



# PLC11 Module Programming Manual

Frequency Inverter

Series: CFW-11

Version: 1.0X

Language: English

Document: 10000118422 / 00

1	SAFETY INSTRUCTIONS.....	6
1.1	<b>SAFETY WARNINGS IN THE MANUAL</b> .....	6
1.2	<b>SAFETY WARNINGS IN THE PRODUCT</b> .....	6
1.3	<b>PRELIMINARY RECOMMENDATIONS</b> .....	6
2	GENERAL INFORMATION.....	8
2.1	<b>ABOUT THE MANUAL</b> .....	8
	<b>ABBREVIATIONS AND DEFINITIONS</b> .....	8
	<b>NUMERICAL REPRESENTATION</b> .....	8
2.2	<b>COMPATIBILITY</b> .....	8
3	INTRODUCTION TO THE PLC11 .....	9
3.1	<b>SYMBOLS AND DATA TYPES</b> .....	9
4	PLC11 MEMORY.....	10
4.1	<b>USER DATA MEMORY</b> .....	10
4.2	<b>PHYSICAL INPUTS AND OUTPUTS (HARDWARE)</b> .....	10
	<i>4.2.1 Analog Inputs</i> .....	10
	<i>4.2.2 Analog Outputs</i> .....	11
4.3	<b>SYSTEM MARKERS</b> .....	11
5	PARAMETER SETTINGS .....	14
5.1	<b>CFW-11 CONFIGURATION PARAMETERS</b> .....	14
5.2	<b>PLC11 PARAMETERS</b> .....	14
5.3	<b>ALARM DESCRIPTION</b> .....	30
5.4	<b>FAULT DESCRIPTION</b> .....	32

## Quick Parameter Reference

Parameter	Description [Type]	Adjustable range	Factory setting	User setting	Proprieties	Page
<b>P1200</b>	PLC11 Firmware Version	0 to 655.35	-	-	RO	14
<b>P1201</b>	PLC11 Status	0 = No Program 1 = Saving the Program 2 = Copy Memory Card 3 = Invalid Program 4 = Stopped Program 5 = Running Program	-	-	RO	15
<b>P1202</b>	Scan Cycle	0.0 to 6553.5 ms	-	-	RO	15
<b>P1205</b>	Actual Position (sign)	0 = Negative 1 = Positive	-	-	RO	15
<b>P1206</b>	Actual Position (turns)	-32768 to 32767 revolutions	-	-	RO	16
<b>P1207</b>	Actual Position (fraction)	0.0 to 359.9°	-	-	RO	16
<b>P1208</b>	Lag	0.0 to 6553.5°	-	-	RO	16
<b>P1215</b>	DI109 to DI101 Status	0000 to 01FFh	-	-	RO	16
<b>P1216</b>	DO106 to DO101 Status	0000 to 003Fh	-	-	RO	17
<b>P1217</b>	AI101 Value	-100.00 to 100.00 %	-	-	RO	17
<b>P1218</b>	AO101 Value	-100.00 to 100.00 %	-	-	RO	17
<b>P1219</b>	AO102 Value	-100.00 to 100.00 %	-	-	RO	18
<b>P1220</b>	CAN Status	0 = Inactive 1 = Auto-baud 2 = CAN Active 3 = Warning 4 = Error Passive 5 = Bus Off 6 = No Bus Power	-	-	RO	18
<b>P1221</b>	Received CAN Telegrams	0 to 65535	-	-	RO	18
<b>P1222</b>	Transmitted CAN Telegrams	0 to 65535	-	-	RO	18
<b>P1223</b>	Occurred CAN Errors	0 to 65535	-	-	RO	19
<b>P1224</b>	Lost CAN Telegrams	0 to 65535	-	-	RO	19
<b>P1225</b>	CANopen Configuration State	0 = Slave 1 = Master	-	-	RO	19
<b>P1226</b>	CANopen Network Status	0 = Inactive 1 = Reserved 2 = Communication Enabled 3 = Error Control Enabled 4 = Guarding Error 5 = Heartbeat Error	-	-	RO	20
<b>P1227</b>	CANopen Node Status	0 = Inactive 1 = Initialization 2 = Stopped 3 = Operational 4 = Preoperational	-	-	RO	20
<b>P1250</b>	PLC11 Command	0 = Stop Program 1 = Run Program 2 = Delete Program	1		-	20
<b>P1251</b>	DI108 Interruption Enabling	0 = Disabled 1 = Falling Edge 2 = Rising Edge	0		-	21

## Quick Parameter Reference

Parameter	Description [Type]	Adjustable range	Factory setting	User setting	Proprieties	Page
<b>P1252</b>	DI109 Interruption Enabling	0 = Disabled 1 = Falling Edge 2 = Rising Edge	0		-	21
<b>P1253</b>	Time Interruption Period	0 to 65535 ms	0		-	21
<b>P1254</b>	PLC11 Watchdog	0 to 200 ms	200		-	22
<b>P1255</b>	Retentive Marker Reset	0 = Disabled 1 = Resets Markers	0		-	22
<b>P1256</b>	Load Parameters	0 = Disabled 1 = Loads Default	0		-	22
<b>P1257</b>	Copy Function Memory Card	0 = Disabled 1 = Restore Program 2 = Restore Parameters 3 = Restore CAN	0		-	22
<b>P1259</b>	Maximum Lag	0.0 to 6553.5 °	180.0		-	23
<b>P1260</b>	K <sub>p</sub> – Proportional Positioning Gain	0 to 200	50		-	23
<b>P1262</b>	Main Encoder Resolution	0 to 4096 ppr	1024		-	23
<b>P1263</b>	Main Encoder Zero Pulse	0 to 359.9 °	0.0		-	24
<b>P1264</b>	Main Encoder Direction	0 = A → B 1 = B → A	1		-	24
<b>P1265</b>	Auxiliary Encoder Resolution	0 to 4096 ppr	1024		-	24
<b>P1266</b>	Auxiliary Encoder Zero Pulse	0 to 359.9 °	0.0		-	24
<b>P1267</b>	Auxiliary Encoder Direction	0 = A → B 1 = B → A	1		-	25
<b>P1268</b>	Auxiliary Encoder Position Feedback	0 = Disabled 1 = Enabled	0		-	25
<b>P1270</b>	AI101 Gain	0.000 to 9.999	1.000		-	25
<b>P1271</b>	AI101 Signal	0 = 0 to 10 V / 20mA 1 = -10 to 10 V 2 = 4 to 20 mA	0		-	25
<b>P1272</b>	AI101 Offset	-100.00 to 100.00 %	0.00		-	26
<b>P1273</b>	AI101 Filter	0.00 to 16.00 s	0.00		-	26
<b>P1274</b>	AO101 Gain	0.000 to 9.999	1.000		-	26
<b>P1275</b>	AO101 Signal	0 = 0 to 10 V 1 = -10 to 10V 2 = 0 to 20 mA 3 = 4 to 20 mA	0		-	26
<b>P1276</b>	AO102 Gain	0.000 to 9.999	1.000		-	27
<b>P1277</b>	AO102 Signal	0 = 0 to 10 V 1 = -10 to 10V 2 = 0 to 20 mA 3 = 4 to 20 mA	0		-	27
<b>P1280</b>	Serial Protocol	0 = TP 1 = Modbus RTU	1		-	27
<b>P1281</b>	Serial Address	1 to 247	1		-	28
<b>P1282</b>	Serial Baud Rate	0 = 1200 bits/s 1 = 2400 bits/s 2 = 4800 bits/s 3 = 9600 bits/s	3		-	28

## Quick Parameter Reference

Parameter	Description [Type]	Adjustable range	Factory setting	User setting	Proprieties	Page
		4 = 19200 bits/s 5 = 38400 bits/s				
<b>P1283</b>	Serial Bytes Config.	0 = 8 bits, no, 1 1 = 8 bits, even, 1 2 = 8 bits, odd, 1 3 = 8 bits, no, 2 4 = 8 bits, even, 2 5 = 8 bits, odd, 2	0		-	28
<b>P1285</b>	CAN Protocol	0 = Disabled 1 = CANopen	0		-	29
<b>P1286</b>	CAN Address	0 to 127	63		-	29
<b>P1287</b>	CAN Baud Rate	0 = 1 Mbit/s 1 = Reserved 2 = 500 Kbit/s 3 = 250 Kbit/s 4 = 125 Kbit/s 5 = 100 Kbit/s 6 = 50 Kbit/s 7 = 20 Kbit/s 8 = 10 Kbit/s	0		-	29
<b>P1288</b>	CAN Bus off Recovery	0 = Manual 1 = Automatic	0		-	29
<b>P1289</b>	CAN Error Action	0 = Indicate Alarm 1 = Cause Fault	0		-	30
<b>P1300</b> ⋮ <b>P1499</b>	User Parameters	0000 to FFFFh	0		-	30

**Note:**

RO = Read-only parameter

# 1 SAFETY INSTRUCTIONS

This Manual contains the information necessary for the correct use of the CFW-11 variable frequency drive with the PLC11 expansion board.

It has been developed to be used by qualified personnel with suitable training or technical qualification for operating this type of equipment.

## 1.1 SAFETY WARNINGS IN THE MANUAL



### **DANGER!**

The nonobservance of the procedures recommended in this warning can lead to death, serious injuries or considerable equipment damage.



### **ATTENTION!**

The nonobservance of the procedures recommended in this warning can lead to equipment damage.



### **NOTE!**

The text aims at to supply important information for the correct understanding and good operation of the product.

## 1.2 SAFETY WARNINGS IN THE PRODUCT

The following symbols are attached to the product as safety notes:



High voltages are present.



Components sensitive to electrostatic discharge.  
Do not touch them.



Mandatory connection to the protective earth (PE)



Connection of the shield to the ground.



Hot surface.

## 1.3 PRELIMINARY RECOMMENDATIONS



### **DANGER!**

Only qualified personnel familiar with the CFW-11 variable frequency drive and associated equipment should plan or implement the installation, start-up and subsequent maintenance of this equipment. These personnel must follow all the safety instructions included in this Manual and/or defined by local regulations.

Failure to comply with the safety instructions may result in death, serious injury, and equipment damage.

**NOTE!**

For the purpose of this manual, qualified personnel are those trained and able to:

1. Install, ground, power-up, and operate the CFW-11 according to this manual and to the current legal safety procedures;
2. Use the protection equipment according to the established regulations;
3. Provide first aid.

**DANGER!**

Always disconnect the input power before touching any electrical component associated to the inverter. Many components can remain charged with high voltages or remain in movement (fans) even after that AC power is disconnected or switched off.

Wait at least 10 minutes to assure a total discharge of the capacitors.

Always connect the equipment frame to the protection earth (PE) at the suitable connection point.

**ATTENTION!**

Electronic boards have components sensitive to electrostatic discharges. Do not touch directly on components or connectors. If necessary, touch the grounded metallic frame before or use an adequate grounded wrist strap.

**Do not perform any high pot test with the inverter.  
If necessary, consult WEG**

**NOTE!**

Read the User Manual completely before installing or operating the CFW11.

## **2 GENERAL INFORMATION**

### **2.1 ABOUT THE MANUAL**

This manual provides the necessary description for the operation of the CFW-11 frequency inverter using the PLC11 expansion board. It must be used together with the CFW11 user manual and the WLP software manual.

#### **Abbreviations and Definitions**

<b>PLC</b>	Programmable Logic Controller
<b>CRC</b>	Cycling Redundancy Check
<b>RAM</b>	Random Access Memory
<b>WLP</b>	Ladder language programming software
<b>USB</b>	Universal Serial Bus

#### **Numerical Representation**

The decimal numbers are represented by means of digits without suffix. Hexadecimal numbers are represented with the letter "h" after the number.

### **2.2 COMPATIBILITY**

PLC11 V1.0X – CFW11 V1.3X or a version higher.



### 3 INTRODUCTION TO THE PLC11

The PLC11 is an expansion board that can be fitted into the CFW-11, adding the functionalities of a PLC and a positioning control to the CFW-11.

The PLC11 main features are:

- ☑ Ladder language programming, by using the WLP software;
- ☑ Access to all the CFW11 parameters and I/O's;
- ☑ 200 configurable user parameters;
- ☑ PLC, Mathematical, control, positioning and Movement blocks;
- ☑ Applicative software transfer and online monitoring via USB;
- ☑ Transfer of the installed applicative software to the PC conditioned to a password;
- ☑ Backup of the applicative software in the FLASH memory card.

#### 3.1 SYMBOLS AND DATA TYPES

%KW	word type constants (16 bit)
%KF	float type constants (32 bit floating point)
%MX	bit marker
%MW	word marker (16 bit)
%MF	float marker (32 bit floating point)
%SX	system bit marker
%SW	system word marker (16 bit)
%IX	digital inputs
%IW	analog inputs (16 bit)
%QX	digital outputs
%QW	analog outputs (16 bit)
%UW	user parameters (16 bit)
%PW	PLC11 system parameters (16 bit)
%PD	drive parameters (16 bit)
%PM	user block parameters (32 bit)
%RW	CANopen network reading word marker (16 bit)
%WW	CANopen network writing word marker (16 bit)
%RB	CANopen network reading byte marker (8 bit)
%WB	CANopen network writing byte marker (8 bit)
%RS	CANopen network reading status word marker (16 bit)
%WS	CANopen network writing command word marker (16 bit)

## 4 PLC11 MEMORY

The maximum size of applicative software is 327,680 bytes.

### 4.1 USER DATA MEMORY

**Table 4.1** - User Date Memory Map

Sym.	Description	Range
%MX	Retentive bit markers	6100 ... 6483
%MX	Volatile bit markers	6500 ... 7987
%MW	Retentive word markers	8200 ... 8399
%MW	Volatile word markers	8400 ... 8999
%MF	Retentive float markers	9200 ... 9399
%MF	Volatile float markers	9400 ... 9999
%UW	User parameters	1300 ... 1499
%RW	CANopen network reading word markers	4200 ... 4299
%WW	CANopen network Writing word markers	4600 ... 4699
%RB	CANopen network reading Byte markers	4400 ... 4499
%WB	CANopen network Writing Byte markers	4800 ... 4899

### 4.2 PHYSICAL INPUTS AND OUTPUTS (HARDWARE)

**Table 4.2** - I/O Memory Maps

Sym.	Description	Range
%IX	CFW11 digital inputs	1 ... 6
%IX	PLC11 digital inputs	101 ... 109
%QX	CFW11 digital outputs	1 ... 3
%QX	PLC11 digital outputs	101 ... 106
%IW	CFW11 analog inputs	1 ... 2
%IW	PLC11 analog inputs	101 ... 101
%QW	CFW11 analog outputs	1 ... 2
%QW	PLC11 analog outputs	101 ... 102



**NOTE!**

%IX108 and %IX109 (PLC11 digital inputs 8 and 9) are fast digital inputs and detect up to 10kHz pulses.

#### 4.2.1 Analog Inputs

**Table 4.3** - Parameters Related to the Analog Inputs

Sym.	Description	Related Parameters
%IW1	CFW11 Analog Input 1 (1 sign bit + 15 bits)	P0231: Function P0232: Gain P0233: Signal P0234: Offset P0235: Filter
%IW2	CFW11 Analog Input 2 (1 sign bit + 15 bits)	P0236: Function P0237: Gain P0238: Signal P0239: Offset P0240: Filter
%IW101	PLC11 Analog Input 1 (1 sign bit + 15 bits)	P1270: Gain P1271: Signal P1272: Offset P1273: Filter

## 4.2.2 Analog Outputs

**Table 4.4** - Parameters Related to the Analog Outputs

Sym.	Description	Related Parameters
%QW1	CFW11 Analog Output 1 (1 sign bit + 15 bits)	P0251: Function P0252: Gain P0253: Signal
%QW2	CFW11 Analog Output 2 (1 sign bit + 15 bits)	P0254: Function P0255: Gain P0256: Signal
%QW101	PLC11 Analog Output 1 (1 sign bit + 15 bits)	P1274: Gain P1275: Signal
%QW102	PLC11 Analog Output 2 (1 sign bit + 15 bits)	P1276: Gain P1277: Signal

## 4.3 SYSTEM MARKERS

**Table 4.5.a** - Memory Map of the System Bit Markers - Odd

Sym.	Address	Description
%SX	<i>Writing/Command (odd)</i>	
	3101	General Enabling <b>0:</b> It disables the inverter, interrupting the supply for the motor. <b>1:</b> It enables the inverter allowing the motor operation.
	3103	Run/Stop <b>0:</b> It stops the motor with deceleration ramp. <b>1:</b> The motor runs according to the acceleration ramp until reaching the speed reference value.
	3105	Speed Direction <b>0:</b> It runs the motor in the counterclockwise direction. <b>1:</b> It runs the motor in the clockwise direction.
	3107	JOG <b>0:</b> It disables the JOG function. <b>1:</b> It enables the JOG function.
	3109	LOC/REM <b>0:</b> The inverter goes to the LOCAL situation. <b>1:</b> The inverter goes to the REMOTE situation.
	3111	Fault Reset <b>0:</b> No function. <b>1:</b> If in a fault condition, then it executes the inverter reset.
	3121	Active Ramp <b>0:</b> Ramp 1. <b>1:</b> Ramp 2.



**NOTE!**

The system markers %SX3103 and %SX3105 do not have function when movement blocks are used, because those commands are generated internally by these blocks.

**Table 4.5.b** - Memory Map of the System Bit Markers – Even

Sym.	Address	Description	
%SX	<i>Reading/State (Even)</i>		
	3000	General Enabling active	<b>0:</b> General Enabling is not active. <b>1:</b> General enabling is active and the inverter is ready to run the motor.
	3002	Motor running (RUN)	<b>0:</b> The motor is stopped. <b>1:</b> The inverter is driving the motor at the set point speed, or executing either the acceleration or the deceleration ramp.
	3004	Speed Direction	<b>0:</b> The motor is rotating counterclockwise. <b>1:</b> The motor is rotating clockwise.
	3006	JOG	<b>0:</b> JOG function inactive. <b>1:</b> JOG function active.
	3008	LOC/REM	<b>0:</b> Inverter in LOCAL situation. <b>1:</b> Inverter in REMOTE situation.
	3010	Fault condition	<b>0:</b> The inverter is not in a fault condition. <b>1:</b> Any fault has been registered by the inverter. Note: The fault number can be read by means of the parameter P0049 (Current Fault) or by means of the system marker %SW3310.
	3012	Undervoltage	<b>0:</b> No Undervoltage. <b>1:</b> With Undervoltage.
	3014	PID operation mode	<b>0:</b> In manual mode (PID function). <b>1:</b> In automatic mode (PID function).
	3016	Alarm condition	<b>0:</b> The inverter is not in an alarm condition. <b>1:</b> The inverter is in an alarm condition. <b>Note:</b> The alarm number can be read by means of the parameter P0048 (Current Alarm) or by means of the system marker %SW3308.
	3018	In configuration mode	<b>0:</b> Inverter operating normally. <b>1:</b> Inverter in configuration mode. It indicates a special condition when the inverter cannot be enabled: <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Executing the self tuning routine.</li> <li><input checked="" type="checkbox"/> Executing the guided start-up routine.</li> <li><input checked="" type="checkbox"/> Executing the HMI copy function.</li> <li><input checked="" type="checkbox"/> Executing the flash memory card guided routine.</li> <li><input checked="" type="checkbox"/> There is a parameter setting incompatibility.</li> </ul> <b>Note:</b> It is possible to obtain the exact description of the special operation mode at parameter P0692.
	3020	Active Ramp	<b>0:</b> Ramp 1. <b>1:</b> Ramp 2.
	3032	Start key (1)	<b>0:</b> Not pressed. <b>1:</b> Pressed during 1 scan cycle.
	3034	Stop key (0)	
	3036	Speed direction key (↺)	
	3038	Local/Remote key	
	3040	JOG key	<b>0:</b> Not pressed. <b>1:</b> Pressed.
	3064	2Hz Blinker	Alternates between 0 and 1 every 500ms
	3066	Applicative Stop/Run Trigger	<b>0:</b> Normal condition. <b>1:</b> Pulse when P1250 = 1
	3068	Always 0	<b>0:</b> Fixed
3070	Always 1	<b>1:</b> Fixed	

**Table 4.6** - Memory Map of the System Word Markers

Sym.	Address / Description
%SW	<i>Reading markers/Status (Even)</i>
3300	Motor speed in 13 bit <b>NOTE!</b> It uses a 13 bit resolution, i.e., 2000h is equal to the motor synchronous speed. Thus, for a VI pole motor (1200 rpm synchronous speed) if the motor is at 600rpm, this marker will have a value of 4096. $\text{Speed\_rpm} = \frac{(\text{Speed\_13bit})}{8912} \times (\text{Synch\_Speed\_rpm})$ $\text{Speed\_rpm} = \frac{(\%SW3300)}{8912} \times (\%SW3002)$
3302	Motor synchronous speed [rpm]
3304	Motor speed [rpm]
3306	Speed Reference [rpm]
3308	Alarm
3310	Fault
3400	Speed – auxiliary encoder [rpm]
3402	Control mode 0: Torque mode 1: Speed mode 2: Position mode
3404	Elapsed scan cycles
3412	Id current (+/- 100 %)
3414	Iq current (+/- 100 %)
3416	Id* current reference (+/- 100%)
3418	Iq* current reference (+/- 100%)

## 5 PARAMETER SETTINGS

In the continuation, only the parameters of the CFW-11 frequency inverter that must be programmed according to the PLC user program will be presented.

### 5.1 CFW-11 CONFIGURATION PARAMETERS

**P0100 – Acceleration Time**

**P0101 – Deceleration Time**

**P0220 – LOCAL/REMOTE Selection Source**

**P0221 – Speed Reference Selection – LOCAL Situation**

**P0222 – Speed Reference Selection – REMOTE Situation**

**P0223 – FORWARD/REVERSE Selection - LOCAL Situation**

**P0224 – Run/Stop Selection – LOCAL Situation**

**P0225 – JOG Selection – LOCAL Situation**

**P0226 – FORWARD/REVERSE Selection - REMOTE Situation**

**P0227 – Run/Stop Selection - REMOTE Situation**

**P0228 – JOG Selection - REMOTE Situation**

**P0251 – AO1 Function**

**P0254 – AO2 Function**

**P0275 – DO1 Function (RL1)**

**P0276 – DO2 Function (RL2)**

**P0277 – DO3 Function (RL3)**

### 5.2 PLC11 PARAMETERS

**P1200 – PLC11 Firmware Version**

**Adjustable Range:** 0.00 to 655.35

**Factory Setting:** -

**Proprieties:** RO

**Access groups via HMI:**

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

**Description:**

It indicates the PLC11 firmware version.

## P1201 – PLC11 Status

<b>Adjustable Range:</b>	0 = Without Program 1 = Saving the Program 2 = Copy Memory Card 3 = Invalid Program 4 = Stopped Program 5 = Running Program	<b>Factory Setting:</b> -
--------------------------	--	---------------------------

**Proprieties:** RO

### Access groups via HMI:

01 PARAMETER GROUPS
L 51 PLC11
L 130 System Parameters

### Description:

It allows the user to visualize the program status. See next the description of each state:

0: Without Program →	When the PLC11 does not have a program installed in its memory.
1: Saving the Program •	When the PLC11 is receiving a file from the WLP (User program, user parameter configuration or CAN network configuration) or when the PLC11 is sending this file to the WLP.
2: Copy Memory Card →	It occurs after the reception of a file from the WLP (User program, user parameter configuration or CAN network configuration) during the backup of this file in the CFW11 memory card. It also occurs when any option of P1257 (Copy Memory Card Function) is executed.
3: Invalid Program →	When the user program is not compatible with the current PLC11 firmware version. In this case it is necessary to download another program!
4: Stopped Program →	When there is a valid user program in the PLC11 memory, however, P1250 (PLC11 Command) is set with the option "Stop Program".
5: Running Program →	When the user program is being executed.

## P1202 – Scan Cycle

<b>Adjustable Range:</b>	0.0 to 6553.5 ms	<b>Factory Setting:</b> -
--------------------------	------------------	---------------------------

**Proprieties:** RO

### Access groups via HMI:

01 PARAMETER GROUPS
L 51 PLC11
L 130 System Parameters

### Description:

It allows the user to monitor the program scan cycle.

## P1205 – Actual Position (sign)

<b>Adjustable Range:</b>	0 to 1	<b>Factory Setting:</b> -
--------------------------	--------	---------------------------

**Proprieties:** RO

### Access groups via HMI:

01 PARAMETER GROUPS
L 51 PLC11
L 130 System Parameters

### Description:

It informs the sign of the motor current position. 0 means positive and 1 means negative.

### P1206 – Actual Position (turns)

**Adjustable Range:** -32768 to 32767 revolutions

**Factory Setting:** -

**Proprieties:** RO

#### Access groups via HMI:

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

**Description:**

It informs the number of revolutions of the current motor position.

### P1207 – Actual Position (fraction)

**Adjustable Range:** 0 to 359.9 °

**Factory Setting:** -

**Proprieties:** RO

#### Access groups via HMI:

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

**Description:**

It informs the revolution fraction, in degrees, of the current motor position.

### P1208 – Lag

**Adjustable Range:** 0 to 6553.5 °

**Factory Setting:** -

**Proprieties:** RO

#### Access groups via HMI:

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

**Description:**

It informs the difference, in degrees, between the position reference and the actual position.

### P1215 – DI109 to DI101 Status

**Adjustable Range:** 0000 to 01FFh

**Factory Setting:** -

**Proprieties:** RO

#### Access groups via HMI:

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

**Description:**

It informs the PLC11 digital input status:

- Bit 0: DI101 (least significant bit)
- Bit 1: DI102
- Bit 2: DI103
- Bit 3: DI104
- Bit 4: DI105



## Parameter Settings

---

- Bit 5: DI106
- Bit 6: DI107
- Bit 7: DI108
- Bit 8: DI109 (most significant bit)

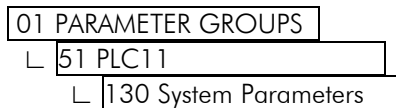
### P1216 – DO106 to DO101 Status

**Adjustable Range:** 0000 to 003Fh

**Factory Setting:** -

**Proprieties:** RO

#### Access groups via HMI:



#### Description:

It informs the PLC11 digital output status:

- Bit 0: DO101 (least significant bit)
- Bit 1: DO102
- Bit 2: DO103
- Bit 3: DO104
- Bit 4: DO105
- Bit 5: DO106 (most significant bit)

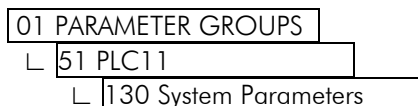
### P1217 – AI101 Value

**Adjustable Range:** -100.00 to 100.00 %

**Factory Setting:** -

**Proprieties:** RO

#### Access groups via HMI:



#### Description:

It informs the value read at the analog input 101, in percentage, after the gain and offset calculation and the filter action.

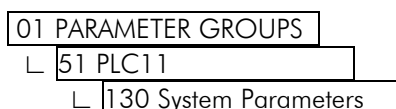
### P1218 – AO101 Value

**Adjustable Range:** -100.00 to 100.00 %

**Factory Setting:** -

**Proprieties:** RO

#### Access groups via HMI:



#### Description:

It informs the value at the analog output 101, in percentage, after the gain and offset calculation.

### P1219 – AO102 Value

**Adjustable Range:** -100.00 to 100.00 %

**Factory Setting:** -

**Proprieties:** RO

#### Access groups via HMI:

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

**Description:**

It informs the value at the analog output 102, in percentage, after the gain and offset calculation.

### P1220 – CAN Status

**Adjustable Range:** 0 = Inactive  
 1 = Auto-baud  
 2 = CAN Active  
 3 = Warning  
 4 = Error Passive  
 5 = Bus Off  
 6 = No Bus Power

**Factory Setting:** -

**Proprieties:** RO

#### Access groups via HMI:

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

**Description:**

It informs the CAN network current status.

### P1221 – Received CAN Telegrams

**Adjustable Range:** 0 to 65535

**Factory Setting:** -

**Proprieties:** RO

#### Access groups via HMI:

- 01 PARAMETER GROUPS.
  - L 51 PLC11
    - L 130 System Parameters

**Description:**

It informs the number of telegrams received through the CAN network.

### P1222 – Transmitted CAN Telegrams

**Adjustable Range:** 0 to 65535

**Factory Setting:** -

**Proprieties:** RO

#### Access groups via HMI:

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

**Description:**

It informs the number of telegrams transmitted through the CAN network.

**P1223 – Occurred CAN Errors**

**Adjustable Range:** 0 to 65535

**Factory Setting:** -

**Proprieties:** RO

**Access groups via HMI:**

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

**Description:**

It informs the number of errors occurred in the CAN network.

**P1224 – Lost CAN Telegrams**

**Adjustable Range:** 0 to 65535

**Factory Setting:** -

**Proprieties:** RO

**Access groups via HMI:**

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

**Description:**

It informs the number of lost telegrams in the CAN network.

**P1225 – CANopen Configuration State**

**Adjustable Range:** 0 = Slave  
1 = Master

**Factory Setting:** -

**Proprieties:** RO

**Access groups via HMI:**

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

**Description:**

It informs the configuration state of the CANopen network. For more information on the CAN interface and on the CANopen protocol, refer to the CANopen communication and the PLC11 board manuals.

## P1226 – CANopen Network Status

<b>Adjustable</b>	0 = Inactive	<b>Factory</b>	-
<b>Range:</b>	1 = Reserved	<b>Setting:</b>	
	2 = Communication Enabled		
	3 = Error Control Enabled		
	4 = Guarding Error		
	5 = Heartbeat Error		

**Proprieties:** RO

### Access groups via HMI:

01 PARAMETER GROUPS
L 51 PLC11
L 130 System Parameters

### Description:

It informs the state of the CANopen network. For more information on the CAN interface and on the CANopen protocol, refer to the CANopen communication and the PLC11 board manuals.

## P1227 – CANopen Node Status

<b>Adjustable</b>	0 = Inactive	<b>Factory</b>	-
<b>Range:</b>	1 = Initialization	<b>Setting:</b>	
	2 = Stopped		
	3 = Operational		
	4 = Preoperational		

**Proprieties:** RO

### Access groups via HMI:

01 PARAMETER GROUPS
L 51 PLC11
L 130 System Parameters

### Description:

It informs the state of the CANopen network node. For more information on the CAN interface and on the CANopen protocol, refer to the CANopen communication and the PLC11 board manuals.

## P1250 – PLC11 Command

<b>Adjustable</b>	0 = Stop Program	<b>Factory</b>	1
<b>Range:</b>	1 = Run Program	<b>Setting:</b>	
	2 = Delete Program		

**Proprieties:**

### Access groups via HMI:

01 PARAMETER GROUPS
L 51 PLC11
L 130 System Parameters

### Description:

It makes it possible for the user to stop the installed applicative, execute it, or delete it.

### P1251 – DI108 Interruption Enabling

<b>Adjustable</b>	0 = Disabled	<b>Factory</b>	0
<b>Range:</b>	1 = Falling Edge	<b>Setting:</b>	
	2 = Rising Edge		

**Proprieties:**

**Access groups via HMI:**

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

**Description:**

It allows the user to configure the digital input 108 to generate an interruption in the main user program, starting the execution of the program responsible for the use of this fast input. The detection can be configured for falling or rising edge.

### P1252 – DI109 Interruption Enabling

<b>Adjustable</b>	0 = Disabled	<b>Factory</b>	0
<b>Range:</b>	1 = Falling Edge	<b>Setting:</b>	
	2 = Rising Edge		

**Proprieties:**

**Access groups via HMI:**

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

**Description:**

It allows the user to configure the digital input 109 to generate an interruption in the main user program, starting the execution of the program responsible for the use of this fast input. The detection can be configured for falling or rising edge.

### P1253 – Time Interruption Period

<b>Adjustable</b>	0 to 65535 ms	<b>Factory</b>	0
<b>Range:</b>		<b>Setting:</b>	

**Proprieties:**

**Access groups via HMI:**

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

**Description:**

It allows the user to configure a time period for the PLC11 to generate an interruption in the main user program, starting the execution of the program responsible for the use of this time interruption. If this parameter is set to zero, then the time interruption is disabled.

### P1254 – PLC11 Watchdog

<b>Adjustable Range:</b>	0 to 200 ms	<b>Factory Setting:</b>	200
--------------------------	-------------	-------------------------	-----

**Proprieties:**

**Access groups via HMI:**

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

**Description:**

It is the maximum time allowed for a total scan of the main program. If the scan time exceeds this limit, then the PLC11 watchdog fault occurs.

### P1255 – Retentive Marker Reset

<b>Adjustable Range:</b>	0 = Disabled 1 = Resets Markers	<b>Factory Setting:</b>	0
--------------------------	------------------------------------	-------------------------	---

**Proprieties:**

**Access groups via HMI:**

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

**Description:**

It allows the user to reset the retentive markers applied in the user program.

### P1256 – Load Parameters

<b>Adjustable Range:</b>	0 = Disabled 1 = Loads Factory Settings	<b>Factory Setting:</b>	0
--------------------------	--	-------------------------	---

**Proprieties:**

**Access groups via HMI:**

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

**Description:**

It allows the user to load the PLC11 parameters PLC11 (1200 to 1499) with the factory settings.

### P1257 – Copy Memory Card Function

<b>Adjustable Range:</b>	0 = Disabled 1 = Restore Program 2 = Restore Parameters 3 = Restore CAN	<b>Factory Setting:</b>	0
--------------------------	--	-------------------------	---

**Proprieties:**

**Access groups via HMI:**

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

**Description:**

It allows the user to restore the file containing:

- Applicative;
- User parameter configurations;
- CAN network configurations.

## Parameter Settings

In case it is installed in the CFW11 flash memory card.

Every time any of the files mentioned above is transferred from the WLP to the PLC11, a backup in the flash memory card is automatically performed, unless the card is not connected to the inverter or it is defective.

### P1259 – Maximum Lag

<b>Adjustable Range:</b>	0.0 to 6553.5°	<b>Factory Setting:</b>	180.0
--------------------------	----------------	-------------------------	-------

#### Proprieties:

#### Access groups via HMI:

- 01 PARAMETER GROUPS..
- L 51 PLC11
- L 130 System Parameters

#### Description:

It is the maximum allowed error between the position reference and the actual position, without a fault trip in the inverter.



#### NOTE!

It acts when the inverter is executing positioning tasks.

### P1260 – Kp – Proportional Positioning Gain

<b>Adjustable Range:</b>	0 to 200	<b>Factory Setting:</b>	50
--------------------------	----------	-------------------------	----

#### Proprieties:

#### Access groups via HMI:

- 01 PARAMETER GROUPS
- L 51 PLC11
- L 130 System Parameters

#### Description:

PLC11 positioning controller gain.



#### NOTE!

It acts when the inverter is executing positioning tasks.

### P1262 – Main Encoder Resolution

<b>Adjustable Range:</b>	0 to 4096	<b>Factory Setting:</b>	1024
--------------------------	-----------	-------------------------	------

#### Proprieties:

#### Access groups via HMI:

- 01 PARAMETER GROUPS
- L 51 PLC11
- L 130 System Parameters

#### Description:

It defines the resolution of the PLC11 main encoder.

### P1263 – Main Encoder Marker

<b>Adjustable Range:</b>	0.0 to 359.9°	<b>Factory Setting:</b>	0.0
--------------------------	---------------	-------------------------	-----

**Proprieties:**

**Access groups via HMI:**

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

**Description:**

It allows the PLC11 to shift the main encoder marker position via software.

### P1264 – Main Encoder Direction

<b>Adjustable Range:</b>	0 = A → B 1 = B → A	<b>Factory Setting:</b>	1
--------------------------	------------------------	-------------------------	---

**Proprieties:**

**Access groups via HMI:**

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

**Description:**

It defines the direction of the main encoder pulses.

### P1265 – Auxiliary Encoder Resolution

<b>Adjustable Range:</b>	0 to 4096	<b>Factory Setting:</b>	1024
--------------------------	-----------	-------------------------	------

**Proprieties:**

**Access groups via HMI:**

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

**Description:**

It defines the resolution of the PLC11 auxiliary encoder.

### P1266 – Auxiliary Encoder Marker

<b>Adjustable Range:</b>	0.0 to 359.9°	<b>Factory Setting:</b>	0.0
--------------------------	---------------	-------------------------	-----

**Proprieties:**

**Access groups via HMI:**

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

**Description:**

It allows the PLC11 to shift the auxiliary encoder marker position via software.



## P1267 – Auxiliary Encoder Direction

<b>Adjustable</b>	0 = A → B	<b>Factory</b>	1
<b>Range:</b>	1 = B → A	<b>Setting:</b>	

### Proprieties:

### Access groups via HMI:

01 PARAMETER GROUPS..
L 51 PLC11
L 130 System Parameters

### Description:

It defines the direction of the auxiliary encoder pulses.

## P1268 – Auxiliary Encoder Position Feedback

<b>Adjustable</b>	0 = Disabled	<b>Factory</b>	0
<b>Range:</b>	1 = Enabled	<b>Setting:</b>	

### Proprieties:

### Access groups via HMI:

01 PARAMETER GROUPS
L 51 PLC11
L 130 System Parameters

### Description:

When this option is enabled, the position feedback is done by the auxiliary encoder.

## P1270 – AI101 Gain

<b>Adjustable</b>	0.000 to 9.999	<b>Factory</b>	1.000
<b>Range:</b>		<b>Setting:</b>	

### Proprieties:

### Access groups via HMI:

01 PARAMETER GROUPS
L 51 PLC11
L 130 System Parameters

### Description:

It is the value that is multiplied by the sum of the PLC11 analog input 101 content and its Respective offset (P1272).

## P1271 – AI101 Signal

<b>Adjustable</b>	0 = 0 to 10V / 20 mA	<b>Factory</b>	0
<b>Range:</b>	1 = -10 to 10V 2 = 4 to 20mA	<b>Setting:</b>	

### Proprieties:

### Access groups via HMI:

01 PARAMETER GROUPS
L 51 PLC11
L 130 System Parameters

### Description:

It configures the type of signal (current or voltage) that will be read at the PLC11 analog input 101, as well as its variation range.



### NOTE!

It is also necessary to set the S3 switch in order to select the type of signal. OFF for voltage and ON for current.

### P1272 – AI101 Offset

**Adjustable Range:** -100.00 to 100.00%

**Factory Setting:** 0.00

**Proprieties:**

**Access groups via HMI:**

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

**Description:**

It adds an offset to the content of the PLC11 analog input 101.

### P1273 – AI101 Filter

**Adjustable Range:** 0.00 to 16.00s

**Factory Setting:** 0.00

**Proprieties:**

**Access groups via HMI:**

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

**Description:**

The value of the PLC11 analog input 101 respects the following equation:

$$\%IW101 = \left( AI1\_PLC11 + \frac{P1272}{100} \times 10V \right) \times P1270$$

This parameter defines the time constant of the PLC11 analog input 101 filter.

### P1274 – AO101 Gain

**Adjustable Range:** 0.000 to 9.999

**Factory Setting:** 1.000

**Proprieties:**

**Access groups via HMI:**

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

**Description:**

It is the value multiplied by the content to be written at the PLC11 analog output 101.

### P1275 – AO101 Signal

**Adjustable Range:**  
 0 = 0 to 10V  
 1 = -10 to 10V  
 2 = 0 to 20mA  
 3 = 4 to 20mA

**Factory Setting:** 0

**Proprieties:**

**Access groups via HMI:**

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

## Parameter Settings

### Description:

It configures the type of signal (current or voltage) that will be written at the PLC11 analog output 101, as well as its variation range.



### NOTE!

It is also necessary to set the S2:1 switch in order to select the voltage variation range. OFF for 0 to 10V and ON for -10 to 10V.

## P1276 – AO102 Gain

<b>Adjustable Range:</b>	0.000 to 9.999	<b>Factory Setting:</b>	1.000
--------------------------	----------------	-------------------------	-------

### Proprieties:

### Access groups via HMI:

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

### Description:

It is the value multiplied by the content to be written at the PLC11 analog output 102.

## P1277 – AO102 Signal

<b>Adjustable Range:</b>	0 = 0 to 10V 1 = -10 to 10V 2 = 0 to 20mA 3 = 4 to 20mA	<b>Factory Setting:</b>	0
--------------------------	--	-------------------------	---

### Proprieties:

### Access groups via HMI:

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

### Description:

It configures the type of signal (current or voltage) that will be written at the PLC11 analog output 102, as well as its variation range.



### NOTE!

It is also necessary to set the S2:2 switch in order to select the voltage variation range. OFF for 0 to 10V and ON for -10 to 10V.

## P1280 – Serial Protocol

<b>Adjustable Range:</b>	0 = TP 1 = Modbus RTU	<b>Factory Setting:</b>	1
--------------------------	--------------------------	-------------------------	---

### Proprieties:

### Access groups via HMI:

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

### Description:

It configures the RS-485 interface communication protocol.

## P1281 – Serial Address

<b>Adjustable Range:</b>	1 to 247	<b>Factory Setting:</b>	1
--------------------------	----------	-------------------------	---

### Proprieties:

### Access groups via HMI:

01	PARAMETER GROUPS
L	51 PLC11
L	130 System Parameters

### Description:

It sets the address of the RS-485 interface in the communication network of this PLC11 board.

## P1282 – Serial Baud Rate

<b>Adjustable Range:</b>	0 = 1200 bits/s 1 = 2400 bits/s 2 = 4800 bits/s 3 = 9600 bits/s 4 = 19200 bits/s 5 = 38400 bits/s	<b>Factory Setting:</b>	3
--------------------------	--	-------------------------	---

### Proprieties:

### Access groups via HMI:

01	PARAMETER GROUPS
L	51 PLC11
L	130 System Parameters

### Description:

It adjusts the RS-485 interface baud rate.

## P1283 – Serial Bytes Configuration

<b>Adjustable Range:</b>	0 = 8 bits, no, 1 1 = 8 bits, even, 1 2 = 8 bits, odd, 1 3 = 8 bits, no, 2 4 = 8 bits, even, 2 5 = 8 bits, odd, 2	<b>Factory Setting:</b>	0
--------------------------	--	-------------------------	---

### Proprieties:

### Access groups via HMI:

01	PARAMETER GROUPS
L	51 PLC11
L	130 System Parameters

### Description:

It sets the number of bits, the parity, and the number of stop bits of the RS-485 interface.

## P1285 – CAN Protocol

<b>Adjustable</b>	0 = Disabled	<b>Factory</b>	0
<b>Range:</b>	1 = CANopen	<b>Setting:</b>	

### Proprieties:

### Access groups via HMI:

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

### Description:

It configures the network communication protocol. For more information on the CAN interface and on the CANopen protocol, refer to the CANopen communication and the PLC11 board manuals.

## P1286 – CAN Address

<b>Adjustable</b>	0 to 127	<b>Factory</b>	63
<b>Range:</b>		<b>Setting:</b>	

### Proprieties:

### Access groups via HMI:

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

### Description:

It configures the address in the CAN network.

## P1287 – CAN Baud Rate

<b>Adjustable</b>	0 = 1 Mbit/s	<b>Factory</b>	0
<b>Range:</b>	1 = Reserved	<b>Setting:</b>	
	2 = 500 Kbit/s		
	3 = 250 Kbit/s		
	4 = 125 Kbit/s		
	5 = 100 Kbit/s		
	6 = 50 Kbit/s		
	7 = 20 Kbit/s		
	8 = 10 Kbit/s		

### Proprieties:

### Access groups via HMI:

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

### Description:

It configures the baud rate of the CAN network.

## P1288 – CAN Bus off Recovery

<b>Adjustable</b>	0 = Manual	<b>Factory</b>	1
<b>Range:</b>	1 = Automatic	<b>Setting:</b>	

### Proprieties:

### Access groups via HMI:

- 01 PARAMETER GROUPS
  - L 51 PLC11
    - L 130 System Parameters

## Parameter Settings

### Description:

It configures the way the PLC11 recovers when a Bus Off occurs in the CAN network.

### P1289 – CAN Error Action

**Adjustable** 0 = Alarm **Factory** 0  
**Range:** 1 = Fault **Setting:**

### Proprieties:

### Access groups via HMI:

```

01 PARAMETER GROUPS
  L 51 PLC11
    L 130 System Parameters
  
```

### Description:

It configures how the CAN network must react if any error occurs.

### P1300 – User Parameters

⋮

### P1499 – User Parameters

**Adjustable** 0 to FFFFh **Factory** 0  
**Range:** **Setting:**

**Proprieties:** Configured via WLP

### Access groups via HMI:

```

01 PARAMETER GROUPS
  L 51 PLC11
    L 131 User Parameters
  
```

### Description:

They are general purpose user parameters.

## 5.3 ALARM DESCRIPTION

Alarm	Description	Possible Causes and Recommendations
A162: Incompatible PLC Firmware	It signalizes that the firmware of the PLC11 and the CFW-11 are incompatible.	<input checked="" type="checkbox"/> Incompatible firmware versions of the PLC11 and of the CFW-11.
A163: Break Detect AI1	It indicates that the AI1 current (4-20mA or 20-4mA) reference is out of the 4 to 20mA range.	<input checked="" type="checkbox"/> Broken AI1 cable; <input checked="" type="checkbox"/> Bad contact at the signal connection to the terminal strip.
A164: Break Detect AI2	It indicates that the AI2 current (4-20mA or 20-4mA) reference is out of the 4 to 20mA range.	<input checked="" type="checkbox"/> Broken AI2 cable; <input checked="" type="checkbox"/> Bad contact at the signal connection to the terminal strip.
A165: Break Detect AI3	It indicates that the AI3 current (4-20mA or 20-4mA) reference is out of the 4 to 20mA range.	<input checked="" type="checkbox"/> Broken AI3 cable; <input checked="" type="checkbox"/> Bad contact at the signal connection to the terminal strip.
A166: Break Detect AI4	It indicates that the AI4 current (4-20mA or 20-4mA) reference is out of the 4 to 20mA range.	<input checked="" type="checkbox"/> Broken AI4 cable; <input checked="" type="checkbox"/> Bad contact at the signal connection to the terminal strip.
A700: Detached HMI	<input checked="" type="checkbox"/> Refer to the SoftPLC Manual.	
A702: Inverter Disabled	<input checked="" type="checkbox"/> Refer to the SoftPLC Manual.	
A704: Two Movements Enabled	<input checked="" type="checkbox"/> Refer to the SoftPLC Manual.	

## Parameter Settings

Alarm	Description	Possible Causes and Recommendations
A706: Not Programmed Reference SoftPLC	<input checked="" type="checkbox"/> Refer to the SoftPLC Manual.	
A806 <sup>1</sup> : CAN Without Supply	A CAN protocol was enabled through the parameter P1280, but there is no 24V supply at the interface.	<input checked="" type="checkbox"/> For more information refer to the PLC11 CANopen communication manual.
A808 <sup>1</sup> : Bus Off	A buss off error was detected at the CAN interface.	<input checked="" type="checkbox"/> For more information refer to the PLC11 CANopen communication manual.
A810 <sup>1</sup> : CANopen Communication Error	The CANopen protocol error control has detected communication error.	<input checked="" type="checkbox"/> For more information refer to the PLC11 CANopen communication manual.
A816: Axis not Referenced	It happens in the attempt to execute an absolute positioning without the execution previously of the home position routine.	<input checked="" type="checkbox"/> Use the HOME block to perform the search of the machine home position.
A818: Two Enabled Movements	It occurs when 2 or more positioning or movement blocks are being enabled simultaneously.	<input checked="" type="checkbox"/> Create interlocking logics in order to avoid simultaneous activation of positioning or movement blocks.
A820: Invalid Movement Data	It occurs when there is any incorrect value for speed, acceleration, etc.	<input checked="" type="checkbox"/> Verify which is the parameter or marker that is being used for the configuration of the speed or the acceleration of a positioning block that contains a value equal to 0.
A822: Disabled Inverter	It occurs when a positioning or a movement block is activated and the inverter is not enabled.	<input checked="" type="checkbox"/> Analyze whether the user program contains the programming regarding the drive enabling through the system marker %SX3101. <input checked="" type="checkbox"/> Verify whether the inverter is configured in the local mode or in the remote mode, so that the PLC11 has control over the logic command.
A824: Disconnected HMI	It occurs when an RTC block is activated and the HMI is not connected to the inverter. <b>NOTE!</b> The real time clock – RTC – is in the HMI.	<input checked="" type="checkbox"/> Verify whether the HMI is properly connected to the inverter.
A826: Wrong CRC	It occurs when there was an error in the transmission of the PLC11 user program.	<input checked="" type="checkbox"/> Retransmit it again. <input checked="" type="checkbox"/> Analyze noise issues.
A828: Memory Card Timeout	It occurs when the CFW11 flash memory card takes more than 50ms to answer to the PLC11; It occurs when the CFW11 flash memory card has not accepted the PLC11 command.	<input checked="" type="checkbox"/> Verify whether the CFW11 flash memory card is correctly connected to the CFW11.
A830: Invalid PLC11 Application	It appears when the PLC11 is installed in the CFW11 and there is no user program installed, or the user program is incompatible with the current PLC11 version.	<input checked="" type="checkbox"/> It may occur when there is a PLC11 firmware updating. <input checked="" type="checkbox"/> Retransmit the user program.
A832: Stopped PLC11 Application	It occurs when there is a valid user program in the PLC11 board and the PLC11 command (P1250) is in "Stop Prog."	<input checked="" type="checkbox"/> Set P1250 to (1) "Run Prog."
A834: Disconnected Memory Card	It happens during the Copy function (P1257) or while transferring a file from the WLP to the PLC11, if the CFW11 flash memory card is not connected.	<input checked="" type="checkbox"/> Verify whether the flash memory card is correctly connected to the CFW11.
A836: Motor Running	It occurs if during the Copy function (P1257) or during the transferring of a WLP file to the inverter, the inverter is sending a command to run the motor.	<input checked="" type="checkbox"/> Disable the inverter during the Copy function or during the transferring of a WLP file to the PLC11.
A838: Speed reference not programmed for PLC	It occurs when a positioning or a movement block is enabled, but the speed reference is not configured for PLC11 (P0221 or P0222).	<input checked="" type="checkbox"/> Configure the parameter P0221 or P0222 so that the PLC11 generates the reference for the inverter.
A840: Broken wire at AI101	It occurs when the signal type configured for the PLC11 analog input 101 (P1271) is 4 to 20mA, but the read signal is lower than 2mA.	<input checked="" type="checkbox"/> Verify the PLC11 AI101 wiring. <input checked="" type="checkbox"/> Verify whether the wire has been broken.

<sup>1</sup> These events are considered alarms only if the parameter P1289 is programmed with the option "0: Alarm". Further information on these alarms can be obtained in the CANopen communication manual for the PLC11.

## 5.4 FAULT DESCRIPTION

Fault	Description	Possible Causes and Recommendations
F161: Timeout PLC11 CFW-11	It signals the communication loss between the PLC11 board and the CFW11.	<input checked="" type="checkbox"/> Bad contact at the connection between the PLC11 and the CFW11; <input checked="" type="checkbox"/> Problems in the applicative software; <input checked="" type="checkbox"/> Defective PLC11 board.
F185: Precharge Contac Fault	It indicates fault at the Pre-charge Contactor.	<input checked="" type="checkbox"/> Pre-charge contactor defect.
F228: Serial Communication Timeout	<input checked="" type="checkbox"/> Refer to the RS-232 / RS-485 Serial Communication Manual.	
F229: Anybus Offline	<input checked="" type="checkbox"/> Refer to the Anybus-CC Communication Manual.	
F230: Anybus Access Error	<input checked="" type="checkbox"/> Refer to the Anybus-CC Communication Manual.	
F233: CAN Bus Power Failure	<input checked="" type="checkbox"/> Refer to the CANopen Communication Manual and/or the DeviceNet Communication Manual.	
F234: Bus Off	<input checked="" type="checkbox"/> Refer to the CANopen Communication Manual and/or the DeviceNet Communication Manual.	
F235: CANopen Communication Error	<input checked="" type="checkbox"/> Refer to the CANopen Communication Manual.	
F236: Master Idle	<input checked="" type="checkbox"/> Refer to the DeviceNet Communication Manual.	
F237: DeviceNet Connect Timeout	<input checked="" type="checkbox"/> Refer to the DeviceNet Communication Manual.	
F701: Detached HMI	<input checked="" type="checkbox"/> Refer to the SoftPLC Manual.	
F807 <sup>2</sup> : CAN Without Supply	A CAN protocol was enabled through the parameter P1280, but there is no 24V supply at the interface.	<input checked="" type="checkbox"/> For more information refer to the PLC11 CANopen communication manual.
F809 <sup>2</sup> : Bus Off	A buss off error was detected at the CAN interface.	<input checked="" type="checkbox"/> For more information refer to the PLC11 CANopen communication manual.
F811 <sup>2</sup> : CANopen Communication Error	The CANopen protocol error control has detected communication error.	<input checked="" type="checkbox"/> For more information refer to the PLC11 CANopen communication manual.
F817: Lag Error	It occurs when the difference between reference and the actual position exceeds the error programmed in P1259.	<input checked="" type="checkbox"/> The acceleration value is higher than the recommended for the system. <input checked="" type="checkbox"/> Verify whether the encoder is wired correctly.
F821: Invalid PLC Firmware	It occurs when the firmware CRC is not valid. This prevents the operation of the PLC11.	<input checked="" type="checkbox"/> Try cycling the power of the equipment. <input checked="" type="checkbox"/> Request to WEG the replacement of this equipment firmware.
F823: Disconnected HMI	It occurs when an RTC block has been enabled and the HMI is not connected to the inverter. <b>NOTE!</b> The real time clock is in the HMI.	<input checked="" type="checkbox"/> Verify whether the HMI is properly connected to the inverter.
F825: PLC11 Flash Fault	It may occur by enabling the Copy function (P1257) or during the transferring of any file from the PC to the PLC11.	<input checked="" type="checkbox"/> Try executing the operation again.

<sup>2</sup> These events will be considered faults only if the parameter P1289 were programmed with the option "1 – Fault". Further information on these faults can be obtained in the CANopen communication manual for the PLC11.



## Parameter Settings

Fault	Description	Possible Causes and Recommendations
F827: Memory Card with Invalid Data	It occurs when the Copy function (P1257) is enabled and data contained in the flash memory board is not valid or is incompatible with the correct PLC11 firmware version.	<input checked="" type="checkbox"/> Retransmit the user program.
F829: PLC11 Watchdog	Internal error in the PLC11 applicative. Interruption Ladder applicative too big or with a high calling frequency. It occurs when the Copy function (P1257) is enabled and data contained in the flash memory board is not valid or is incompatible with the correct PLC11 firmware version.	<input checked="" type="checkbox"/> Change the calling period of the interruptions. <input checked="" type="checkbox"/> Reduce the size of the interruption programs.



### NOTE!

The range from 950 up to 999 is destined to the user faults and alarms.