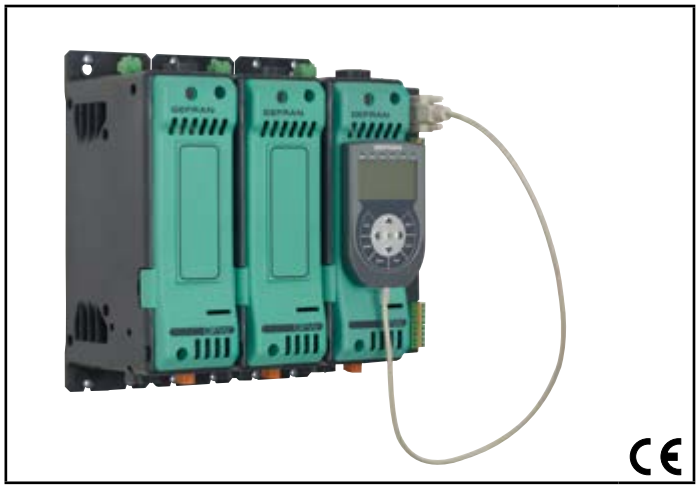


INSTRUCTION MANUAL FOR CONFIGURATION AND INSTALLATION IN EtherCAT NETWORKS

code: **81085A- 06-2021 - ENG**

The software version referred to in this manual regards the RTU/EtherCAT Fieldbus Modbus Interface Card installed in the GPC as serial communication PORT 2.

ATTENTION!

This manual is an integral part of the product and must always be available to persons who operate it.

This manual must always accompany the product if it is sold to another user.

Installers and/or maintenance personnel MUST read this manual and precisely follow the instructions contained herein and in the attachments.

GEFRAN will not be liable for any harm to persons and/or damage to property or to the product itself if the conditions described below are not conformed to.

The Customer must respect **Gefran**'s trade secret. Therefore, this manual and its attachments may not be tampered with or modified, reproduced, or sold to third parties without **GEFRAN**'s prior authorization

SUMMARY

1 • INTRODUCTION

The GPC series of modular power controllers with EtherCAT (Ethernet for Control Automation Technology) Fieldbus interface allows rapid integration of a large number of compact control units for the temperature control and management of the heating device in advanced automation systems (such as PLCs, Supervision Systems, etc.) interconnected by communication networks and protocols defined by the standard.
It is not the purpose of this manual to describe the “EtherCAT” Fieldbus; it is assumed that the user is familiar with it and that for any updates he/she refers to the official website of EtherCAT Technology Group, www.ethercat.org.
It is also assumed that the user is already familiar with the technical characteristics of GPC products, contained in manuals included with the product or downloadable from the GEFRAN S.P.A. website. www.gefran.com.

This manual refers to the version of the GPC with order code E7:

- E7 - 2016 Specification- 4.7.0.3 Stack - ETH7 Card with netX51

Features of version E7:

- Bridge mode (up to 12 zones - 4 GPC)
- Autoscan master support
- 2ndary station alias support

2 • REFERENCES

/1/ GPC 81900, GPC OPERATING INSTRUCTIONS AND WARNINGS

/2/ GPC 81901, GPC CONFIGURATION AND PROGRAMMING MANUAL

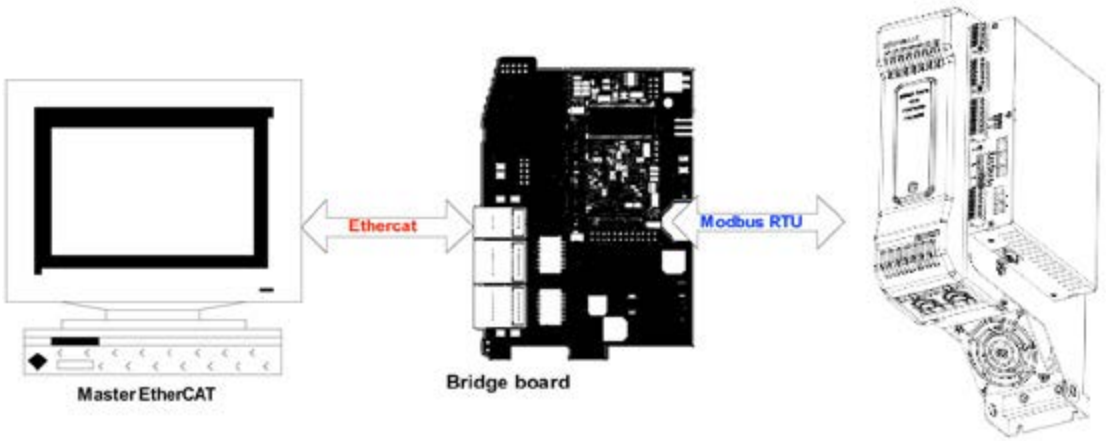
/3/ GPC_Modbus_V200, GPC - MODBUS MEMORY MAP V.2.xx

3 • MAIN TECHNICAL CHARACTERISTICS

Baud Rate ethernet	100 Mbit/s
Data transport layer	Ethernet II, IEEE 802.3
Supporto CoE	Sì (CANopen over EtherCAT
No. of PDOs	1 TX default , 1 RX default (Max 2)
PDO modes	Cyclic
Default input size	32 bytes (Max 71)
Default Output size	32 bytes (Max 71)
PDO mapping	Yes
No. of SDO	1 Server, 0 Client
Emergency Message	Yes
Object dictionary	Yes
Certified	No
Modbus/RTU	Master
Serial Baud Rate	19200 bit/s
Parity	None
Bit di Dati	8
Stop Bit	1msec
Serial Acquisition Time	minimum 50msec for 16 words

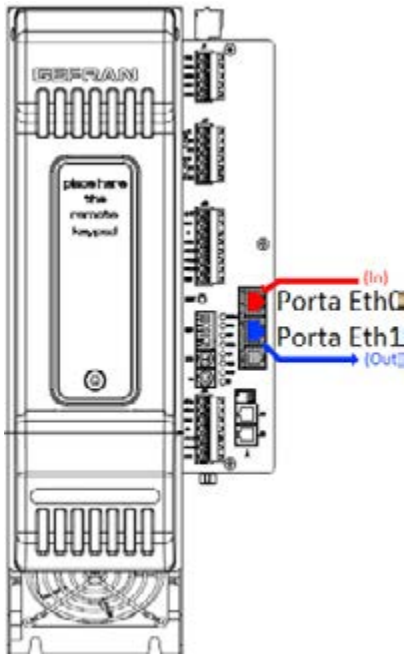
4 • GENERAL COMMUNICATION ARCHITECTURE

The communication architecture implemented in the GPC communication card converts EtherCAT dialog data into Modbus RTU packets transmitted and received via serial line.
The scheme is as follows:

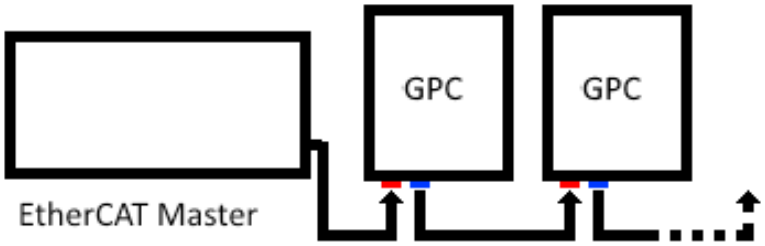


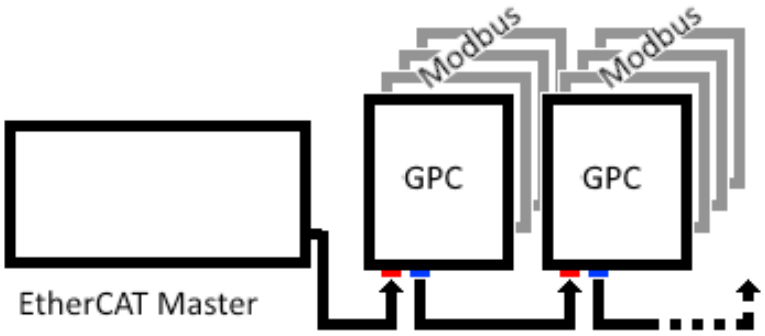
CONNECTION TO ETHERCAT NETWORK

Ethernet RJ45 Connectors

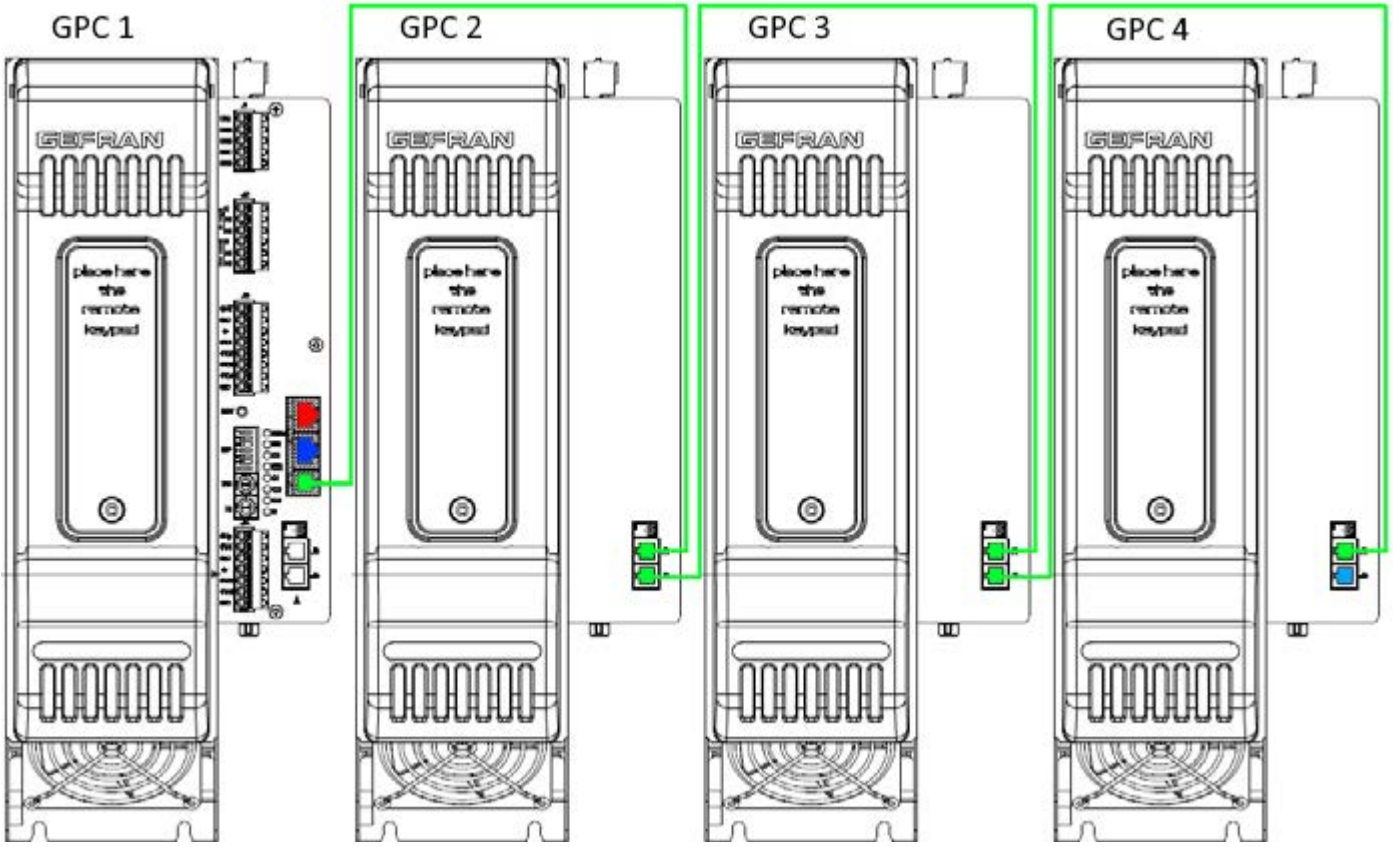


To connect the devices to the EtherCAT network, proceed in sequence from the master to the slaves as shown below





Remember to use a CAT5 Ethernet cable or higher (STP or UTP). The distance between the two nodes must not exceed 100 meters.
E7 devices allow you to use the card as a bridge so as to connect up to 4 GPC (12 zones) in series to every etherCAT node.
Below a maximum configuration obtained connecting 4 GPC (12 zones) between them via Modbus (only for E7 versions).



SELECTION OF ROTARY SWITCHES AND DIP SWITCHES

The hex rotary switches on the GPC indicate the node address of the Modbus/RTU slave network acquired when the instrument is switched on.

The GPC is factory-set with the rotary switches in the “0” position. It is the customer’s task to put them in the correct position, considering that ONLY the following combinations apply for EtherCAT:

Node Address	E2	E7
1	Rotary X 10=0, Rotary X1=1	Rotary X 10=0, Rotary X1=1 for node 1
2	- Not admitted -	Rotary X 10=0, Rotary X1=2 for node 2
3	- Not admitted -	Rotary X 10=0, Rotary X1=3 for node 3
4	- Not admitted -	Rotary X 10=0, Rotary X1=4 for node 4

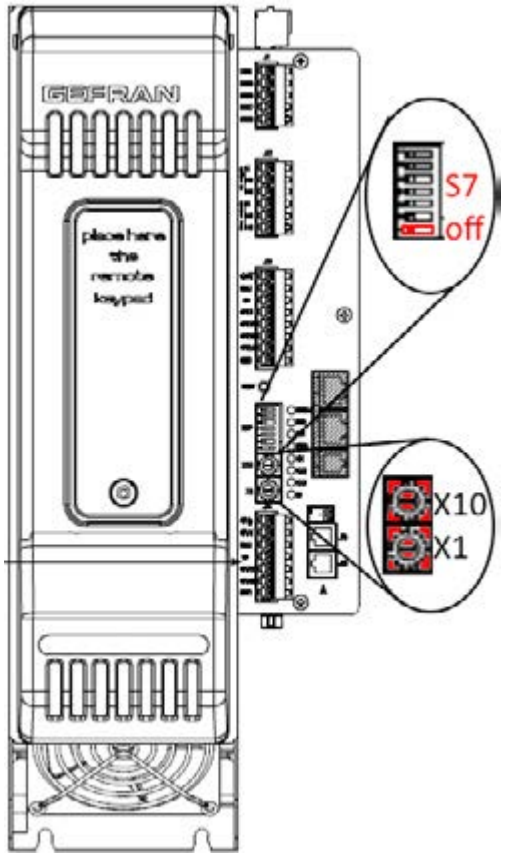
The other positions of the rotary switches refer to special functions.

The GPC configuration dip-switches, described in manual /2/ in the chapter “Description of Dip-Switches,” let you define the instrument’s work mode.

Specifically, when Dip “6” is “ON,” it lets you reset the factory values to “POWER ON.”

AFTER YOU HAVE RESTARTED THE INSTRUMENT WITH FACTORY VALUES, REMEMBER TO RETURN DIP “6” TO “OFF”.

DIP “7” MUST NECESSARILY BE “OFF” AND THE ROTARIES IN POSITION 01!



COMMUNICATION TIME CONSTRAINTS

In order to permit correct data exchange with the device, the following time constraints must be met:

- Reading parameters by register\word

The reading of N consecutive parameters, with N from 1 to 8, requires a time of:

- 40 ms with retentive memory enabled (default),
- 35 ms with retentive memory disabled.

Thus, the next Modbus command to the same node, whether read or write, must be sent after this delay time has expired.

- Writing parameters by register\word

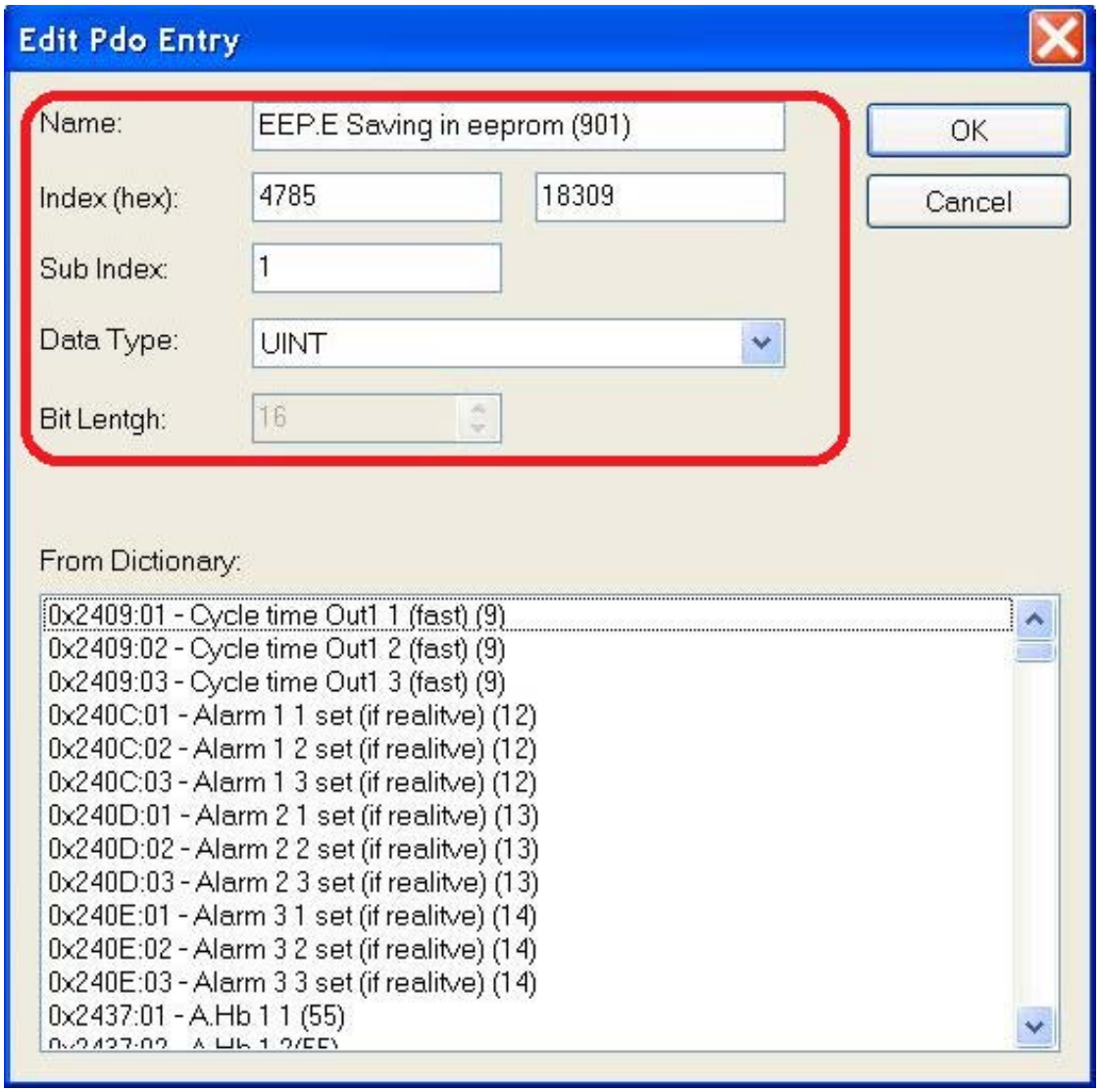
The writing of N consecutive parameters, with N from 1 to 8, with a complete set of updated values (8 in total), compared to those currently on the device, requires a time equal to:

- 40 ms + (n x 10 ms *) with retentive memory enabled (default),
- 35 ms with retentive memory disabled

Thus, the next Modbus command to the same node, whether read or write, must be sent after this delay time has expired.

Retentive memory is enabled/disabled:

- permanently via GF_eXpress using the EEP.E setting (see paragraph “3.26.2. Enabling retentive memory storage” in the GPC SW manual).
- dynamically via the PLC
- mapping the data in the outputs (see figure below)



- by writing the SDO Index 0x4785 subindex n (with n between 1 and 4; representing the GPC rotary unit). Set the value to 0 (default) to enable saving, set to 1 to disable saving.

Notes

(*) If the STATUS_W parameters (Modbus address 305) are included in the write request, and their value is different from the one currently in the slave, the time needed to write each one will be 30ms instead of 10ms.

6 • PROCESS DATA OBJECTS (PDO)

There are 2 PDO Rx in reception (from master to slave) and 2 PDO Tx in transmission (from slave to master) for process data exchange (PDO).

DEFAULT OBJECTS MAPPED IN RX PDOs (Master to Slave)

PDO index 1600	Value	Description
SubIndex 0	7	Number of objects contained in PDO
SubIndex 1	0x5c000008	Host Command byte 0
SubIndex 2	0x5c010008	Host Command byte 1
SubIndex 3	0x5c020008	Host Command byte 2
SubIndex 4	0x5c030008	Host Command byte 3
SubIndex 5	0x5c040008	Host Command byte 4
SubIndex 6	0x5c050008	Host Command byte 5
SubIndex 7	0x5c060008	Host Command byte 6

With PDO index 1600, you can implement a Modbus RTU command request in the EtherCAT packet.
This PDO is disabled by default. Other types of data cannot be mapped in this PDO

PDO index 1601	Value	Description
SubIndex 0	16	Number of objects contained in PDO
SubIndex 1	0x46450110	Serial Ina (581)* Index 0x4645, Subindex 1
SubIndex 2	0x44E00110	S.In (224)* Index 0x44E0, Subindex 1
SubIndex 3	0x44E10110	S.Ou (225)* Index 0x44E1, Subindex 1
SubIndex 4	0x24FC0110	Ou.P in manual 1(252)* Index 0x24FC, Subindex 1
SubIndex 5	0x24370110	A.Hb 1(55)* Index 0x3542, Subindex 1
SubIndex 6	0x45F60110	Alarm HB TA2 of zone 2 (502)* Index 0x45F6, Subindex 1
SubIndex 7	0x45F70110	Alarm HB TA3 of zone 3 (503)* Index 0x45F7, Subindex 1
SubIndex 8	0x25310110	STATUS_W: bit1= SP1/SP2, bit2= start/stop selftuning,bit3 = ON/OFF, bit4 = AUTO/MAN, bit5= start/stop autotuning, bit6 = LOC/REM. 1(305)* Index 0x2531, Subindex 1
SubIndex 9	0x440C0110	Al.1 (12)* Index 0x440C, Subindex 1
SubIndex 10	0x440D0110	Al.2 (13)* Index 0x440D, Subindex 1
SubIndex 11	0x440E0110	Al.3 (14)* Index 0x440E, Subindex 1
SubIndex 12	0x443A0110	Al.4 (58)* Index 0x443A, Subindex 1
SubIndex 13	0x455B0110	Serial In1 (347)* Index 0x455B, Subindex 1

PDO index 1601	Value	Description
SubIndex 14	0x448A0110	Local setpoint (138)* Index 0x448A, Subindex 1

PDO index 1601	Value	Description
SubIndex 15	0x44E60110	Set Point 1 (230)* Index 0x44E6, Subindex 1
SubIndex 16	0x44E70110	Set Point 2 (231)* Index 0x44E7, Subindex 1
note* :the variable's modbus RTU address is shown in parentheses. By default, PDO index 1601 contains 16 variables. The maximum number of mappable variables in this PDO is 32 objects		

OGGETTI DI DEFAULT MAPPATI NEI PDO TX (Slave verso Master)

PDO index 1A00	Value	Description
SubIndex 0	7	Number of objects contained in PDO
SubIndex 1	0x5c000008	Host Response byte 0
SubIndex 2	0x5c010008	Host Response byte 1
SubIndex 3	0x5c020008	Host Response byte 2
SubIndex 4	0x5c030008	Host Response byte 3
SubIndex 5	0x5c040008	Host Response byte 4
SubIndex 6	0x5c050008	Host Response byte 5
SubIndex 7	0x5c060008	Host Response byte 6

With the index 1A00 PDO, you can obtain a response to a Modbus RTU command in the EtherCAT packet.
This PDO is disabled by default. Other types of data cannot be mapped in this PDO

PDO index 1A01	Value	Description
SubIndex 0	16	Number of objects contained in PDO
SubIndex 1	0x563C0110	Analog input (572)* Index 0x563C, Subindex 1
SubIndex 2	0x553D0110	Input dig (317)* Index 0x553D, Subindex 1
SubIndex 3	0x36980110	Output out status 1(664)* Index 0x3698, Subindex 1
SubIndex 4	0x34020110	Out power (2)* Index 0x3402, Subindex 1
SubIndex 5	0x35420110	I.VF1 1(322)* Index 0x3542, Subindex 1
SubIndex 6	0x353B0110	Frequency 1(315)* Index 0x353B, Subindex 1
SubIndex 7	0x367A0110	Status4 (634)* Index 0x367A, Subindex 1
SubIndex 8	0x35D30110	Controller Status (467)* Index 0x35D3, Subindex 1
SubIndex 9	0x36EF0110	Ld.V 1(751)* Index 0x36EF, Subindex 1
SubIndex 10	0x36F10110	Ld.A 1(753)* Index 0x36F1, Subindex 1
SubIndex 11	0x36CF0110	Ld.P 1(719)* Index 0x36CF, Subindex 1

PDO index 1A01	Value	Description
SubIndex 12	0x36ED0110	Ld.I 1(749)* Index 0x36ED, Subindex 1
SubIndex 13	0x54000110	P.V. (0)* Index 0x5400, Subindex 1
SubIndex 14	0x54010110	Active Setpoint (1)* Index 0x5410, Subindex 1
SubIndex 15	0x54550110	Err (85)* Index 0x5455, Subindex 1
SubIndex 16	0x55280110	FLG_PID : bit3=active selftuning, bit4 = softstart in progress, bit6=active autotuning (296)* Index 0x5528, Subindex 1

note* :the variable's modbus RTU address is shown in parentheses.

By default, PDO index 1601 contains 16 variables.

The maximum number of mappable variables in this PDO is 32 objects.

The objects mapped in PDOs can be modified with the "PDO MAPPING" sequence.

You can map objects in PDOs based on the HW configuration used

"COMMUNICATION PROFILE" AREA

The following objects are available:

Index (hex)	Sub Index	Add (dec)	Modbus (dec)	PDO	DESCRIPTION	Function	R/W	Data Type
INPUTS								
ANALOG INPUT								
463d	4	573	1597		Probe type for analog input	tP.A	rw	uns16
463e	4	574	1598		Analog input min scale	LS.A	rw	int16
463f	4	575	1599		Analog input max scale	HS.A	rw	int16
4641	4	577	1601		Analog input offset correction	oFS.A	rw	int16
563c	4	572	1596	T	Analog input	In.A	ro	int16
4640	4	576	1600		Analog input digital filter	FLt.A	rw	uns16
MAIN INPUT								
4590	4	400	1424		Probe type, signal, enable custom linearization and main input scale	tyP.	rw	uns16
4593	4	403	1427		Decimal point position	dP.S	rw	uns16
4591	4	401	1425		Scale minimum limit	Lo.S	rw	int16
4592	4	402	1426		Scale maximum limit	Hi.S	rw	int16
440a	4	10	1034		Scale minimum limit	Lo.S	rw	int16
440b	4	11	1035		Scale maximum limit	Hi.S	rw	int16
4607	4	519	1543		Offset correction for MAIN input	oFS.	rw	int16
4417	4	23	1047		Main input offset correction	oFS.	rw	int16
5400	4	0	1024	T	Process variable	P.V.	ro	int16
555d	4	349	1373	T	Process variable after filter Fld	DPV	ro	int16
5455	4	85	1109	T	Self-Diagnostic error code	Err	ro	uns16
5404	4	4	1028	T	Deviation (SPA - P.V.)	DEVIATION	ro	int16
4418	4	24	1048		Digital filter on Main input seconds	Flt	rw	uns16
44b3	4	179	1203		Digital filter on Main input points	Fld	rw	uns16
CUSTOM LINEARIZATION FOR MAIN INPUT								
4456	4	86	1110		Step 0 initial value custom scale	S.00	rw	int16
4457	4	87	1111		Step 1 custom scale	S.01	rw	Int16
"	"	"	"		"	"	"	"
4475	4	117	1141		Step 31 custom scale	S.31	rw	int16
4476	4	118	1142		Step 32 final value custom scale	S.32	rw	int16
4525	4	293	1317		Step 33 mV initial value for TC probe	S.33	rw	int16
4526	4	294	1318		Step 34 mV final value for TC probe	S.34	rw	int16
4527	4	295	1319		Step 35 mV at TAMB 50 °C for TC probe	S.35	rw	int16
CURRENT VALUES								
36ea	12	746	1770		Input min range TA1	L.tA1	ro	int16
56eb	4	747	1771		Input min range TA2 (zone 2)	L.tA2	ro	int16
56ec	4	748	1772		Input min range TA3 (zone 3)	L.tA3	ro	int16
3595	12	405	1429		TA1 input maximum scale limit	H.tA1	ro	int16
559d	4	413	1437		Input maximum range TA2 (zone 2)	H.tA2	ro	uns16
559e	4	414	1438		Input maximum range TA3 (zone 3)	H.tA3	ro	uns16
24dc	12	220	1244		Offset correction for TA1 input	o.tA1	rw	int16
459f	4	415	1439		Offset correction for TA2 input (zone 2)	o.tA2	rw	int16

Index (hex)	Sub Index	Add (dec)	Modbus (dec)	PDO	DESCRIPTION	Function	R/W	Data Type
45a0	4	416	1440		Offset correction for TA3 input (zone 3)	o.tA3	rw	int16
34e3	12	227	1251	T	TA input value of phase 1	I.tA1	ro	uns16
55ea	4	490	1514	T	TA input value of phase 2 (zone 2)	I.tA2	ro	uns16
55eb	4	491	1515	T	TA input value of phase 3 (zone 3)	I.tA3	ro	uns16
348b	12	139	1163	T	TA input value of phase 1	I.tA1	ro	uns16
35d4	12	468	1492	T	Amperometric value TA1 input	I.tA1on	ro	int16
55f2	4	498	1522	T	Amperometric value TA2 input (zone 2)	I.tA2on	ro	uns16
55f3	4	499	1523	T	Amperometric value TA3 input (zone 3)	I.tA3on	ro	uns16
36c5	12	709	1733	T	Peak current during phase softstart	I.tAP	ro	uns16
36cc	12	716	1740		Power factor	CoS.F	ro	uns16
36f1	12	753	1777	T	Load current	Ld.A	ro	uns16
56f2	4	754	1778	T	Three-phase load current	Ld.A.t	ro	uns16
24db	12	219	1243		TA inputs digital filter	Ft.tA	rw	uns16
36f4	12	756	1780	T	Filtered TA input value of phase 1	I.AF1	ro	uns16
55ee	4	494	1518	T	Filtered TA input value of phase 2 (zone 2)	I.AF2	ro	uns16
55ef	4	495	1519	T	Filtered TA input value of phase 3 (zone 3)	I.AF3	ro	uns16
35d9	12	473	1497	T	Filtered TA input value of phase 1	I.AF1	ro	uns16
VOLTAGE VALUES								
35c5	12	453	1477		TV input minimum limit	L.tV1	ro	int16
55c6	4	454	1478		TV input minimum limit of zone 2	L.tV2	ro	int16
55c7	4	455	1479		TV input minimum limit of zone 3	L.tV3	ro	int16
359a	12	410	1434		TV1 input maximum scale limit	H.tV1	ro	uns16
55a1	4	417	1441		TV2 input maximum scale limit	H.tV2	ro	uns16
55a2	4	418	1442		TV3 input maximum scale limit	H.tV3	ro	uns16
259b	12	411	1435		Input offset correction TV1	o.tV1	rw	int16
45a3	4	419	1443		Input offset correction TV2 (zone 2)	o.tV2	rw	int16
45a4	4	420	1444		Input offset correction TV3 (zone 3)	o.tV3	rw	int16
34e8	12	232	1256	T	TV input value of phase 1	I.tV1	ro	uns16
55ec	4	492	1516	T	TV input value of phase 2 (zone 2)	I.tV2	ro	uns16
55ed	4	493	1517	T	TV input value of phase 3 (zone 3)	I.tV3	ro	uns16
3542	12	322	1346	T	Filtered TV input value of phase 1	I.VF1	ro	uns16
55f0	4	496	1520	T	Filtered TV input value of phase 2 (zone 2)	I.VF2	ro	uns16
55f1	4	497	1521	T	Filtered TV input value of phase 3 (zone 3)	I.VF3	ro	uns16
353b	12	315	1339	T	Frequency	FrEq	ro	Uns16
36ef	12	751	1775	T	Load voltage	Ld.V	ro	uns16
56f0	4	752	1776	T	Three-phase load voltage	Ld.V.t	ro	uns16
56be	4	702	1726	T	VOLTAGE_STATUS: bit0 = frequency_error, bit1 = 10%_unbalanced_warning, bit2 = 20%_unbalanced_warning, bit3 = 30%_ unbalanced_error, bit4 = rotation123_error, bit5 = angle_error, bit6 = 60Hz	VOLTAGE_ STATUS	ro	uns16
259c	12	412	1436		TV input digital filter	Ft.tV	rw	uns16
POWER VALUES								
36d0	12	720	1744	T	Three-phase load power	Ld.P.t	ro	uns16
36ed	12	749	1773	T	Load impedance	Ld.I	ro	uns16
56ee	4	750	1774	T	Three-phase load impedance	Ld.I.t	ro	uns16
AUXILIARY ANALOG INPUTS								
44c2	4	194	1218		Probe type for auxiliary input 2	AI.2	rw	uns16

Index (hex)	Sub Index	Add (dec)	Modbus (dec)	PDO	DESCRIPTION	Function	R/W	Data Type
4629	4	553	1577		Probe type for auxiliary input 3	AI.3	rw	uns16
462a	4	554	1578		Probe type for auxiliary input 4	AI.4	rw	uns16
462b	4	555	1579		Probe type for auxiliary input 5	AI.5	rw	uns16
44b5	4	181	1205		Auxiliary analogue input function	tP.2	rw	uns16
46a5	4	677	1701		Auxiliary input 2 decimal point position	dP.2	rw	uns16
4638	4	568	1592		Auxiliary input 3 decimal point position	dP.3	rw	uns16
4639	4	569	1593		Auxiliary input 4 decimal point position	dP.4	rw	uns16
463a	4	570	1594		Auxiliary input 5 decimal point position	dP.5	rw	uns16
4594	4	404	1428		Auxiliary input 2 min scale	LS.2	rw	int16
462c	4	556	1580		Auxiliary input 3 min scale	LS.3	rw	int16
462d	4	557	1581		Auxiliary input 4 min scale	LS.4	rw	int16
462e	4	558	1582		Auxiliary input 5 min scale	LS.5	rw	int16
465b	4	603	1627		Auxiliay input 2 max scale	HS.2	rw	int16
462f	4	559	1583		Auxiliay input 3 max scale	HS.3	rw	int16
4630	4	560	1584		Auxiliay input 4 max scale	HS.4	rw	int16
4631	4	561	1585		Auxiliay input 5 max scale	HS.5	rw	int16
465d	4	605	1629		Auxiliary input 2 offset correction	oFS.2	rw	int16
4635	4	565	1589		Auxiliary input 3 offset correction	oFS.3	rw	int16
4636	4	566	1590		Auxiliary input 4 offset correction	oFS.4	rw	int16
4637	4	567	1591		Auxiliary input 5 offset correction	oFS.5	rw	int16
565a	4	602	1626	T	Auxiliary input 2	In.2	ro	int16
5623	4	547	1571	T	Auxiliary input 3	In.3	ro	int16
5624	4	548	1572	T	Auxiliary input 4	In.4	ro	int16
5625	4	549	1573	T	Auxiliary input 5	In.5	ro	int16
565e	4	606	1630	T	Auxiliary input 2 self-diagnostic error code	Er.2	ro	uns16
5626	4	550	1574	T	Auxiliary input 3 self-diagnostic error code	Er.3	ro	uns16
5627	4	551	1575	T	Auxiliary input 4 self-diagnostic error code	Er.4	ro	uns16
5628	4	552	1576	T	Auxiliary input 5 self-diagnostic error code	Er.5	ro	uns16
465c	4	604	1628		Auxiliary input 2 digital filter	FLt.2	rw	uns16
4632	4	562	1586		Auxiliary input 3 digital filter	FLt.3	rw	uns16
4633	4	563	1587		Auxiliary input 4 digital filter	FLt.4	rw	uns16
4634	4	564	1588		Auxiliary input 5 digital filter	FLt.5	rw	uns16
DIGITAL INPUTS								
448c	4	140	1164		Allocation of digital input 1 status	diG	rw	uns16
466a	4	618	1642		Allocation of digital input 2 status	dIG.2	rw	uns16
46b6	4	694	1718		Allocation of digital input 3 status	dIG.3	rw	uns16
553d	4	317	1341	T	Stato ingressi digitali INPUT_DIG	INPUT_DIG	ro	uns16

Index (hex)	Sub Index	Add (dec)	Modbus (dec)	PDO	DESCRIPTION	Function	R/W	Data Type
ALARMS								
GENERIC ALARMS								
44d7	4	215	1239		Select reference signal for alarm 1	A1.r	rw	uns16
44d8	4	216	1240		Select reference signal for alarm 2	A2.r	rw	uns16
44d9	4	217	1241		Select reference signal for alarm 3	A3.r	rw	uns16
44da	4	218	1242		Select reference signal for alarm 4	A4.r	rw	uns16
440c	4	12	1036	RT	Alarm point 1 (if relative) [if relative and symmetrical]	AL.1	rw	int16
440d	4	13	1037	RT	Alarm point 2 (if relative) [if relative and symmetrical]	AL.2	rw	int16
440e	4	14	1038	RT	Alarm point 3 (if relative) [if relative and symmetrical]	AL.3	rw	int16
443a	4	58	1082	RT	Alarm point 4 (if relative) [if relative and symmetrical]	AL.4	rw	int16
441b	4	27	1051		Hysteresis alarm 1	HY.1	rw	int16
441e	4	30	1054		Hysteresis alarm 2	HY.2	rw	int16
4435	4	53	1077		Hysteresis alarm 3	HY.3	rw	int16
443b	4	59	1083		Hysteresis alarm 4	HY.4	rw	int16
4596	4	406	1430		Alarm type 1	A1.t	rw	uns16
4597	4	407	1431		Alarm type 2	A2.t	rw	uns16
4598	4	408	1432		Alarm type 3	A3.t	rw	uns16
4436	4	54	1078		Alarm type 3	A3.t	rw	uns16
4599	4	409	1433		Alarm type 4	A4.t	rw	uns16
24c3	12	195	1219		Select number of enabled alarms	AL.n	rw	uns16
353e	12	318	1342	T	Alarms status: ALSTATE_IRQ	ALSTATE_ IRQ	ro	uns16
LBA ALARM								
442c	4	44	1068		Waiting time for L.B.A. alarm intervention	Lb.t	rw	uns16
4477	4	119	1143		Power limit for L.B.A. alarm condition	Lb.P	rw	int16
HB ALARM								
2437	12	55	1079	RT	Alarm point HB	A.Hb	rw	uns16
45f6	4	502	1526	RT	Alarm point HB of zone 2	A.Hb2	rw	uns16
45f7	4	503	1527	RT	Alarm point HB of zone 3	A.Hb3	rw	uns16
2438	12	56	1080	RT	Waiting time for HB alarm intervention	Hb.t	rw	uns16
2439	12	57	1081	RT	Alarm type HB	Hb.F	rw	uns16
26e1	12	737	1761		Current threshold percentage of the HB alarm	Hb.P	rw	uns16
26e6	12	742	1766		Current of HB calibration	Hb.tA	rw	uns16
25c4	12	452	1476		Voltage of HB calibration	Hb.tV	rw	uns16
26e7	12	743	1767		Power of HB calibration	Hb.Pw	rw	uns16
26f6	12	758	1782		TA input point 0 of HB calibration (only for IR lamps)	Ir.tA.0	rw	uns16
26f7	12	759	1783		TA input point 1 of HB calibration (only for IR lamps)	Ir.tA.1	rw	uns16
26f8	12	760	1784		TA input point 2 of HB calibration (only for IR lamps)	Ir.tA.2	rw	uns16
26f9	12	761	1785		TA input point 3 of HB calibration (only for IR lamps)	Ir.tA.3	rw	uns16
26ff	12	767	1791		TA input point 4 of HB calibration (only for IR lamps)	Ir.tA.4	rw	uns16

Index (hex)	Sub Index	Add (dec)	Modbus (dec)	PDO	DESCRIPTION	Function	R/W	Data Type
2700	12	768	1792		TA input point 5 of HB calibration (only for IR lamps)	Ir.tA.5	rw	uns16
2701	12	769	1793		TA input point 6 of HB calibration (only for IR lamps in PA mode)	Ir.tA.6	rw	uns16
257e	12	382	1406		TA input point 7 of HB calibration (only for IR lamps in PA mode)	Ir.tA.7	rw	uns16
257f	12	383	1407		TA input point 8 of HB calibration (only for IR lamps in PA mode)	Ir.tA.8	rw	uns16
2580	12	384	1408		TA input point 9 of HB calibration (only for IR lamps in PA mode)	Ir.tA.9	rw	uns16
25bd	12	445	1469		TV input point 0 of HB calibration (only for IR lamps)	Ir.tV.0	rw	uns16
25be	12	446	1470		TV input point 1 of HB calibration (only for IR lamps)	Ir.tV.1	rw	uns16
25bf	12	447	1471		TV input point 2 of HB calibration (only for IR lamps)	Ir.tV.2	rw	uns16
25c0	12	448	1472		TV input point 3 of HB calibration (only for IR lamps)	Ir.tV.3	rw	uns16
25c1	12	449	1473		TV input point 4 of HB calibration (only for IR lamps)	Ir.tV.4	rw	uns16
25c2	12	450	1474		TV input point 5 of HB calibration (only for IR lamps)	Ir.tV.5	rw	uns16
25c3	12	451	1475		TV input point 6 of HB calibration (only for IR lamps in PA mode)	Ir.tV.6	rw	uns16
2586	12	390	1414		TV input point 7 of HB calibration (only for IR lamps in PA mode)	Ir.tV.7	rw	uns16
2587	12	391	1415		TV input point 8 of HB calibration (only for IR lamps in PA mode)	Ir.tV.8	rw	uns16
2588	12	392	1416		TV input point 9 of HB calibration (only for IR lamps in PA mode)	Ir.tV.6	rw	uns16
36e8	12	744	1768	T	Current threshold for HB alarm	Hb.tr	ro	uns16
35f8	12	504	1528	T	Alarm status HB ALSTATE_HB: bit0= HB TA2 time on, bit1= HB TA2 time off, bit2= alarm HB TA2 Bit3= HB TA3 time on, bit4= HB TA3 time off, bit5= alarm HB TA3	ALSTATE_ HB	ro	uns16
3600	12	512	1536	T	Alarms status ALSTATE: bit4 = alarm HB on time, bit5 = alarm HB off time, bit6 = alarm HB	ALSTATE	ro	uns16
SBR – ERR ALARMS								
44e4	4	228	1252		Power output in fault condition	FA.P	rw	int16
44e5	4	229	1253		Fault action (sets state in case of broken probe)	REL	rw	uns16
POWER FAULT ALARMS								
2694	12	660	1684		Enable POWER FAULT alarms	hd.2	rw	uns16
4695	4	661	1685		Frequency for alarms: SSR_SHORT and NO_CURRENT	dG.t	rw	uns16
2696	12	662	1686		Ttime filter for alarms: NO_VOLTAGE and NO_CURRENT	dG.F	rw	uns16
568f	4	655	1679	T	Internal heatsink temperature	INNTC_SSR	ro	int16
3616	12	534	1558	T	Internal terminal clamp LINE	INNTC_LINE	ro	int16
3617	12	535	1559	T	Internal terminal clamp LOAD	INNTC_ LOAD	ro	int16
567b	4	635	1659	T	Internal temperature	INTAMB	ro	int16

Index (hex)	Sub Index	Add (dec)	Modbus (dec)	PDO	DESCRIPTION	Function	R/W	Data Type
OUTPUTS								
ASSIGNMENT OF REFERENCE SIGNALS								
24a0	12	160	1184		rL.1 allocation of reference signal	rL.1	rw	uns16
24a3	12	163	1187		rL.2 allocation of reference signal	rL.2	rw	uns16
24a6	12	166	1190		rL.3 allocation of reference signal	rL.3	rw	uns16
24aa	12	170	1194		rL.4 allocation of reference signal	rL.4	rw	uns16
24ab	12	171	1195		rL.5 allocation of reference signal	rL.5	rw	uns16
24ac	12	172	1196		rL.6 allocation of reference signal	rL.6	rw	uns16
2409	12	9	1033		Cycle time Out1 (fast)	Ct.1	rw	uns16
249f	12	159	1183		Cycle time Out2 (fast)	Ct.2	rw	uns16
353f	12	319	1343	T	Output rL.x status MASKOUT_RL	-----	ro	uns16
ASSIGNMENT OF PHYSICAL OUTPUTS								
465f	4	607	1631		Allocation of output OUT1	out.1	rw	uns16
4660	4	608	1632		Allocation of output OUT2	out.2	rw	uns16
4661	4	609	1633		Allocation of output OUT3	out.3	rw	uns16
4662	4	610	1634		Allocation of output OUT4	out.4	rw	uns16
4663	4	611	1635		Allocation of output OUT5	out.5	rw	uns16
4664	4	612	1636		Allocation of output OUT6	out.6	rw	uns16
4665	4	613	1637		Allocation of output OUT7	out.7	rw	uns16
4666	4	614	1638		Allocation of output OUT8	out.8	rw	uns16
4667	4	615	1639		Allocation of output OUT9	out.9	rw	uns16
4668	4	616	1640		Allocation of output OUT10	out.10	rw	uns16
3698	12	664	1688	T	Output out.x status MASKOUT_OUT	MASKOUT_ OUT	ro	uns16

Index (hex)	Sub Index	Add (dec)	Modbus (dec)	PDO	DESCRIPTION	Function	R/W	Data Type
CONTROLS								
SETPOINT SETTINGS								
4412	4	18	1042		Remote setpoint type	SP.r	rw	uns16
44fa	4	250	1274	RT	Remote setpoint from serial line	SP.rS	rw	int16
4414	4	20	1044		Lower limit for setting SP and absolute alarms	Lo.L	rw	int16
4415	4	21	1045		Upper limit for setting SP and absolute alarms	Hi.L	rw	int16
4419	4	25	1049		Lower limit for setting SP and absolute alarms	Lo.L	rw	int16
441a	4	26	1050		Upper limit for setting SP and absolute alarms	Hi.L	rw	int16
441c	4	28	1052		Lower limit for setting SP and absolute alarms	Lo.L	rw	int16
441d	4	29	1053		Upper limit for setting SP and absolute alarms	Hi.L	rw	int16
2531	12	305	1329	RT	STATUS_W: bit1= SP1/SP2, bit2= start/stop selftuning,bit3 = ON/OFF, bit4 = AUTO/MAN, bit5= start/stop autotuning, bit6 = LOC/REM.	STATUS_W	rw	uns16
5401	4	1	1025	T	Active setpoint	SPA	ro	int16
4416	4	22	1046		Set gradient	G.SP	rw	uns16
4503	4	259	1283		Auxiliary set gradient for SP2	G.S2	rw	uns16
4509	4	265	1289		Function Hot Runner	Hot	rw	uns16
44bf	4	191	1215		Hardware configuration 1	hd.1	rw	uns16

Index (hex)	Sub Index	Add (dec)	Modbus (dec)	PDO	DESCRIPTION	Function	R/W	Data Type
CONTROLS								
HOT/COLD PID MANAGEMENT								
2669	12	617	1641		Reference power of zone	SPU	rw	uns16
44b4	4	180	1204		Control type	Ctr	rw	uns16
4601	4	513	1537		Cooling medium	C.ME	rw	uns16
3402	12	2	1026	T	Control output value	Ou.P	ro	int16
4427	4	39	1063		Setpoint for cooling relative to heating setpoint	c.SP	rw	int16
444e	4	78	1102		Manual reset	rSt	rw	int16
444f	4	79	1103		Antireset	A.rS	rw	uns16
4450	4	80	1104		Feedforward	FFd	rw	int16
442a	4	42	1066		Heating maximim power limit	h.P.H	rw	uns16
44fe	4	254	1278		Heating minimum power limit	h.P.L	rw	uns16
442b	4	43	1067		Cooling maximum power limit	c.P.H	rw	uns16
44ff	4	255	1279		Cooling minimum power limit	c.P.L	rw	uns16
26fb	12	763	1787		Gradient for control output	G.Out	rw	uns16
26fc	12	764	1788		Minimun firing output power	Lo.P	rw	uns16
26fd	12	765	1789		Output power percentage	P.PEr	rw	uns16
26fe	12	766	1790		Output power offset	P.oFS	rw	uns16
AUTOMATIC/MANUAL								
24fc	12	252	1276	RT	MAN_POWER: Control output value in manual mode	Ou.P	rw	int16
MANUAL POWER CORRECTION								
25f9	12	505	1529		Reference voltage for manual power correction	rIF	rw	int16
25fa	12	506	1530		Manual power correction	Cor	rw	uns16
AUTOTUNING								
441f	4	31	1055		Enabling selftuning, autotuning and softstart	S.tu	rw	uns16
5528	4	296	1320	T	FLG_PID : bit3=active selftuning, bit4 = softstart in progress, bit6=active autotuning	FLG_PID	ro	uns16
SOFTWARE ON/OFF MODE								
26bb	12	699	1723		Power-on mode	P.On.t	rw	uns16
46bc	4	700	1724		Software off mode	OFF.t	rw	uns16

Index (hex)	Sub Index	Add (dec)	Modbus (dec)	PDO	DESCRIPTION	Function	R/W	Data Type
HOT RUNNERS MANAGEMENT								
POWER ALARM								
4504	4	260	1284		Power alarm delay time	Pf.t	rw	uns16
4505	4	261	1285		Steady band	b.St	rw	uns16
4506	4	262	1286		Power alarm band	b.PF	rw	uns16
PREHEATING SOFTSTART								
4507	4	263	1287		Set Point soft start	SP.S	rw	int16
4508	4	264	1288		Soft start power	So.P	rw	int16

Index (hex)	Sub Index	Add (dec)	Modbus (dec)	PDO	DESCRIPTION	Function	R/W	Data Type
POWER CONTROL								
SSR COMMAND MODES								
26bf	12	703	1727		Firing mode configuration	Hd.5	rw	uns16
26c3	12	707	1731		Maximum limit current	Fu.tA	rw	uns16
26c0	12	704	1728		Number of minimun cycles in BF mode	bF.Cy	rw	uns16
SOFTSTART								
26c1	12	705	1729		Lenght of the phase softstart ramp	PS.tm	rw	uns16
26c2	12	706	1730		Max peak current during phase softstart	PS.tA	rw	uns16
DELAY TRIGGERING								
26e2	12	738	1762		Minimun no-conduction time for delay triggering. From version V.2.10 has no meaning	dL.oF	rw	uns16
FEEDBACK MODE								
26da	12	730	1754		Feedback mode configuration	Hd.6	rw	uns16
26db	12	731	1755		Max feedback voltage correction	Cor.V	rw	uns16
26dc	12	732	1756		Max feedback current correction	Cor.I	rw	uns16
26dd	12	733	1757		Max feedback power correction	Cor.P	rw	uns16
26de	12	734	1758		Feedback voltage reference	riF.V	rw	uns16
26df	12	735	1759		Feedback current reference	riF.I	rw	uns16
26e0	12	736	1760		Feedback power reference	riF.P	rw	uns16
26e5	12	741	1765		Feedback speed response	Fb.It	rw	uns16
36f5	12	757	1781	T	Feedback reference	AriF	ro	uns16
HEURISTIC POWER CONTROL								
46a8	4	680	1704		Heuristic power managing enable	Hd.3	rw	uns16
46a9	4	681	1705		Heuristic power managing max current	I.HEU	rw	uns16
HETEROGENEOUS POWER CONTROL								
46aa	4	682	1706		Heterogeneous power managing enable	Hd.4	rw	uns16
46ab	4	683	1707		Heterogeneous power managing max current	I.HEt	rw	uns16

Index (hex)	Sub Index	Add (dec)	Modbus (dec)	PDO	DESCRIPTION	Function	R/W	Data Type
VIRTUAL INSTRUMENT CONTROL								
44e0	4	224	1248	RT	Virtual instrument inputs	S.In	rw	uns16
44e1	4	225	1249	RT	Virtual instrument outputs	S.Ou	rw	uns16
4674	4	628	1652		Virtual instrument led and digital input	S.LI	rw	uns16
4558	4	344	1368	RT	V_IN_OUT	V_IN_OUT	rw	uns16
555f	4	351	1375		V_X_LEDS	V_X_LEDS	rw	uns16
455b	4	347	1371	RT	SERIAL_IN1	SERIAL_IN1	rw	int16
455c	4	348	1372	RT	SERIAL_IN2	SERIAL_IN2	rw	int16
4642	4	578	1602	RT	SERIAL_IN3	SERIAL_IN3	rw	int16
4643	4	579	1603	RT	SERIAL_IN4	SERIAL_IN4	rw	int16
4644	4	580	1604	RT	SERIAL_IN5	SERIAL_IN5	rw	int16
4645	4	581	1605	RT	SERIAL_INA	SERIAL_INA	rw	int16

Index (hex)	Sub Index	Add (dec)	Modbus (dec)	PDO	DESCRIPTION	Function	R/W	Data Type
HW/SW INFORMATION								
5478	4	120	1144		Manufact trade mark (Gefran)	-----	ro	uns16
5479	4	121	1145		Device ID (GFW)	d.Id	ro	uns16
547a	4	122	1146		Software Version	Upd	ro	uns16
54be	4	190	1214		Hardware configuration	C.Hd	ro	uns16
55fc	4	508	1532		Configuration hardware 1	C.Hd1	ro	uns16
561f	4	543	1567		Configuration hardware 2	C.Hd2	ro	uns16
555a	4	346	1370		Jumper state	JUMPER_ STATUS	ro	uns16
44c5	4	197	1221		Function of status led RN	Ld.St	rw	uns16
466b	4	619	1643		Allocation of ER led function	Ld.2	rw	uns16
466c	4	620	1644		Allocation of D1 led function	Ld.3	rw	uns16
466d	4	621	1645		Allocation of D2 led function	Ld.4	rw	uns16
466e	4	622	1646		Allocation of O1 led function	Ld.5	rw	uns16
466f	4	623	1647		Allocation of O2 led function	Ld.6	rw	uns16
4670	4	624	1648		Allocation of O3 led function	Ld.7	rw	uns16
4671	4	625	1649		Allocation of O4 led function	Ld.8	rw	uns16
35d3	12	467	1491	T	Operative status STATUS: bit0 = (AL1 or AL2 or AL3 or AL4 or ALHB.TA1 or ALHB.TA2 or ALHB.TA3 or POWER_FAULT), bit1 = input Lo, bit2 = input Hi, bit3 = input Err, bit4 = input Sbr, bit5 = heat, bit6 = cool, bit7 = LBA, bit8 = AL1, bit9 = AL2, bit10 = AL3, bit11 = AL4, bit12 = ALHB or POWER_FAULT, bit13 = ON/OFF, bit14 = AUTO/MAN, bit15 = LOC/REM	STATUS	ro	uns16
35d5	12	469	1493	T	Operative status 1 STATUS1: bit0 = (AL1 or AL2 or AL3 or AL4 or ALHB.TA1 or ALHB.TA2 or ALHB.TA3 or POWER_FAULT), bit1 = input Lo, bit2 = input Hi, bit3 = input Err, bit4 = input Sbr, bit7 = LBA, bit8 = AL1, bit9 = AL2, bit10 = AL3, bit11 = AL4, bit12 = ALHB.TA1, bit13 = ALHB.TA2, bit14 = ALHB.TA3,bit 15 = selftuning attivo	STATUS1	ro	uns16
3678	12	632	1656	T	Operative status 2 STATUS2: bit0 = AL1, bit1 = AL.2, bit2 = AL.3, bit3 = AL.4, bit4 = AL.HB1, bit5 = AL.HB2, bit6 = AL.HB3, bit7 = AL.Lo, bit8 = AL.Hi, bit9 = AL.Err, bit10 = AL.Sbr, bit11 = AL.LBA, bit12 = AL.Power	STATUS2	ro	uns16
3679	12	633	1657	T	Operative status 3 STATUS3: bit3 = SSR_SHORT1, bit4 = SSR_SHORT2, bit5 = SSR_SHORT3, bit6 = NO_VOLTAGE1, bit7 = NO_ VOLTAGE2, bit8 = NO_ VOLTAGE3, bit9 = NO_ CURRENT1, bit10 = NO_ CURRENT2, bit11 = NO_ CURRENT3	STATUS3	ro	uns16
367a	12	634	1658	T	Operative status 4 STATUS4: bit0 = temperature sensor broken, bit1 = over_heat, bit2 phase_softstart_ active, bit3 = phase_softstart_end, bit4 = frequency_error, bit5 = 60Hz, bit6 = short_ circuit_current, bit7 = over_peak_current, bit8 = over_rms_current, bit9 = alpower_or_ hwoverheat, bit10 = fuse_open	STATUS4	ro	uns16

Index (hex)	Sub Index	Add (dec)	Modbus (dec)	PDO	DESCRIPTION	Function	R/W	Data Type
GENERAL USE PARAMETERS								
25ca	12	458	1482	RT	CONF_UTENTE1	------	rw	uns16
25cb	12	459	1483	RT	CONF_UTENTE2	-----	rw	uns16
25cc	12	460	1484	RT	CONF_UTENTE3	-----	rw	uns16
25cd	12	461	1485	RT	CONF_UTENTE4	-----	rw	uns16
25ce	12	462	1486	RT	CONF_UTENTE5	-----	rw	uns16
5c07	1	-----	-----		Safe Fault Mode (1)	-----	rw	Uns16

Index (hex)	Sub Index	Add (dec)	Modbus (dec)	PDO	DESCRIPTION	Function	R/W	Data Type
OTHERS PARAMETERS								
547b	4	123	1147		Checksum version	CHE	ro	uns16
547c	4	124	1148		Beta release	bEt	ro	uns16
4493	4	147	1171		Soft-Start time	SoF	rw	uns16
4541	4	321	1345		SERIAL_AL4: alarm 4 from serial line	SERIAL_AL4	rw	int16
4555	4	341	1365	RT	SERIAL_AL1: alarm 1 from serial line	SERIAL_AL1	rw	int16
4556	4	342	1366	RT	SERIAL_AL2: alarm 2 from serial line	SERIAL_AL2	rw	int16
4557	4	343	1367	RT	SERIAL_AL3: alarm 3 from serial line	SERIAL_AL3	rw	int16
2559	12	345	1369	RT	STATUS6_W	-----	rw	uns16
558c	4	396	1420		Operating Hours Counter LSW	Oh.C L	ro	uns16
558d	4	396	1420		Operating Hours Counter LSW	Oh.C L	ro	uns16
55ab	4	427	1451		CHK_CONF	-----	ro	uns16
55ac	4	428	1452		PROPBAND (autotuning)	-----	ro	uns16
55ad	4	429	1453		INT_TIME (autotuning)	-----	ro	uns16
55ae	4	430	1454		DER_TIME (autotuning)	-----	ro	uns16
55af	4	431	1455		CPRPBAND (autotuning)	-----	ro	uns16
55b0	4	432	1456		CINTTIME (autotuning)	-----	ro	uns16
55b1	4	433	1457		CDERTIME (autotuning)	-----	ro	uns16
35b2	12	434	1458		FUSE_OPEN counter 1	FO.c1	ro	uns16
35b4	12	436	1460		FUSE_OPEN counter 2	FO.c2	ro	uns16
25b6	12	438	1462		PWM input digital filter	Ft.Pwm	rw	uns16
35b7	12	439	1463		TV_LOAD input min scale limit	L.tVL	ro	int16
55b8	4	440	1464		ROTARY_SW	-----	ro	uns16
25ba	12	442	1466		TV_LOAD input digital filter	Ft.tVL	rw	uns16
35bb	12	443	1467		TV_LOAD input max scale	H.tVL	ro	int16
25bc	12	444	1468		TV_LOAD input offset correction	o.tVL	rw	int16
45c8	4	456	1480		Number of restarts in case of Fuse_Open/ Short_Circuit_Current	Fr.n	rw	uns16
35cf	12	463	1487	T	STATUS_W_RO: bit1= SP1/SP2, bit2= start/ stop selftuning,bit3 = ON/OFF, bit4 = AUTO/ MAN, bit5= start/stop autotuning, bit6 = LOC/ REM.	STATUS_W_ RO	ro	uns16
25d0	12	464	1488	RT	STATUS11_W	STATUS11	rw	uns16
35f4	12	500	1524	T	Load Energy 2 3-phase LSW	Ld.E2_3PL	ro	uns16
35f5	12	501	1525	T	Load Energy 2 3-phase MSW	Ld.E2_3PM	ro	uns16
55fb	4	507	1531		Power saved in ON-OFF = OFF	-----	ro	int16
55fd	4	509	1533		MODE_STATUS: bit8 = dip-switches configuration not valid	MODE_ STATUS	ro	uns16
35fe	12	510	1534	T	Load Energy 2 LSW	Ld.E2L	ro	uns16
35ff	12	511	1535	T	Load Energy 2 MSW	Ld.E2M	ro	uns16
5606	4	518	1542		PWM input	In.Pwm	ro	int16
3613	12	531	1555	T	Load Energy 1 LSW	Ld.E1L	ro	uns16
3614	12	532	1556	T	Load Energy 1 MSW	Ld.E1M	ro	uns16
3618	12	536	1560	T	INNTC_BOARD	INNTC_ BOARD / INNTC_AIR	ro	int16
361d	12	541	1565	T	Load Energy 1 3-phase LSW	Ld.E1_3PL	ro	uns16
361e	12	542	1566	T	Load Energy 1 3-phase MSW	Ld.E1_3PM	ro	uns16
56a6	4	678	1702	T	TAMB_MAX	-----	ro	uns16

Index (hex)	Sub Index	Add (dec)	Modbus (dec)	PDO	DESCRIPTION	Function	R/W	Data Type
56a7	4	679	1703	T	INNTC_SSR_MAX	INNTC_SSR_MAX	ro	int16
56ac	4	684	1708	T	PID_POWER	PID_POWER	ro	int16
36f3	12	755	1779	T	Phase Angle power	-----	ro	uns16
477e	4	894	1918		Hd.7	-----	rw	int16
277f	12	895	1919		FC.ta	-----	rw	uns16
2780	12	896	1920		Serial_FC	-----	rw	uns16
5c07	1				Safe Fault Mode (nota 1)	-----	rw	uns16

Key:

T Can be used in PDOs (ro)
RT Can be used in PDOs (rw)

note 1: In case of communication failure, you can command the GPC to run operations according to the following table::

Object 5C07	Value	Description	Description
	0	No Action	No Action
	1	Controller in SW Off	SW Off Controller
	2	Controller in Manual	Manual Controller
	3	Setpoint2 Active	Setpoint2 Activation

The control involves all the GPC connected in bridge mode and the master that receives the control.

EXAMPLE OF INSTALLATION AND CONFIGURATION TWINCAT ENVIRONMENT

By using device description file GPC_0Xx.xml (downloadable from www.gefran.com), you can install a GPC EtherCAT device in a master application.

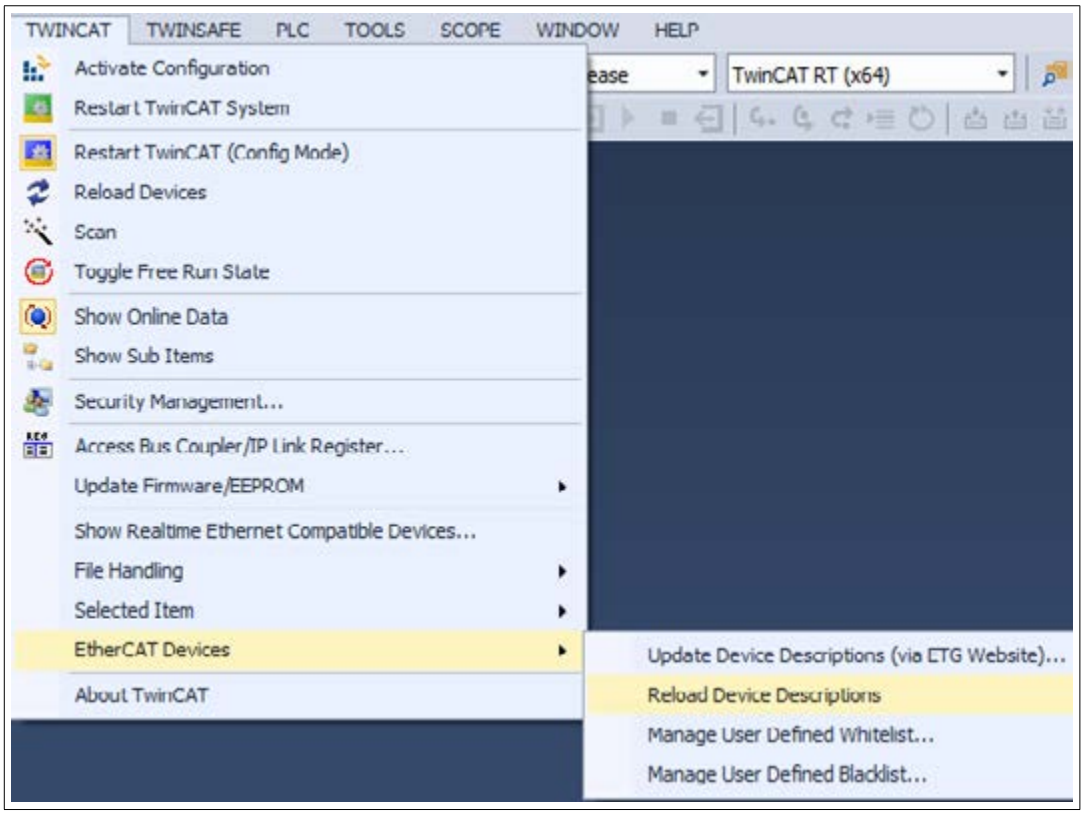
The table below shows the combinations available for the GPC:

Abbreviation	GPC	
code	GFW 400-600 A	
	Singolo	Bridge 2/3/4
E7	YES	YES

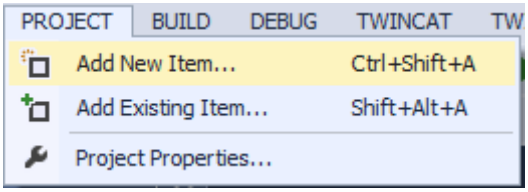
		E7		
		Mono	Two	Three
GPC	Singolo	✗	✗	✓
	Bridge 2	✗	✗	✓
	Bridge 3	✗	✗	✓
	Bridge 4	✗	✗	✓

The difference between the two-phase and monophase is that the two-phase contains the map of 2 zones instead of just zone 1.
The difference between the three-phase and the two or monophase is that the three-phase contains the map of 3 zones instead of zone 1 or 2.

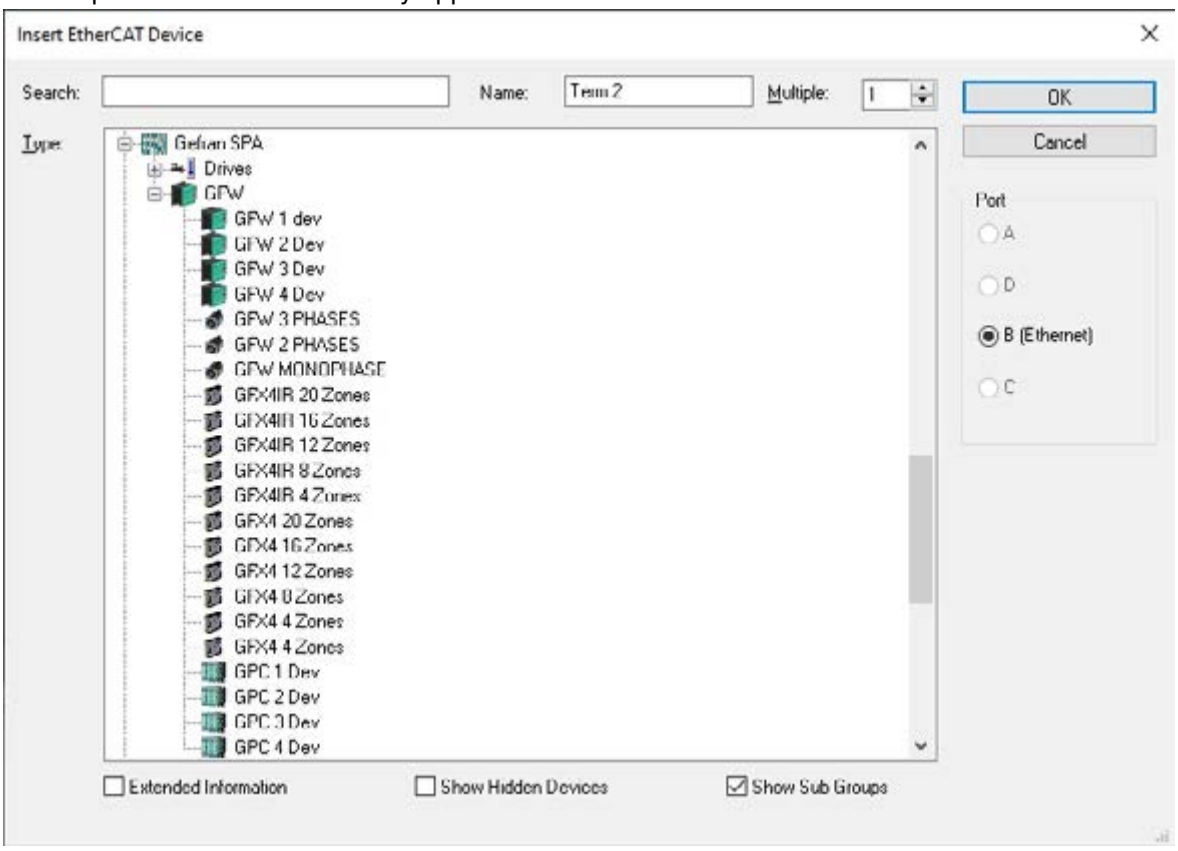
To use the devices, you must “install” them in the engineering software catalogue.
In our case, it is Twincat.
Copy the files (using TwinCAT 3.1) to the following path:
C;\TwinCAT\3.1\Config\IO\EtherCAT\
In the environment, it is necessary to make them read the new files, by refreshing the library using the
Reload Device Descriptions control
Found in the menu
TWINCAT/EtherCAT Devices



Insert the Device through
PROJECT\AddNew Item



Below an example of how the devices may appear.

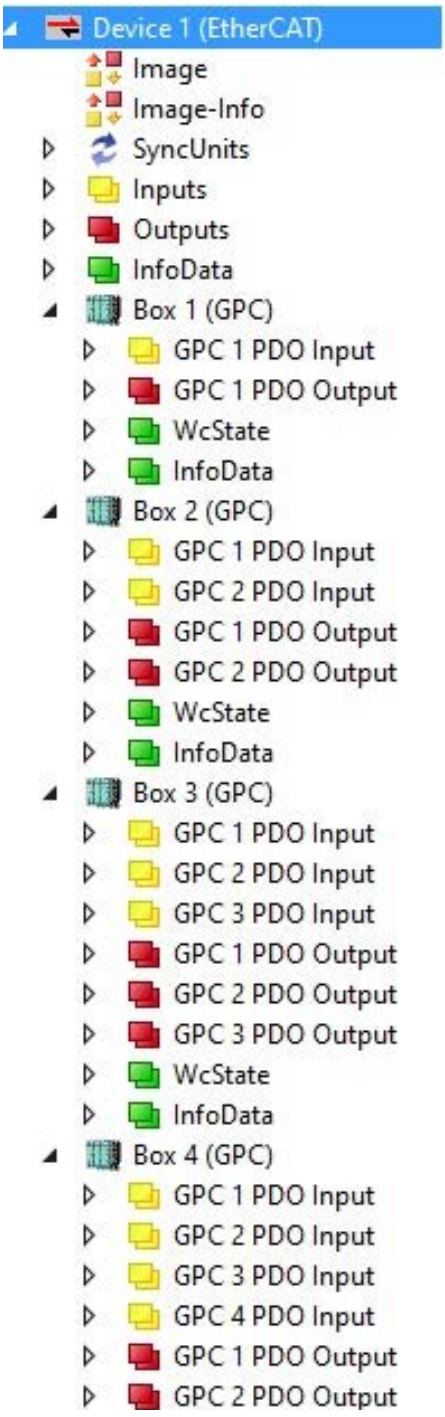


GPC devices stand out for their name (1, 2, 3, or 4 dev in bridge):

- GPC 1, 2, 3, 4 Dev

Once the device is inserted, the variables refer always to zone 1 (including for the two and three-phase).

A pair of PDOs (Input + Output) will be available while inserting a single device.
Maximum 4 pairs of PDOs (Input + Output) will be available in the case of a Bridge device; one pair for each GPC.
The following examples show 3 possible configurations
Box 1: is a single device (1 GPC).
Box 2: is a bridge device consisting of a master and a slave (2 GPC).
Box 3: is a bridge device consisting of a master and two slaves (3 GPC).
Box 4: is a bridge device consisting of a master and three slaves (4 GPC).



Addition of 4 devices in sequence:

GPC 1 Dev
GPC 2 Dev
GPC 3 Dev
GPC 4 Dev

an item appears per each device.
Box 1: is a bridge device consisting of a master (1 GPC).
Box 2: is a bridge device consisting of a master and a slave (2 GPC).
Box 3: is a bridge device consisting of a master and two slaves (3 GPC).
Box 4: is a bridge device consisting of a master and three slaves (4 GPC).

NOTE

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