Maximum output data length 32 bytes
- Vendor ID= 853
- Modbus TCP/IP communication

1.2 What is EtherNet/IP?

EtherNet/IP is the name given to the CIP (Common Industrial Protocol) as implemented on Ethernet standard (IEEE 802.3 and the TCP/IP protocol suite).

EtherNet/IP is an industrial Ethernet solution available for the automation of machines and plants, based on the CIP (Common Industrial Protocol), an object-oriented protocol, based on a media-independent connection protocol designed for automation applications, which includes a set of comprehensive communication services for automation applications, "IP" in "EtherNet/IP" refers to "Industrial Protocol". It is built on the infrastructure network of the Ethernet physical layer and on TCP-IP protocol, and can therefore be used in automation networks that can tolerate a certain amount of non-determinism.

Among other things, this allows:

- I/O data transfer via implicit messaging based on User Datagram Protocol (UDP);
- data transfer via explicit messaging based on TCP protocol;
- "EtherNet/IP" uses TCP port number 44818 for explicit messaging and UDP port number 2222 for implicit messaging.

1.3 Safety

Before installing the board, carefully read the section on safety instructions in the manual "GuideADV200 Quick Start, Chapter 1 -Safety Precautions".

1.4 Assembly

The EXP-ETH2-IP-ADV200 option board comes with the EXP LOCK KIT (cod. S7BQO4P) to secure lock and the board in the dedicated slot.

EXP LOCK KIT includes: No. 4 screws M3 x 8 mm + washer, No. 1 plastic fixing bar, No. 2 hexagonal spacers, No. 2 washers split M3.2, No. 1 metal shield (G) and .No. 1 screw M4 x 8 mm (H1).

- 1) To remove the lower cover (A) unscrew the 2 screws (B) and pull it out in the direction indicated (C), see figure 1.
- To remove the top cover (D) loosen by about the screws (E) 2) and slide it off in the direction indicated (F), see figure 1.

Figure 1



Position and secure the metal shield (G) with the NoM3x8 3) screws (H2) and No. 1 M4x8 (H1) as shown in figure 2.

Figure 2



4) Place the EXP-ETH2-IP-ADV200 card in the dedicated Slot 3 as shownin Figure 3, align the ends of the card (L) in the slot, and then fully insert the card connector into the drive connector (M).



5) Fix the 2 hexagonal spacers (N) with the M3.2 split washers (O) at the fixing points (P); then fix the board with the M3 x 8 mm screw + washer (Q) at the point (R) and finally fix the plastic fixing bar (S) with the 2 M3 x 8 mm screws + washer (T) on the hexagonal spacers as shown in figure 4.

Figure 4





Use only the supplied screws.

1.5 Links

Bus media

2 RJ-45 EtherNet/IP 100 Mbit/s ports.

Wiring considerations

To ensure reliability over time, it is recommended that all cables used to connect the system are checked using a suitable Ethernet cable especially when cabling is done on-site.

Cables

Cable problems are the biggest cause of network downtime. Verify that cables are properly routed, that wiring is correct, that connectors are properly installed, and that all switches and routers are for industrial use.

Office Ethernet equipments generally does not offer the same degree of noise immunity as industrial equipments.

Figure 3

Maximum network length

The major restriction imposed on Ethernet cabling is the length of a single cable segment.

The module ADV-Industrial Ethernet has two 100BASE-TX Ethernet ports, supporting segment lengths of up to 100 m with cables of category 6 or higher.

ADV-Industrial Ethernet terminal descriptions

The ADV EtherNet/IP module has two RJ45 Ethernet ports for the Industrial Ethernet network.

Ethernet interface (connectorsRJ45) 10/100Mbit , Ethernet interface full or half duplex operation		
Pin	Port 1 IN/OUT (J1) Port 2 IN/OUT (J2)	
4, 5, 7, 8	Connected to chassis earth via serial RC circuit	
6	RD-	
3	RD+	
2	TD-	1 8
1	TD+	
Housing	Cable shielding	

Network topology

The connection between the devices can be done by "daisy chaining":



Or via switch:



The two Ethernet ports are interchangeable, in the sense that no input and output port is defined the board behaves like an Ethernet switch.

Minimum node-to-node cable length

There is no minimum cable length recommended by Ethernet standards.

In order to avoid possible problems, it is recommended to leave sufficient cable length to ensure a good radius on the cable and avoid unnecessary strain on the connectors.

1.6 Led - Jumper - Terminal



1.6.1 Link/Activity LED (Green/Yellow)

LED Status	LED Description	
Off	No link, no activity	
Green	Link (100 Mbit/s) established	
Green, flashing	Activity (100 Mbit/s)	
Yellow	Link (10 Mbit/s) established	
Yellow, flashing	Activity (10 Mbit/s)	
LED Status	LED Description	
PWR	Indicates the presence of the board power supply it (green) when the board is powered.	

1.6.2 Network status LED (Green/Red)

LED Status	LED Description	
Off	No power supply or no IP address	
Green	Online, one or more connections established (CIP Class 1 or 3)	
Green, flashing	Online, no connection established	
Red	Duplicate , IP address FATAL error	
Red, flashing	Timeout of one or more connections (CIP Class 1 or 3)	

1.6.3 Module status LED (Green/Red)

LED Status	LED Description	
Off	No power supply	
Green	Controlled by a scanner in Run state and, if CIP Sync is enabled, the time is synchronised with a Grandmaster clock	
Green, flashing	Online, no connection established	
Red	Serious error (status EXCEPTION, FATAL error, etc.)	
Red, flashing	Reversible defect(s). The module configured, but the stored parameters differ from the currently used parameters.	

1.6.4 Jumper

Reference	Description	
P2	If the terminals are mounted, the jumper must be installed in position 2-3.	

1.6.5 Terminal

Reference	Description
TB1	If the contacts are mounted, they must be left NOT CONNECTED.

1.7 Optional Card Recognition



At power-up, the drive recognises the presence of option card in the expansion slot 3, and this message appears on the display.

AL

T+ T EN LOC ILim n:0 AL	T+ T- EN	LDC ILIm n:0
01 MONITOR	02.19	PAR: 534
02 DRIVE INFO	Slot 3 card	d type
03 STARTUP WIZARD	RTE2	
04 DRIVE CONFIG	Value	772

On the 02 DRIVE INFO menu, select PAR 534 **Card slot 3 Type** to read the type of card recognised.

Value	Description	Type of card
0	None	-
772	RTE2	EXP-ETH2-IP-ADV200
255	Unknown	-

2. Start-up guide

This section provides a generic guide for setting up the module with a master/controller PLC. It covers the steps required to achieve cyclic data communication using the Industrial Ethernet protocol on the module.

2.1 Quick Guide

2.1.1 WEG EDS files

WEG provides an EXP-ETH2-IP-ADV200 device description file, which facilitates the configuration. The GSDML file contains information to identify the device, enter communication modules and transmit diagnostic information.

The files can be found in the folder:

C:\Program Files (x86)\WEG PC Tools\WEG_eXpress\Catalog\ Drives\Inverter\ADV200\ADV200_7_x_yy\Service\EthernetIP.

For asynchronous motor applications use the file:

ADV200 V7.1 ETH2,eds.

For synchronous motors, use the file: ADV200S V7.1 ETH2,eds.

In case of special support needs, please contact the WEG Customer Service: technohelp@weg.net

2.1.2 Fieldbus menu

To enable the EXP-ETH2-IP-ADV200 card, set the PAR 4000 Fieldbus Type parameter to "RTE".

In the CONFIGURATIONS menu under COMMUNICATION \rightarrow CONF BUS FIELD, relating to the management of EXP-ETH2-IP-ADV200, the following parameters are available:

IPA	Parameter name	Value	Туре
4000	Fieldbus type	Off	Enum
4010	Fieldbus $M \rightarrow S$ enable	Enable	Enum
4012	Fieldbus alarm mode	0	Int
4014*	Fieldbus state	Stop	Enum
4398	RTE Protocol	None	Enum
5608*	IP Address	0.0.0.0	UnsignedInt
5610*	Netmask	0.0.0.0	UnsignedInt
5612*	Gateway	0.0.0.0	UnsignedInt
5880	IP Address set	192.168.1.10	UnsignedInt
5882	Netmask set	255.255.255.0	UnsignedInt
5884	Gateway set	0.0.0.0	UnsignedInt
5886	Network set	Static	Enum



All fieldbus settings and configurations only take effect the next time the drive is reset.

- Fieldbus M→S Enable = set to Disable the data that the PLC sends to the drive (master to slave) are no longer loaded from the drive and the current values are retained.
- Fieldbus Alarm mode (mode alarm) = if set to 1, the drive generates the errors BusLoss even if the drive is switched off.
- Fieldbus state = status of communication on the network:

PAR 4014 Fieldbus status	Industrial Ethernet
Stop	Booting
Init	Setting-up
Pre-operational	The EXP-ETH2-IP-ADV200 stays in this state until a Class 1 connection has been opened
Safe-op	Class 1 connection idle
Operational	Class 1 connections errors or Unexpected error

- RTE Protocol EthernetIP.
- **IP address set** Enter IP address of the network.
- Netmask set Enter IP address of the subnetwork.
- Gateway set Enter gateway IP address.
- Network set IP address assignment: DCHP = automatically assigned by the server; Static = uses the address configured with the above parameters.
 IP address Display the IP address in use.
- Netmask Displays the IP address of the subnetwork in use.
- Gateway Displays the IP address of the gateway in use.

2.1.3 Configuration of the EtherNet/IP module for cyclical communications

In the EtherNet/IP protocol configuration, the instances describing the data exchanged as I/Os have a fixed size that must match the settings made on the Master and the device.

The transmission speed of the network is fixed. The module must be associated with a IP address unique for the subnetwork in which it is used.

To check if the Ethernet cable connected to the EtherNet/IP module on the drive is correctly connected, look at the LED on the front of the module relating to the connector to be used: if it is green then there is a connection to the master, if it is off then check the wiring and verify that the master has started communication.

In the master, scan the network to check that the module is correctly connected to the master. If the network is correctly configured, one or more EtherNet/IP nodes will appear in the master PLC. Decide which input/output data you want to send cyclically (objects and/ or parameters). The configuration of input/output data associated with cyclic data exchange polling can be done directly via drive parameters (settings of menu FIELDBUS M2S and FIELDBUS S2M).

It is important to set a data area size that is compatible between the master and the Ethernet/IP device bytes coincides with the size of the I/O area set on the master. The size in bytes occupied by the drive is obtained from the settings in the FIELDBUS M2S and S2M menus, by summing the size in bytes of each parameter set via the relative parameter "Fieldbus $M \rightarrow S$ n sys" or "Fieldbus $S \rightarrow M$ n sys", according to the following table:

Not assigned	The related data and all subsequent (even if assigned) do not contribute to the I/O area.
Count16,Par16,Fill16,MdpPlc16,Eu	2 bytes
Count32,Par32,Fill32,MdpPlc32,Eu float	4 bytes

The association between the I/O data area of the drive "Master to Slave (M2S)" and "Slave to Master (S2M)" and the assembly instance is as follows:

- M2S istanza assembly 100 Connection Output
- S2M istanza assembly 150 Connection Input



The size of the Connection Input on the master must always be increased by 4 bytes.

2.1.4 Downloading the configuration to the controller

After downloading the configuration to the controller, one or more LEDs on the front of the communication module flash according to the connected ports.

If the configuration is correct, when the state of the master switches to "Run" mode (on the drive, parameter 4014 "Fieldbus State" becomes "Operational"), the output values sent by the master are visible in the drive parameters associated with the channels configured in the "FIELDBUS M2S" menu, while the input values received are updated to the parameter values in the "FIELDBUS S2M" menu.

2.2 Configuration example of EtherNet/IP scanner

This paragraph contains an example of data exchange seen from the PLC side. This is the information normally dictated by the machine specification in the case of an application governed by EtherNet/IP scanners.

2.2.1 Communication description of input/output data cycling Master \rightarrow Slave

The two parameters to be written via the process channels are the first one a command word (which we will call control word) in which the individual bits contain certain commands (e.g. enable, start); the second one the ramp reference 1 (RampRef1) in rpm.

<u>Cyclic input/output data Industrial Ethernet: Master \rightarrow Slave (max. 16 words)</u>

Position	Description	Format	Measurement unit
Word1 $M \rightarrow S$	Control word	16 bit Word	
Word2 $M \rightarrow S$	Ramp Ref 1	Int 16 bit	rpm
Word3 $M \rightarrow S$			
Word4 $M \rightarrow S$			
Word5 $M \rightarrow S$			
Word6 $M \rightarrow S$			
Word7 $M \rightarrow S$			
Word16 $M \rightarrow S$			

CONTROL WORD

Bit	Description	Notes
0	EnableCmd	Enable command from PLC
1	StartCmd	Start command from PLC
2	Free	
3	Free	
4	Free	
5	Free	
6	Free	
7	Free	
8	Digital Out3	PLC-controlled digital output 3
9	Digital Out4	PLC-controlled digital output 4
10	Free	
11	Free	
12	Free	
13	Free	
14	Free	
15	Free	

2.2.2 Communication description of input/output data cycling Slave \rightarrow Master

The Ethernet/IP Scanner reads three parameters from the drive, the first one contains status word whose individual bits contain the drive status information (e.g. DriveOk); the second one is the current speed in rpm. The third parameter contains the value of the analogue input 2.

<u>Cyclic input/output data Industrial Ethernet Slave \rightarrow Master (max 16 Words)</u>

Position	Description	Format	Measurement unit
Word1 $S \rightarrow M$	Status Word	16 bit Word	BitWide
Word2 $S \rightarrow M$	Actual Speed	Int 16 bit	rpm
Word3 $S \rightarrow M$	Analog Input 2	Int 16 bit	
Word4 $S \rightarrow M$			
Word5 $S \rightarrow M$			
Word6 $S \rightarrow M$			
Word7 $S \rightarrow M$			
Word16 $S \rightarrow M$			

STATUS WORD

Bit	Description	Notes
0	EnableState	Drive enabled
1	Drive Ok	Drive Ok
2	Speed is zero	Zero speed threshold
3	Free	
4	Free	
5	Free	
6	Free	
7	Free	
8	Digital Input 4	Digital input status 4 ADV200
9	Digital Input 5	Digital input status 5 ADV200
10	Free	
11	Free	
12	Free	
13	Free	
14	Free	
15	Free	

2.2.3 I/O composition procedure

Analysis of the size of the data in the composition instances shows that:

- Producing Data assembly instance 100, associated with 3 parameters in reading, consists of 6 bytes;
- Consuming Data assembly instance 150, associated with 2 parameters in writing consists of 4 bytes.

I/O data are thus associated in the instances.

Composition of assembly instance 100:

Instance Assembly	Byte no.	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0		
	0		Lo	ow byte	(4432	Word co	отр то	n)			
	1		Н	igh byte	e (4432 V	Word co	mp moi	n)			
	2			Low by	rte (260	Motor	Speed)				
	3		High byte (260 Motor Speed)								
100	4		Lov	w byte	(1500 A	nalog ir	iput 1m	on)			
100	5		Hig	gh byte	(1500 A	nalog in	put 1m	on)			
	6										
	7										
	31										

Instance Assembly	Byte n.	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0		Lo	ow byte	(4452 V	Vord de	comp sr	c)	
	1		Hi	gh byte	(4452 V	Vord de	comp si	rc)	
	2			Low by	te (610	Ramp re	ef 1 src)		
	3			High by	te (610	Ramp re	ef 1 src)		
150	4								
150	5								
	6								
	7								
	31								

2.3 ADV200 Programming

In the example given in this section, the first assumption is that the ADV200 drive parameters are the factory **default parameters**.

I/O data exchanged via the EXP-ETH2-IP-ADV200 can be configured and associated with drive parameters. Data written by the EtherNet/IP scanner to the drive are associated with Output Instance 150 and are configured on the drive via the "FIELDBUS M2S" (Master to Slave) menu parameters.

The data read from the scanner are associated with the Input instance 100 and are configured on the drive via the "FIELDBUS S2M" (Slave to Master) menu parameters.

A parameter can be either 2 or 4 bytes long, depending on the associated format, selected via the "Fieldbus M2S n sys" e "Fieldbus S2M n sys".

16 input channels and 16 output channels are made available, in which a number of data between 0 and 16 may be allocated, as long as the total number of required bytes is not greater than 32 input bytes and 32 output bytes.

<u>Example:</u>

It is possible to have:

- 0 to 16 2-byte data
- 1 4-byte data + 0 to 14 2-byte data
- 2 4-byte data + 0 to 12 2-byte data
- ...
- 8 4-byte data

The data exchanged can be of two types:

- drive parameters;
- variables of an MDPIc application.

2.3.1 Reading states and writing commands to the drive

Specific parameters are made available for sending commands and reading drive status, where each bit is programmable and can be associated with a function.

Commands can be sent to the drive using the functions **Word** decomp src PAR 4452. The meaning of individual bits is programmable. It can be set on a fieldbus $M \rightarrow Sn$ channel as Count 16.

The drive status is read in **Word comp mon** PAR 4432, which can be programmed on any $s \rightarrow Mn$ channel of the fieldbus as Count 16. The meaning of each individual bit can be selected by the user using **Word bit0 src** of PAR 4400... **Word bit15 src** of PAR4430.

For a detailed description of these parameters, please refer to the drive manual.

FIELDBUS CONFIG menu

NOTE!

All fieldbus settings and configurations only take effect the next time the drive is reset.

Program the fieldbus menu parameters as in the following figure:

ADV200_4_X_0.gft (FIELDBUS CO	oni	16] - WE	G_eKpress					6	
Ele Yiew Parameters Target	- 21	trvice H	elp						
🔝 📽 🖬 🔬 🎾 😅 R	W	반면	息 🗶 📾 🔤 🖼 🐄	2	習慣多	0	🛕 네 1년 🤹		
Menu	х	IPA	Short Description	Value	Default	Unit	Type	Min	Max
Menu selection		4000	Fieldbus type	Rte	0#		Enum		
MOTOR DATA		4004	Fieldbus baudrate	Auto	500k		Enum		
- P ENCODER CONFIG		4006	Fieldbus address	3	3		Short	0	255
SPEED REG GAINS		4010	Fieldbus M->S enable	Enable	Enable		Enum		
- P REGULATOR PARAM		4012	Fieldbus alarm mode	0	0		Int	0	1
- C TORQUE CONFIG		4014*	Fieldbus state	PreOperational	Stop		Enum		-
- VF PARAMETERS		4398*	RTE protocol	EthernetP	None		Enum		-
FRLORUS CONFIG FILLORUS MAS FILLORUS SAM WORD DECOMP WORD DECOMP ALARM CONFIG ALARM CONFIG TurtisedManu Substanta									
TRACES.									
O No alarms						Modbu	s, Addr:1, Port:COM4	CON	NECTED

I/O data exchange is only active when parameter 4014 "Fieldbus state" turns to the value "Operational". In all other cases, the scanner didn't I/O data exchange with the EXP-ETH2-IP-ADV200 card.

This could be related to problems in the configuration of the assembly instances, e.g. if the size set on the scanner does not match the size from the "FIELDBUS M2S" menu settings and "FIELDBUS S2M", or the scanner is not in 'Run' state.

However, when parameter 4014 "Fieldbus state" is "Operational", the I/O data is updated with the programmed parameter values. Only in this state the drive can be enabled.

2.3.2 Writing Output data

FIELDBUS M2S menu

The **control word** is configured using Wdecomp. The following figure shows the programming of Wdecomp on the first word M > S ("Export" mode):

9 6 6 8 9 7 5 6 .	w면망	лис по		D7 11 7 V	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		_
lenu	X IPA	Short Description	Value	Default U	Init Type	Min	Ma
Menu selection	4020	Fieldbus M->S1 ipa	4452	0	UnsignedShort	0	2000
- 👘 MOTOR DATA	4022	Fieldbus M->S1 sys	Count 16	Not assigne	Enum		
- 👸 ENCODER CONFIG	4024*	Fieldbus M>S1 mon	0		Int		
- 👸 SPEED REG GAINS	4026	Fieldbus M->S1 div	1	1	Float	1	1000
- 🕅 REGULATOR PARAM	4030	Fieldbus M->32 ipa	610	0	UnsignedShort	0	2000
- 🜔 TORQUE CONFIG	4032	Fieldbus M->S2 sys	Eu	Not assign:	Enum		
- VF PARAMETERS	4034*	Fieldbus M->S2 mon	0	-	Int		
FUNCTIONS	4036	Fieldbus M->S2 dv	1	1	Float	1	1000
	4040	Fieldbus M->\$3 ipa	0	0	UnsignedShort	0	200
EDIDDUS CONDIC	4042	Fieldbus M->S3 sys	Not assigned	Not assigne	Enum		
EFEIDRUS M2S	4044*	Fieldbus M->83 mon	0	-	Int		
- FIELDBUS S2M	4046	Fieldbus M->83 div	1	1	Float	1	1000
WORD COMP	4050	Fieldbus M->S4 ipa	0	0	UnsignedShort	0	200
WORD DECOMP	4052	Fieldbus M->S4 sys	Not assigned	Not assigne	Enum		
- P ALARM CONFIG	4054*	Fieldbus M->S4 mon	0	-	Int		
- PLICATION	4056	Fieldbus M->S4 dv	1	1	Float	1	1000
InterfaceMenu	4050	Fieldbus M->S5 ipa	0	0	UnsignedShort	0	2000
- WIZARD	4052	Fieldbus M->S5 svs	Not assigned	Not assigned	Enum		
DIAGRAMS	4064*	Fieldbus M->S5 mon	0	-	Int		
B DESTINATIONS	4066	Fieldhus MarS6 div	1	1	Finat	1	1000

Now simply connect the individual bits of wdecomp. For commands, please note that as stated in the ADV200 manual, the drive must be in mode "**Remote**" and "**Digital**".

The programming of the first two bits takes place in the command menu as shown in the figure:

만 M M M M M M M M M M M M M M M M M M M	w	6.4	WW C C		89 W F	0 114	스에안 망		
lenu	х	IPA	Short Description	Value	Default	Unit	Type	Min	Max
Menu selection		1000	Commands remote se	l Digital	Terminal		Enum	-	
🕐 MainMenu		1002	Commands local sel	Keypad	Keypad		Enum	***	
-0 MONITOR		1004	Enable/disable mode	Stop/FS&Spd=0	Stop/FS&Sp		Enum		
DRIVE INFO		1006	Speed 0 disable dly	1000	1000	ms	UnsignedShort	0	10000
DRIVE CONFIG		1008	Stop key mode	Inactive	Inactive		Enum	***	
- C REFERENCES		1010	Commands safe start	On	On		Boolean		
- C RAMPS		1012	Dig local/remote	Remote	Remote		Enum		
- MULTI REFERENCE	1	1014	Local/remote src	Dig local/remote	Dig localite		Enum		
	11	1016	Terminal Start src	FR start mon	FR start mc		Enum		***
MONITOR FUNCTION		1018	Digital Enable src	Bit0 decomp mon	Null		Enum		
COMMANDS		1020	Digital Start src	Bit1 decomp mon	Null		Enum		
DIGITAL INPUTS		1022	FastStop arc	Null	Null		Enum		
DIGITAL OUTPUTS	Ш.	1024*	Enable cmd mon	0			UnsignedShort		
- P ANALOG INPUTS		1026*	Start cmd mon	0			UnsignedShort		
— ANALOG OUTPUTS		1028*	FastStop cmd mon	0			UnsignedShort		
-0 MOTOR DATA		1040	FR mode	Two wire	Two wire		Enum		
-O ENCODER CONFIG		1042	FR forward src	Digital input 1 mon	Digital inpu		Enum		
- P SPEED REG GAINS		1044	FR reverse src	Digital input 2 mon	Digital inpu		Enum		
TOPOUL CONFIG		1046	FR *stop src	Null	Null		Enum		
III +	Ť	1048*	SR etsit mon	0			I InsignadShort		,

Bits 8 and 9 are programmed from the "Command word" as shown in the figure (Digital Outputs menu):

9 B B 3 3 5 K	w	5.4	WW BL 10 G		1 69 M F V	116 TO 41 55 123		
Venu	х	IPA	Short Description	Value	Default U	nit Type	Min	Max
Menu selection		1310	Digital output 1 src	Drive OK	Drive OK	Enum	***	***
3 1 MainMenu	٨	1312	Digital output 2 src	Drive ready	Drive ready	Enum		***
-0 MONITOR		1314	Digital output 3 src	Bit8 decomp mon	Speed is 0	Enum		
- CRIVE INFO		1316	Digital output 4 arc	Bit9 decomp mon	Refis 0 del	Enum		
- CONFIG		1330	Dig out 1 inversion	Off	off	Boolean	***	
- C REFERENCES		1332	Dig out 2 inversion	Off	on	Boolean		
- C RAMPS		1334	Dig out 3 inversion	Off	Off	Boolean	***	
- MULTI REFERENCE	8	1336	Dig out 4 inversion	Off	Off	Boolean		***
		1410	Dig output 1X src	Null	Null	Enum		
MONITOR EINCTION		1412	Dig output 2X src	Null	Null	Enum		
COMMANDS		1414	Dig output 3X src	Null	Null	Enum		
DIGITAL INPUTS		1416	Dig output 4X src	Null	Null	Enum		
DIGITAL OUTPUTS	Ш,	1418	Dig output 5X src	Null	Null	Enum		
ANALOG INPUTS		1420	Dig output 6X src	Null	Null	Enum		
- P ANALOG OUTPUTS		1422	Dig output 7X src	Null	Null	Enum		
- 🌔 MOTOR DATA		1424	Dig output BX src	Null	Null	Enum		
-0 ENCODER CONFIG		1430	Dig out 1X inversion	Off	Off	Boolean		
- P SPEED REG GAINS		1432	Dig out 2X inversion	Off	Off	Boolean		
TOPOUL CONFIC		1434	Dig out 3X inversion	Off	Off	Boolean		
-D TORQUE CONHIG	٣	1416	Dis out 41 inversion	0#	0#	Rasiego		
		e	111					,

REFERENCES menu

The configuration of the second word is done in the REFERENCES menu:

			ALL ALL UN I OL	AND 100 10 1	EXP TW 7	0 114	23 10 CC TP			
ny	×	IPA	Short Description	Value	Default	Unit	Type	Min	Max	ĸ
Menu selection		600	Dig ramp ref 1	0	0	rpm	Short			
MainMenu		602	Dig ramp ref 2	0	0	rpm	Short			
-0 MONITOR		604	Dig ramp ref 3	0	0	rpm	Short			
- 🕅 DRIVE INFO		610	Ramp ref 1 src	Fieldbus M->S2 mon	Analog inpu		Enum		***	
DRIVE CONFIG		612	Ramp ref 2 src	Dig ramp ref 2	Dig ramp re		Enum	***		
- C REFERENCES		614	Ramp ref 3 src	Mpot output mon	Mpot output		Enum			
- C RAMPS		616	Ramp ref invert src	FR reverse mon	FR reverse		Enum			
- MULTI REFERENCE	1	620*	Ramp ref 1 mon	0		rpm	Short			
- MOTOKPOTENTIOME		622*	Ramp ref 2 mon	0		rpm	Short			
MONITOR EUNCTION		624*	Ramp ref 3 mon	0		rpm	Short			
COMMANDS		634	Ramp ref top lim	1500	0	rpm	Int	0		
DIGITAL INPUTS		636	Ramp ref bottom lim	0	0	rpm	Int	0		
DIGITAL OUTPUTS	Ш,	630	Reference skip set	0	0	rpm	Short	0		
ANALOG INPUTS		632	Reference skip band	0	0	rpm	Short	0		
- P ANALOG OUTPUTS		640	Dig speed ref 1	0	0	rpm	Short			
-0 MOTOR DATA		642	Dig speed ref 2	0	0	rpm	Short			
-O ENCODER CONFIG		650	Speed ref 1 src	Dig speed ref 1	Dig speed		Enum			
- P SPEED REG GAINS		652	Speed ref 2 src	Dig speed ref 2	Dig speed i		Enum			
TODOUT CONFIC		654	Speed ref invertisrc	Null	Null		Enum			
TORQUE CONTIS		4	Sneed ref 1 mon	0		mm	Chart		,	i

After executing a save command and switching the drive back on, it is possible to check the correct configuration of the $M \rightarrow S$ channels as in the figure (HTML page):

lenu	х	Fiel	dhue M	128 Worde Mann	ing	
Menu selection	יר	Tier	ubus n	120 Words mapp	ing	
- CONFIG	*				Esc key	
— P SPEED REG GAINS		Marcha	e of a second a	er andersende 2		
— PRESULATOR PARAM		Number	r or paramete	rs exchanged. 2		
— I TORQUE CONFIG		Number	r of words ma	ipped: 2		
VF PARAMETERS						
FUNCTIONS						
- COMMUNICATION						
- 🕅 RS485		Word	Ipa	Parameter name	Format exchange	
- P FIELDBUS CONFIG		1	4452	Word decomp sec	Count 16 - 16bit	
— I FIELDBUS M2S		2	610	Ramp ref 1 src	Eu - 16bit	
— P FIELDBUS S2M		<u> </u>	<u> </u>		· · · · · · · · · · · · · · · · · · ·	
- 🕅 WORD COMP		÷	<u> </u>			
WORD DECOMP			<u> </u>			
— P ALARM CONFIG						
PLICATION			\rightarrow			
InterfaceMenu		1 .				
InterfaceMenu			++++-			
APPLICATION InterfaceMenu WIZARD DIAGRAMS		i Fi				
InterfaceMenu WIZARD DIAGRAMS DESTINATIONS				-		
APPLICATION APPLICATION WIZARD UIDAGRAMS DIAGRAMS E DIAGRAMS FIELDBUS WORDS MAP	Ε.	-		-		
APPLICATION InterfaceMenu WIZARD DIAGRAMS DIAGRAMS DESTINATIONS FIELDBUS WORDS MAP M25		· · ·				
APPLICATION InterfaceMenu WIZARD DIAGRAMS DIAGRAMS DISTINATIONS FIELDBUS WORDS MAP M23 S2M		· · ·				

2.3.3 Writing Input data

FIELDBUS S2M

The configuration of these channels is done in the FIELDBUS S2M menu. Wcomp used for programming the first channel.

The following figure shows S2M programming:

		AL AL 00		Defense la se		1
lenu 💙	IPA	Short Description	Value	Default value Un	t Type	Mir
Menu selection	4180	Fieldbus S-*M1 ipa	44.52	U Contra da	Unsignedismon	U
- C ENCODER CONFIG -	4182	Fieldous S-Min sys	Count 16	Not assigned	Enum	
- P SPEED REG GAINS	4184	Dig Fieldous S->M1	0	0	Int	
REGULATOR PARAM	4185	Fieldbus S->M1 mul	1	1	Float	1
-D TORQUE CONFIG	4190	Fieldbus S->M2 ipa	260	0	UnsignedShort	0
	4192	Fieldbus S->102 sys	Eu	Not assigned	Enum	
COMMUNICATION	4194	Dig Fieldbus S⇔M2	0	0	Int	
RS485	4196	Fieldbus S->M2 mul	1	1	Float	1
FIELDBUS CONFIG	4200	Fieldbus S->M3 ipa	1500	0	UnsignedShort	0
FIELDBUS M25	4202	Fieldbus S->M3 sys	Count 16	Not assigned	Enum	
- C FIELDBUS S2M	4204	Dig Fieldbus S->M3	0	0	Int	
WORD COMP WORD DECOMP ALARM CONFIG	4206	Fieldbus S->M3 mul	1	1	Float	1
	4210	Fieldbus S->M4 ipa	0	0	UnsignedShort	0
	4212	Fieldbus S->M4 sys	Not assigned	Not assigned	Enum	
- P APPLICATION	4214	Dig Fieldbus S->M4	0	0	Int	
InterfaceMenu	4216	Fieldbus S->M4 mul	1	1	Float	1
WIZARD	4220	Fieldbus S->M5 ipa	0	0	UnsignedShort	0
	4222	Fieldbus S->M5 sys	Not assigned	Not assigned	Enum	
FIELDBUS WORDS MAP	4224	Dig Fieldbus S->M5	0	0	Int	
- M25 *	4226	Fieldbus S->M5 mul	1	1	Float	1
	<					

The following figure shows the programming of Wcomp:

	X	IPA	Short Description	Value	Default value Un	it Type	Min
Hanu colortian	-	4400	Word bit0 src	Enable state mon	Null	Enum	
A ENCODER CONFIG		4402	Word bit1 src	Drive OK	Null	Enum	
SPEED REG GAINS		4404	Word bit2 src	Speed is 0	Null	Enum	
REGULATOR PARAM		4406	Word bit3 src	Null	Null	Enum	
- C TORQUE CONFIG		4408	Word bit4 src	Null	Null	Enum	
— VF PARAMETERS		4410	Word bit5 src	Null	Null	Enum	
FUNCTIONS		4412	Word bit6 src	Null	Null	Enum	
E COMMUNICATION		4414	Word bit7 src	Null	Null	Enum	
EIELDRUK CONEIG		4416	Word bit8 src	Digital input 4 mon	Null	Enum	
EIELDBUS CONTIS		4418	Word bit9 sec	Digital input 5 mon	Null	Enum	
- FIELDBUS S2M		4420	Word bit10 src	Null	Null	Enum	
WORD COMP		4422	Word bit11 src	Null	Null	Enum	***
WORD DECOMP		4424	Word bit12 src	Null	Null	Enum	
- C ALARM CONFIG	11	4426	Word bit13 src	Null	Null	Enum	
APPLICATION		4428	Word bit14 src	Null	Null	Enum	
InterfaceMenu		4430	Word bit15 src	Null	Null	Enum	
WIZARD		4432"	Word comp mon	0000h		UnsignedInt	

Similarly after a save and restart of the drive, it is possible to verify the correct programming of the channels Slave \rightarrow Master:



2.3.4 Verification of the communication

The following are some notes/suggestions for verifying the communication.

- Cyclic input/output data communication is only active when parameter 4014 Fieldbus state is equal to "Operational". Check status via WEG_eXpress and expansion board LEDs.
- For Master → Slave communication in the FIELDBUS M2S menu, it is possible to check the value received by the communication channel (e.g. for the first channel is the parameter Fieldbus M→S1 Mon).
- In case of communication in EU (engineering units) remember that the value read on the Mon parameters of FIELDBUS M2S is in internal units (see conversion tables in chapter 5.0 SYSTEM INTERNAL VARIABLES, manual <u>https://www.weg.net/catalog/weg/IT/en/p/MKT_WDC_GLOBAL_PRODUCT_INVERTER_ADV200</u>).

3. Protocols

The EXP-ETH2-IP-ADV200 board works as a 'Generic Industrial Ethernet Device', which receives an implicit communication request from an EtherNet/IP scanner and consumes and produces data. It is also an 'explicit message server'. The following features are supported:

- Two EtherNet/IP ports
- 10/100 Mbit, full/half duplex operation
- (Device Level Ring) beacon-based DLR and linear network topology supported
- Data Transfer Layer, IEEE 802.3
- Identity object
- Message Router object
- Assembly object
- Connection Manager object
- DLR object
- ADI object (explicit message class for access to ADV200 parameters)
- TCP/IP Interface object
- Ethernet Link object

Network configuration via ADV200 parameters:

- IP address (default 192.168.1.10)
- Netmask (default 255.255.255.0)
- Gateway (default 0.0.0.0)
- Static/DHCP (default Static)

Management of Class 1 connection.

3.1 Connection details Class 1

3.1.1 Generalities

Class 1 connections are used to transfer I/O data and can be established with instances in the Assembly object.

Each Class 1 connection will establish two data transfers: one for consumption and the other for production. Heartbeat instances can be used for connections that only have access to inputs. Class 1 connections use UDP transfer. Null Forward Open function supported.

Total number of supported class 1 connections:	4
Max input connection size:	32 bytes
Max output connection size:	32 bytes
Supported RPI (Requested Packet Interval):	1 3200ms

$T \rightarrow 0$ Connection type:	Point-to-point, Multicast, Null	
$O \rightarrow -T$ Connection type:	Point-to-point, Null	
Supported trigger types:	Cyclic, CoS (Change of State)	
Supported priorities:	Low, High, Scheduled, Urgent	
Т	Target, in this case the EXP-ETH2-IP-ADV200	
0	Origin, in this case the EXP-ETH2-IP-ADV200	

3.1.2 Types of connections

• Exclusive-Owner Connection

This connection type controls the outputs of the EXP-ETH2-IP-ADV200 card and does not depend on other connections.

Maximum number of Exclusive- Owner connections:	1
Connection point $O \rightarrow T$:	Assembly Object, instance 96h (Default)
Connection point $T \rightarrow 0$:	Assembly Object, instance 64h (Default)

Input-Only Connection

This type of connection is used to read data from the card EXP-ETH2-IP-ADV200 without output control. It does not depend on other connections.

Maximum number of Input-Only connections:	Up to 4 (Shared with Exclusive-Owner and Listen-Only connections)
Connection point $O \rightarrow T$:	Assembly Object, instance 03h (Default)
Connection point $T \rightarrow 0$:	Assembly Object, instance 64h (Default)

Note that if an Exclusive-Owner connection is has been opened to the module and has expired, the Input-Only connection will also expire. If the Exclusive-Owner connection is properly closed, the Input-Only connection will be not affected.

• Extended Input-Only Connection

This connection functionality is similar to the standard Input-Only connection. However, when this connection expires, it does not affect the state of the application.

Connection point $O \rightarrow T$:	Assembly Object, instance 06h (Default)
Connection point $T \rightarrow 0$:	Assembly Object, instance 64h (Default)

Listen-Only Connection

In order to exist, this type of connection requires another connection. If this connection (Exclusive-Owner or Input-Only) is closed, the Listen-Only connection will be also closed.

Max. no. of Input-Only connections:	Up to 4 (Shared with Exclusive-Owner and Input- Only connections)
Connection point $O \rightarrow T$:	Assembly Object, instance 04h (Default)
Connection point $T \rightarrow 0$:	Assembly Object, instance 64h (Default)

• Extended Listen-Only Connection

This connection functionality is similar to the standard Listen-Only connection. However, when this connection expires, it does not affect the status of the application.

Connection point $O \rightarrow T$:	Assembly Object, instance 07h (Default)
Connection point $T \rightarrow 0$:	Assembly Object, instance 64h (Default)

3.2 Description of data exchanged by RTE

The basic block diagram of the device can be represented as follows:



Addressing data within a CIP device uses an object-oriented view. A class (of objects) is a set of objects representing the same type of system component (see next figure). It is sometimes necessary to have more than one 'copy' of an object, called an object instance, within a device. This set of objects is called an 'object class'. Each instance of the object class will have the same set of attributes, but a unique set of values. An object instance or object class has attributes, which provide services and implement behaviour.



Access data within a device using a non-time critical message (explicit message) contains the following information: network address, class ID, instance ID, attribute ID, service code. This addressing is also used in electronic data sheets (EDS) to identify configurable parameters within a device.

In addition to specifying how device data is represented, the CIP also specifies methods by which I/O data can be accessed, using triggers, and how data from different objects can be combined in an I/O or configuration message using an Assembly object.

3.3 Description objects

Identity Object (0x01)

This object makes it possible to identify and retrieve general information from the device.

Class attribute

#	Name	Access	Туре
1	Revision	Get	UINT
2	Max. instance	Get	UINT
3	Number of instances	Get	UINT

Attributes for the instance

#	Name	Access	Туре
1	Vendor	Get	UINT
2	Device type	Get	UINT
3	Product code	Get	UINT
4	Revision	Get	Struct of USINT
5	Status	Get	WORD

6	Serial number	Get	UDINT
7	Product Name	Get	SHORT_STRING

Assembly Object (0x04)

Assembly instances allow input/output data to be linked to the communication connection.

Class attribute

#	Name	Access	Туре
1	Revision	Get	UINT
2	Max. instance	Get	UINT

Attributes for instance 03h (Heartbeat, Input-Only)

This instance is used as Heartbeat for Input-Only connections. The data size of the instance in the Forward_Open-request is 0 bytes.

#	Name	Access	Туре
3	Data	Get	N/A
4	Size	Get	UINT

Attributes for Instance 04h (Heartbeat, Listen-Only)

This instance is used as Heartbeat for Listen-Only connections. The data size of the instance in the Forward_Open-request is 0 bytes.

#	Name	Access	Туре
3	Data	Get	N/A
4	Size	Get	UINT

Attributes for instance 06h (Heartbeat, Extended Input-Only)

This instance is used as Heartbeat for extended Input-Only connections and does not carry any attributes. The state of the connections established with this instance does not affect the state of the EXP-ETH2-IP-ADV200 card; in other words, if the connection expires, the module does not switch to the Error state. The data size of the instance in the Forward_Open-request is 0 bytes.

#	Name	Access	Туре
3	Data	Get	N/A
4	Size	Get	UINT

Attributes for instance 07h (Heartbeat, Extended Listen-Only)

This instance is used as Heartbeat for extended Listen-Only connections and does not involve any attributes. The state of the connections established with this instance does not affect the state of the EXP-ETH2-IP-ADV200 card; in other words, if the connection expires, the module does not switch to the Error state. The data size of the instance in the Forward_Open-request is 0 bytes.

#	Name	Access	Туре
З	Data	Set	N/A
4	Size	Get	UINT

Attributes for Instance 64h (Production Instance)

#	Name	Access	Туре	Value/Description
3	Produced Data	Get	Array of BYTE	This data corresponds to the Write Process Data.
4	Size	Get	UINT	Number of bytes in attribute 3

Attributes for Instance 96h (Consumption Instance)

#	Name	Access	Туре	Value/Description
3	Produced Data	Set	Array of BYTE	This data corresponds to the Read Process Data.
4	Size	Get	UINT	Number of bytes in attribute 3

ADI Object (0xA2h)

This object maps instances, corresponding to IPAs, onto EtherNet/ IP. All requests addressed to this object will be converted into explicit object requests in the internal ADV200 database; the response will then be converted back into CIP format and sent to the sender of the request.

Class attribute

#	Name	Access	Туре
1	Revision	Get	UINT
2	Max. instance	Get	UINT
3	Number of instances	Get	UINT

Attributes for the instance

Each instance corresponds to an IPA within the ADV200.

#	Name	Access	Туре	Value/Description			
1	Name	Get	SHORT_STRING	Parameter name (Including length)			
2	Data type	Get	Array of USINT	Data type of instance value			
3	No. of Elements	Get	USINT	Number of elements of the specified data type			
4	Descriptor	Get	Array of USINT	Bit field describing the access rights for this instance			
				<u>Bit:</u> <u>Meaning:</u>			
				1 1 = Get Access			
				2 1 = Set Access (reserved, set to 0)			
				3 1 = Write process data mapping possible			
				4 1 = Read process data mapping possible			
				5 1 = NVS parameter			
				6 1 = Data notification enabled			
			Determined by				
5	Value	Get	attributes #2,	Instance value			
			#3 and #9				

4. Alarms

In the event that the drive detects a problem related to EtherNet/IP communication, it can generate the 'Opt bus fault' alarm indicating the presence of an incorrect condition.

The 'Opt bus fault' alarm can be generated for a number of different causes:

- **Configuration alarm.** Appears when the drive starts up (you must press Esc to continue: Ethernet/IP communication will not be available). Indicates an unrecoverable problem in the drive configuration or in the EXP-ETH2-IP-ADV200 card. Check the settings in the 'Fieldbus', 'Fieldbus M2S' and 'Fieldbus S2M' menus. The Alarm Subcode provides an indication of the cause of the problem.
- Hardware alarm. Non-recoverable problem on the EXP-ETH2-IP-ADV200 card, occurring after start-up and during normal operation. If it occurs again, the card may need to be replaced.

Bus loss alarm, with SubCode = 0. Indicates loss of communication (change from Run to Off network status) when the drive is enabled, or parameter 4012 = 1. Data exchange must be active (4014 = Operational) when the drive is enabled.

Subcode	Description	Notes
0	Bus loss	Loss of connection to the scanner or Industrial Ethernet status no longer operational
0x8101	System error	If not recoverable, replace module
0x8102,0x8104	DPRAM Error, after WarmStart	If not recoverable, replace module
0x8110	Not Ready timeout, NetX not available	If not recoverable, replace module
0xFF02	Communication with module not available	DPRAM not recognised. Replace module
0xFF04	Module software version not compatible	
FF01	Fieldbus type not suitable for expansion card	Check if EXP-ETH2-IP-ADV200 card is installed correctly
FF14FF23	Object selected not valid for mapping to Channel M2S n	Check 'Fieldbus M→Dest Sn'
FF24FF33	More than 1 Src points to Channel M2S n	Check multiple destinations on 'Fieldbus M→Dest Sn'
FF34FF43	Channel M2S n, invalid data size (16 bit on 32 bit parameter or 32 bit on 16 bit parameter)	Check 'Fieldbus M→Sn sys'
FF44FF53	Invalid parameter on Channel S2M	Check 'Fieldbus S→Mn src'
FF54FF63	Channel M2S n, invalid data size (16 bit on 32 bit parameter or 32 bit on 16 bit parameter)	Check 'Fieldbus S→Mn sys'
FF64FF73	Selected object invalid for mapping on Channel S2M n	Check 'Fieldbus S \rightarrow Mn src'
FF74FF83	M2S Channel n: too many words in PDC	Address 'Fieldbus M→Sn Dest' and address 'Fieldbus M→Sn sys' greater than 16 words in PDC
FF84FF93	S2M Channel n: too many words in PDC	Address 'Fieldbus S→Mn src' Address 'Fieldbus S→Mn sys' greater than 16 words in PDC
FFB4FFC3	Internal database error on Channel n	Internal error, contact manufacturer

Parameter 4670 'Optionbus activity' can be used to set the action to be taken by the drive in the event of a loss of communication condition.

The default setting is 'Disable' and indicates that the drive should be disabled. It is possible to choose 'Warning' to allow the drive to continue to operate, while displaying the presence of the error. See the drive manual for more details.

WEG_eXpress can be used to obtain a description of the cause of the 'Opt bus fault' alarm by connecting to the relevant HTML page as shown in the following figure:

- ADV200_4_K_0_91 [M25] - WEG	90	1968					
file Yew Parameters Target	201	ice Help					
¦ः 🖉 🖬 🏐 🖉 🗢 R V	N	2 10 1	₩ 🖻	5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	15 ti / O W 👌	· 네얀 · ㅎ	
Menu 2	ĸ	Field	lbus	M2S Words Mappin	ng	Active alarm: Opt Bus fault	ŕ
Manu colocition							
-D ENCODER COMPS	1				Eschey		
-D SPLED REGEARS		Number	of param	eters exchanged 2			
-D REDUCTOR PARAM		1.	America				
TORQUE CONISS		Number	et words	mapped 2			
VP PNPUMETERS		Configu	ration e	rror - Subcode: FF35h - M25	channel 2, data size	is wrong (16 bits on 32 bits or 32 bits on 16 bits param	eter
IN FUNCTIONS							
COMMUNICATION		Word	Ipn	Parameter name	Format exchange		
ET ETUDEUS COMES		1	4422	Word decomp arc	Count 10 - Jobst		
C SELDELS MIS		2	3796	Pad 1	Count 16 - 108st		
C DELDALK SNJ		· ·		-			
C WOED COMP		· ·					
P WORD DECOMP		· ·					
C ALASH CONTR		· ·		-			
A A RELATION		· .	-				
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		L÷.					
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B- B PELDSUS WUPUS MAP		<u> </u>		-			
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lotes:							
Opt like fault						Medaus Addr 1. Part COMI IV CONNE	CTED
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5. Drive configuration in Modbus-TCP

The board provides the ability to configure the drive via a Modbus-TCP communication overlay with the dedicated Ethernet network for fieldbus communication. WEG_eXpress and WEG_ softscope3 tools are used to configure and monitor the drive.

6. Connection type

It is possible to make a Peer to Peer connection and/or a remote connection.

In the first case (peer to peer), the connection is made with a local PC connected to the communication network as shown in the figure.



In the second use case (remote), the Industrial Ethernet network and the IT network must be appropriately configured to avoid excessive overlapping of data exchange.

To manage the connection between different networks, it is mandatory to use industrial routers that allow the partialisation of data exchange based for example on router technology (natting tables).

Access and communication security must be guaranteed by specific firewall-router protections.



7. WEG_eXpress

To configure the device parameters from WEG_eXpress, the functionality must be enabled within the communication tool with TCP/IP.

Procedure:

Weq

1. Open the WEG_eXpress tool and select DRIVES, then select INVERTER and choose the ADV200 family drive from the drop-down menu:





WEG eXpress

- Click on Manual to set manual configuration (automatic mode is not available);
- Select the FW of the connected drive (click on Select version). 3. the case of connection Modbus RTU, In via set the communication data and press Select. In the case of connection via Modbus-CP, deselect 'Online mode' and follow the next steps.

WEg	WEG_eXpress
	Automatic Manual
ADV200	Manual selection for ADV200 Select version: 7x20 PID 2x10 7x20 PID 2x10 7x20 PID 1MM2x370 Protocol: Modbus Port: COM v 1 Baud: 38400 v Address: 1 Line cont N.8.1
	SELECT

 To enable communication with TCP / IP open the dropdown menu Target / Communication settings and select ModbusTCP:

Target	Service	Help
 C 	onnect	
C	ommunic	ation settings
DeviceLin	- kManager (Config 12 1 0 45 X
Colocted		Madhua
Selected	brotocor:	Modbus
Protocols		Active \land
GanC	pen	
Cenc	al	
GDB		
∛ Kfm		
Modb	us	Active
Modb	USTCP	~
	Properties	Activate
	tion	
Modbus	Protocol	
		OK Cancel

5. Click on Activate and then Properties, a window opens where the IP address and Modbus address of the connected device can be set.

The address is the same as the one assigned for Ethernet IP communication. The same procedure can also be applied to Softscope 3. Press OK.

192.168.1.10
502
255
1000
ut 5000
connection
this connection

8. References

- PUB00213R0 "EtherNet/IP_Developers_Guide" Quick Start for Vendors Handbook
- ADV200 'Quick Start Guide Specification and Installation' Handbook
- ADV200 Handbook with 'Description of Functions and Parameters' list

