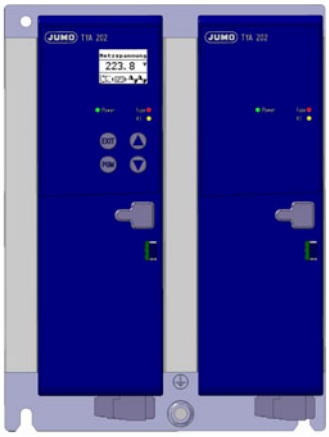
Type 70906X

Thyristor Power Controller TYA 201, 202 und 203

Type 709061/8-01-020



Type 709062/8-01-100

Type 709063/8-01-20

Interface description EtherCAT® for Type 709061, 709062 and 709063

7090610XT92Z001K000

JUMO

V1.00/EN/00682105

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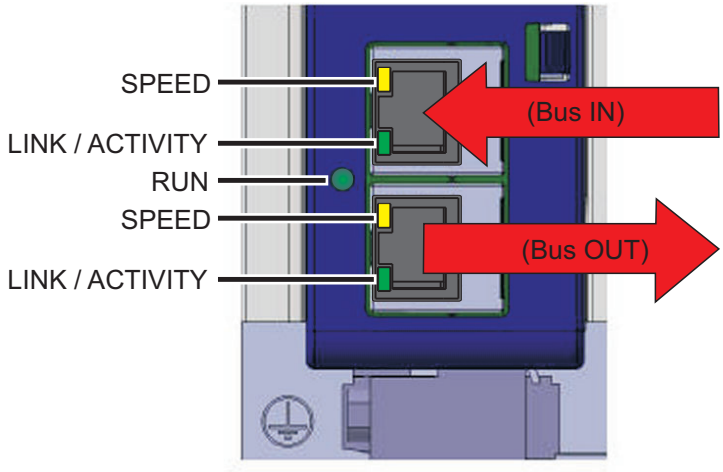
1.1 Brands

EtherCAT® is a registered trademark and patented technology licensed by Beckhoff Automation GmbH, Germany.

TwinCAT® is a registered and licensed trademark of Beckhoff Automation GmbH.

1.2 Meaning of the LEDs

LED		Meaning
RUN	OFF	INIT: Initialization phase, no communication
	Flashing	PREOP: Mailbox communication running; no process data traffic possible.
	Short flash	SAFEOP: Check the channels of the sync manager; outputs are in safe state
	ON	OP: normal operating status; mailbox and process data communication running
SPEED	ON	Indicates a 100 MBit connection
LINK / ACTIVITY	ON	Connected
	Flickering	Data being transferred
	OFF	Not connected
		

1 General information

TwinCAT® is an open PC software solution for real-time control with PLC, NC axis control, programming, and operation.

For further information and installation instructions go to:
https://infosys.beckhoff.com/

2.1 System requirements for the installation of TwinCAT®

Please note that the TwinCAT 2.x cannot be installed on a 64-bit version of Windows.

2.2 Startup of the TYA 20X

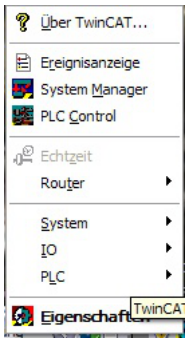
In order to create the configuration in offline and online mode, the TwinCAT® EtherCAT® master/system manager requires the device description file for the thyristor controller TYA 200. This device description is the ESI (**E**therCAT **S**lave **I**nformation) in the form of an XML file.

The ESI file must be stored in the installation directory of TwinCAT®.

Default setting for TwinCAT 2: C:\TwinCAT\Io\EtherCAT

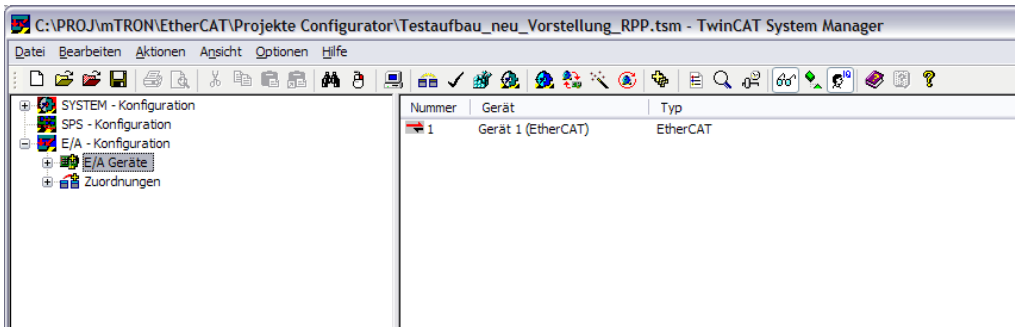
Start

Launch the TwinCAT® system manager from the program group or the quick-start bar.



The start takes slightly longer if the ESI files in the installation directory have changed since the last time the system manager was started.

The following window is displayed after the system manager is started:



2.3 Adding a device

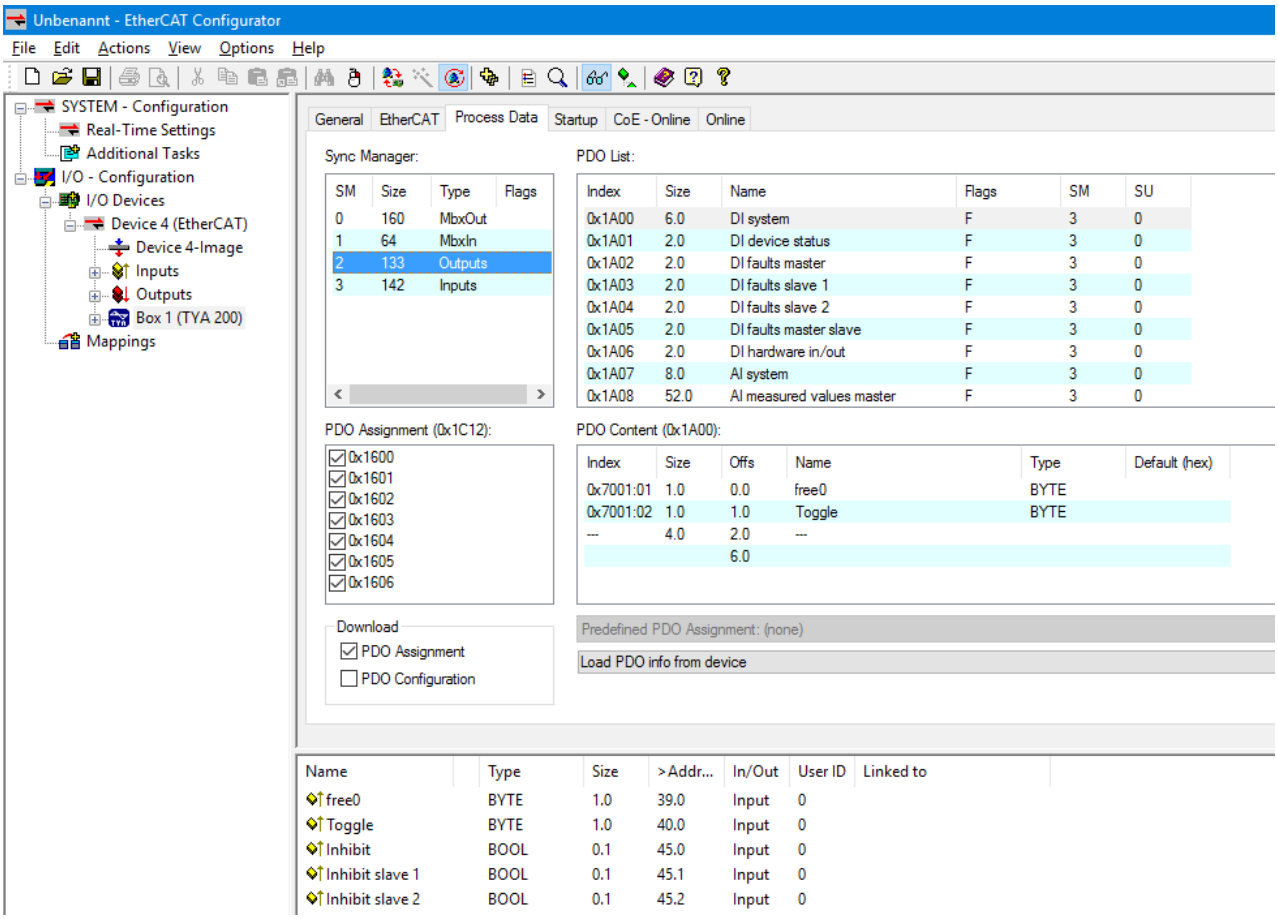
For precise and detailed instructions about how to create offline and online configurations go to:
https://infosys.beckhoff.com

2.4 Process data

The process data overview lists the detailed PDO selection.
These specifications are not usually necessary for operation under TwinCAT® because it can easily be configured from the configuration interface using the process data preselection.

2.4.1 Sync Manager (SM)

The TYA provides multiple different process data objects (PDO) for input and output data. They can be activated or deactivated in the system manager for cyclic process data transfer.



2.4.2 Manual PDO allocation

The desired Sync Manager is selected in the top left field "Sync Manager" in order to configure the process data ("Inputs" or "Outputs") In the field below, "PDO allocation", the allocated process data can then be activated or deactivated for the selected SM.

The EtherCAT® system then needs to be restarted ("Actions" menu -> "Reload the configuration"). This restarts the EtherCAT® communication and the process data are transferred from the device.

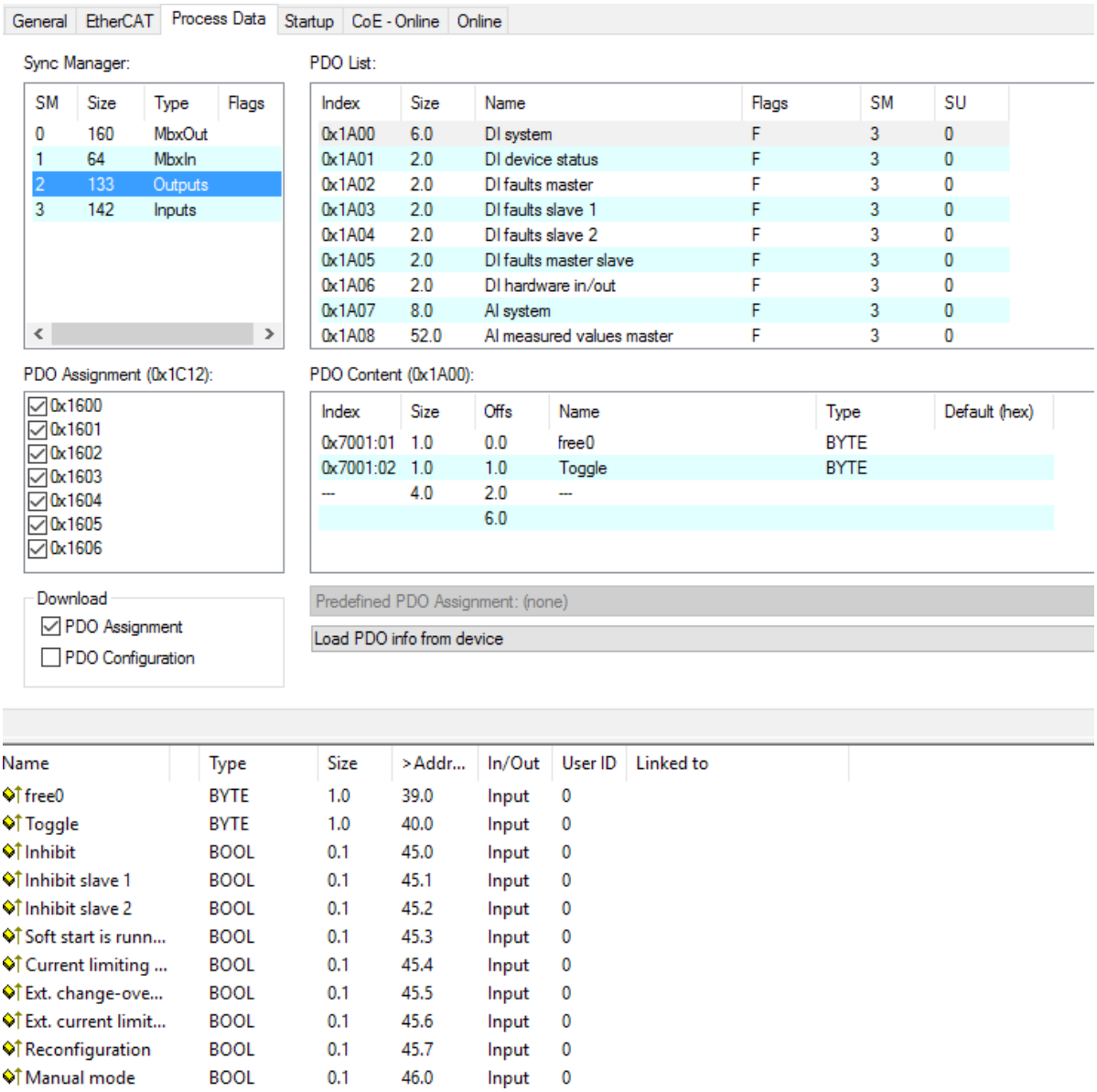


Table 1 Process data SM2 tab (Outputs)

Index	Size (Byte.Bit)	Name	PDO contents
1600	5.3	DO System	Index 0x6001:01 - Toggle Index 0x6001:02 - Indentifying Index 0x6001:03 - PLC active ⇨ Chapter 3.14 "0x6001 PDO Digital system input"
1601	0.3	DO External Inputs	Index 0x6002:01 - External inhibit input Index 0x6002:02 - External digital input 1 Index 0x6002:03 - External digital input 2
1602	7.5	DO	Index 0x6003:01 - Digital output
1603	4.0	AO System	
1604	4.0	AO Setpoint Value	Index 0x6102:01 - Setpoint value
1605	4.0	AO Alpha	Index 0x6103:01 - Alpha default value
1606	108.0	AO	Index 0x6104:01 - Analog output

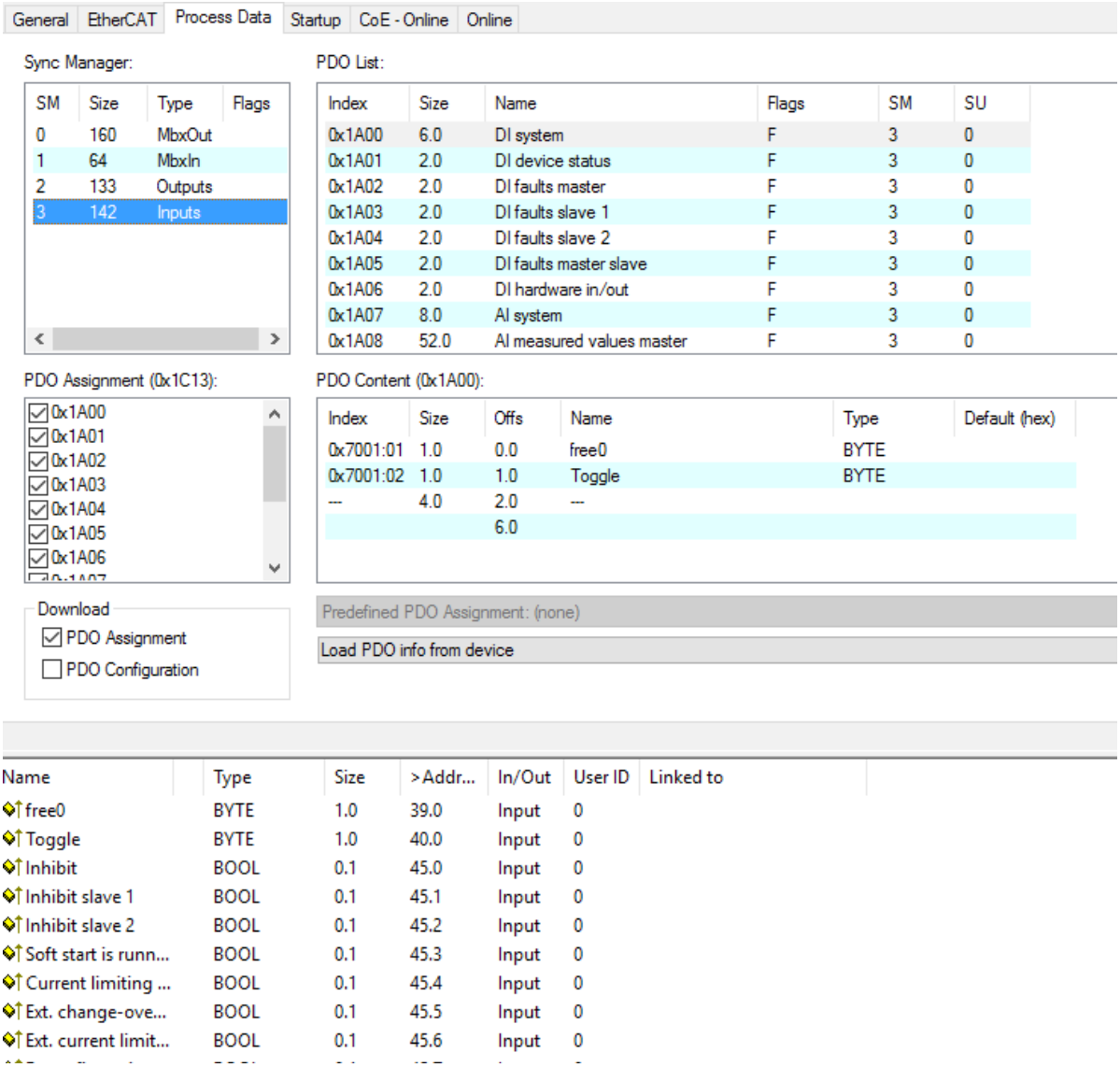


Table 2 Process data SM3 tab (Inputs)

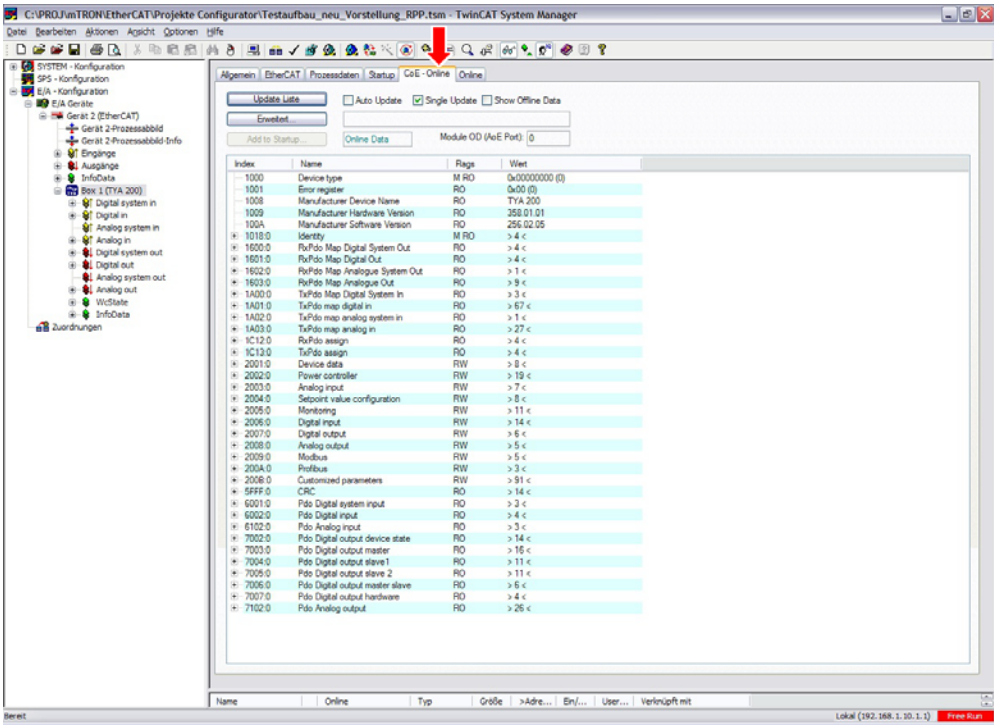
Index	Size (Byte.Bit)	Name	PDO contents
1A01	2.0	DI Device Status	Index 7002:01 – Inhibit Index 7002:02 – Inhibit Slave 1 Index 7002:03 – Inhibit Slave 2 Index 7002:04 – Soft start is running Index 7002:05 – Current limiting is active Index 7002:06 – Ext. change-over to phase angle op. Index 7002:07 – Ext. current limit value is used Index 7002:08 – Reconfiguration Index 7002:09 – Manual mode Index 7002:0A – Keyboard locked Index 7002:0B – Display lighting off Index 7002:0C – Rotary field detection was passed Index 7002:0D – Resistance limitation is active Index 7002:0E – Ext. change-over of setpoint input ⇨ Chapter 3.20 "0x7002 PDO Digital output device state"
1A02	2.0	DI Faults Master	Index 7003:01 – Collective fault Index 7003:02 – Min alarm Index 7003:03 – Max alarm Index 7003:04 – Load error Index 7003:05 – Teach-in is missing Index 7003:06 – Blown fuse Index 7003:07 – Thyristor breakage Index 7003:08 – Thyristor short circuit Index 7003:09 – Power limitation due to excessive temp. Index 7003:0A – Excessive temperature Index 7003:0B – Mains voltage too low Index 7003:0C – Mains voltage too high Index 7003:0D – Temporary mains voltage drop Index 7003:0E – Wire break in current input Index 7003:0F – Wire break in voltage input Index 7003:10 – Bus error ⇨ Chapter 3.21 "0x7003 PDO Digital output master"
1A03	2.0	DI Faults Slave 1	Index 7004:01 – Min alarm Index 7004:02 – Max alarm Index 7004:03 – Load error Index 7004:04 – Blown fuse Index 7004:05 – Thyristor breakage Index 7004:06 – Thyristor short circuit Index 7004:07 – Power Limitation due to excessive temp. Index 7004:08 – Excessive temperature Index 7004:09 – Mains voltage too low Index 7004:0A – Mains voltage too high Index 7004:0B – Temporary mains voltage drop ⇨ Chapter 3.22 "0x7004 PDO Digital output slave 1"

Index	Size (Byte.Bit)	Name	PDO contents
1A04	2.0	DI Faults Slave 2	Index 7005:01 – Min alarm Index 7005:02 – Max alarm Index 7005:03 – Load error Index 7005:04 – Blown fuse Index 7005:05 – Thyristor breakage Index 7005:06 – Thyristor short circuit Index 7005:07 – Power Limitation due to excessive temp. Index 7005:08 – Excessive temperature Index 7005:09 – Mains voltage too low Index 7005:0a – Mains voltage too high Index 7005:0B – Temporary mains voltage drop ⇨ Chapter 3.23 "0x7005 PDO Digital output slave 2"
1A05	2.0	DI Faults Master/Slave	Index 7006:01 – Master slave synchronization failed Index 7006:02 – Error in master slave communication Index 7006:03 – Data cable faulty Index 7006:04 – Rotation field detection failed Index 7006:05 – Rotation field error Index 7006:06 – Wiring error ⇨ Chapter 3.24 "0x7006 PDO Digital output master slave"
1A06	2.0	DI Hardware in/out	Index 7007:01 – Inhibit input Index 7007:02 – Digital input 1 Index 7007:03 – Digital input 2 Index 7007:04 – Digital output Chapter 3.25 "0x7007 PDO Digital output hardware"
1A07	8.0	AI System	
1A08	52.0	AI Measured Values Master	Index 7102:01 – Load voltage Index 7102:02 – Load current Index 7102:03 – Power Index 7102:04 – Load resistance Index 7102:05 – Actual value Index 7102:06 – Effective setpoint value Index 7102:07 – Output level Index 7102:08 – Alpha Index 7102:09 – Mains voltage Index 7102:0A – Mains frequency Index 7102:0B – Device temperature Index 7102:0C – Current input Index 7102:0D – Voltage input Chapter 3.26 "0x7102 PDO Analog output Master"
1A09	24.0	AI Measured Values Slave1	Index 7103:01 – Load voltage Index 7103:02 – Load current Index 7103:03 – Power slave Index 7103:04 – Load resistance Index 7103:05 – Mains voltage Index 7103:06 – Device temperature ⇨ Chapter 3.27 "0x7103 PDO Analog output Slave1"

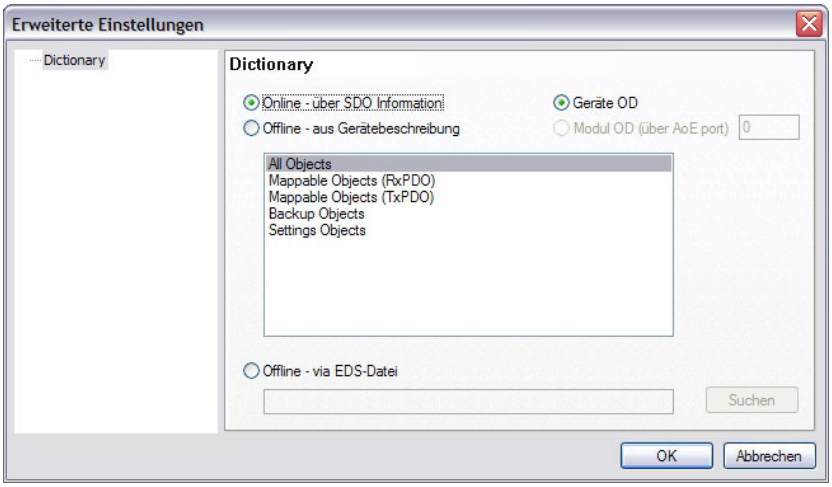
Index	Size (Byte.Bit)	Name	PDO contents
1A0A	24.0	AI Measured Values Slave2	Index 7104:01 – Load voltage Index 7104:02 – Load current Index 7104:03 – Power slave Index 7104:04 – Load resistance Index 7104:05 – Mains voltage Index 7104:06 – Device temperature ⇨ Chapter 3.28 "0x7104 PDO Analog output Slave2"
1A0B	16.0	AI Measured Values Three Phases	Index 7105:01 – Three phase power ⇨ Chapter 3.29 "0x7105 PDO Three phase Power"

2.5 Object Description and Configuration

CoE – Online The configuration can be performed via the "CoE – Online" tab.



Extended The online PDO information can be extracted from the device via the [Extended...] button.



3.1 Device, Hardware and Software

Index (hex)	Name	Default	
0x1008 : 0	Manufacturer Device Name	TYA 200	
0x1009 : 0	Manufacturer Hardware Version	358.01.01	
0x100a : 0	Manufacturer Software Version	256.02.01	

3.2 0x1018 Identity

Index (hex)	Name	Default	
0x1018 : 1	Vendor id	0x126	
0x1018 : 2	Product code	0xad1C4	
0x1018 : 3	Revision number	0x27112D	
0x1018 : 4	Serial number	0x0	

3.3 0x2001 Device data

Index (hex)	Name	Data type	Value range	JUMO ID
0x2001 : 1	Size of an instance			
0x2001 : 2	Language assistant	enum	0: No 1: Yes	1.0.0.0
0x2001 : 3	Language	enum	0: German 1: English 2: French 3: 4th language	1.0.1.0
0x2001 : 4	Temperature unit	enum	0: °C 1: °F	1.0.2.0
0x2001 : 5	Switch off display	uint16	0... 1440 min	1.0.3.0
0x2001 : 6	Code manual mode	uint16	0...9999	1.0.4.0
0x2001 : 7	Code operation level	uint16	0...9999	1.0.5.0
0x2001 : 8	Code configuration level	uint16	0...9999	1.0.6.0

3 Address tables

3.4 0x2002 Power controller

Index (hex)	Name	Data type	Value range	JUMO ID
0x2002 : 1	Size of an instance			
0x2002 : 2	Mains switching variant	enum	0: Single-phase m 1: Free-run.eco.cir 2: Eco.Circ. Master 3: Eco.Circ. Slave 4: 3-phase master 5: 3-phase slave 1 6: 3-phase slave 2	2.0.0.0
0x2002 : 3	Three-phase load wiring	enum	0: Y without N-wire 1: Y with N-wire 2: Delta connection 3: Open delta conn.	2.0.1.0
0x2002 : 4	Thyristor control	enum	0: Contin.(contr.) 1: Logic (switch)	2.0.2.0
0x2002 : 5	Operating mode	enum	0:Burst firing 1: Phase angle 2: Half-wave contr.	2.0.3.0
0x2002 : 6	Cycle time	enum	0: fixed (500 ms) 1: as fast as poss.	2.0.4.0
0x2002 : 7	Min switch on duration	enum	0: none 1: 3 sine movements	2.0.5.0
0x2002 : 8	Alpha start	enum	0: No 1: Yes	2.0.6.0
0x2002 : 9	Angle alpha start	uint16	0...90 degrees	2.0.7.0
0x2002 : 10	Soft start	enum	0: No 1: Yes	2.0.8.0
0x2002 : 11	Soft start type	enum	0: With phase angle 1: W. burst firing	2.0.9.0
0x2002 : 12	Soft start duration	uint16	0...65535	2.0.10.0
0x2002 : 13	Current limiting	enum	0: No 1: Yes	2.0.11.0
0x2002 : 14	Current limit value	float	0...275	2.0.12.0
0x2002 : 15	Resistance limiting	enum	0: No 1: Yes	2.0.13.0
0x2002 : 16	Resistance limit value	float	0...999.99	2.0.14.0
0x2002 : 17	Load type	enum	0: Resistive load 1: Transformer load	2.0.15.0
0x2002 : 18	Dual energy management	enum	0: off 1: Device1 2: Device2	2.0.16.0
0x2002 : 19	Subordinated control	enum	0: none 1: U^2 2: U 3: I^2 4: I 5: P	2.0.17.0

3.5 0x2003 Analog input

Index (hex)	Name	Data type	Value range	JUMO ID
0x2003 : 1	Size of an instance			
0x2003 : 2	Current measuring range	enum	0: switched off (don't use) 1: 0...20mA 2: 4...20mA 3: 0...10V (don't use) 4: 2...10V (don't use) 5: 0...5V (don't use) 6: 1...5V (don't use) 7: Customer spec.	3.0.0.0
0x2003 : 3	Current range start	float	0 to 20 mA	3.0.1.0
0x2003 : 4	Current range end	float	0 to 20 mA	3.0.2.0
0x2003 : 5	Voltage measuring range	enum	0: switched off (don't use) 1: 0...20mA (don't use) 2: 4...20mA (don't use) 3: 0...10V 4: 2...10V 5: 0...5V 6: 1...5V 7: Customer spec.	3.0.3.0
0x2003 : 6	Voltage range start	float	0 to 10 V	3.0.4.0
0x2003 : 7	Voltage range end	float	0 to 10 V	3.0.5.0

3.6 0x2004 Setpoint value configuration

Index (hex)	Name	Data type	Value range	JUMO ID
0x2004 : 1	Size of an instance			
0x2004 : 2	Setpoint input	enum	0: No default value (don't use) 1: Last value (don't use) 2: Current input 3: Voltage input 4: Value adjustable (don't use) 5: Via interface 6: Binary input 1 7: Binary input 2	4.0.0.0
0x2004 : 3	Alpha input	enum	0: No default value 1: Last value (don't use) 2: Current input 3: Voltage input 4: Value adjustable 5: Via interface 6: Binary input 1 (don't use) 7: Binary input 2 (don't use)	4.0.1.0
0x2004 : 4	Alpha default value	uint16	0...180 Degrees	4.0.2.0

Index (hex)	Name	Data type	Value range	JUMO ID
0x2004 : 5	Input during error	enum	0: No default value (don't use) 1: Load value 2: Current input 3: Voltage input 4: Value adjustable 5: Via interface (don't use) 6: Binary input 1 (don't use) 7: Binary input 2 (don't use)	4.0.3.0
0x2004 : 6	Input value during error	float	0...115 %	4.0.4.0
0x2004 : 7	Maximum SCR output value	float	0...115 %	4.0.5.0
0x2004 : 8	Basic load	float	0...100 %	4.0.6.0

3.7 0x2005 Monitoring

Index (hex)	Name	Data type	Value range	JUMO ID
0x2005 : 1	Size of an instance			
0x2005 : 2	Limit value monitoring	enum	0: Switched off 1: Load voltage 2: Load voltage^2 (don't use) 3: Load current 4: Load current^2 (don't use) 5: Power [W] 6: Power [kW] 7: Load resistance 8: Mains voltage 9: Device temperat. 10: Setpoint (don't use) 11: From interface (don't use)	5.0.0.0
0x2005 : 3	Min alarm limit value	float	0...9999	5.0.1.0
0x2005 : 4	Max alarm limit value	float	0...9999	5.0.2.0
0x2005 : 5	Hysteresis limit value	float	0...9999	5.0.3.0
0x2005 : 6	Load monitoring	enum	0: No load monit 1: Under-current 2: Over-current	5.0.4.0
0x2005 : 7	Limit value load monitoring	float	0...100	5.0.5.0
0x2005 : 8	Teach-In	enum	0: manual 1: autom. once 2: autom. cyclical	5.0.6.0
0x2005 : 9	Load type	enum	0: Standard 1: IR radiator	5.0.7.0
0x2005 : 10	Control loop monitoring	enum	0: No 1: Yes	5.0.8.0
0x2005 : 11	Mains voltage drop monitoring	enum	0: No 1: Yes	5.0.9.0

3.8 0x2006 Digital input

Index (hex)	Name	Data type	Value range	JUMO ID
0x2006 : 1	Size of an instance			
0x2006 : 2	Ext. change-over to phase angle op.	enum	0: Switched off 1: Binary input 1 2: Binary input 2 3: Ext. bin.input 1 4: Ext. bin.input 2	6.0.0.0
0x2006 : 3	Ext. change-over of setpoint input	enum	0: Switched off 1: Binary input 1 2: Binary input 2 3: Ext. bin.input 1 4: Ext. bin.input 2	6.0.1.0
0x2006 : 4	Setpoint input at change-over	enum	0: No default value (don’t use) 1: Last value (don’t use) 2: Current input 3: Voltage input 4: Value adjustable 5: Via interface (don’t use) 6: Binary input 1 (don’t use) 7: Binary input 2 (don’t use)	6.0.2.0
0x2006 : 5	Setpoint value at change-over	float	0...115 %	6.0.3.0
0x2006 : 6	Ext. current limiting	enum	0: Switched off 1: Binary input 1 2: Binary input 2 3: Ext. bin.input 1 4: Ext. bin.input 2	6.0.4.0
0x2006 : 7	Ext. current limit value	float	0...275	6.0.5.0
0x2006 : 8	Ext. change-over load monitoring	enum	0: Switched off 1: Binary input 1 2: Binary input 2 3: Ext. bin.input 1 4: Ext. bin.input 2	6.0.6.0
0x2006 : 9	Limit value load monitoring	float	0...100 %	6.0.7.0
0x2006 : 10	Keyboard lock	enum	0: Switched off 1: Binary input 1 2: Binary input 2 3: Ext. bin.input 1 4: Ext. bin.input 2	6.0.8.0
0x2006 : 11	Ext. deactivation of display lighting	enum	0: Switched off 1: Binary input 1 2: Binary input 2 3: Ext. bin.input 1 4: Ext. bin.input 2	6.0.9.0
0x2006 : 12	Control direction inhibit input	enum	0: open - Load OFF 1: open - Load ON	6.0.10.0
0x2006 : 13	Control direction digital input 1	enum	0: open active 1: open inactive	6.0.11.0
0x2006 : 14	Control direction digital input 2	enum	0: open active 1: open inactive	6.0.12.0

3 Address tables

3.9 0x2007 Digital output

Index (hex)	Name	Data type	Value range	JUMO ID
0x2007 : 1	Size of an instance			
0x2007 : 2	Output mode	enum	0: Fault alrm. outp 1: Energy meter 2: Interf.sign.outp	7.0.0.0
0x2007 : 3	Control direction digital output	enum	0: Normally open 1: Normally closed	7.0.1.0
0x2007 : 4	Pulses per kWh	uint16	1...1000	7.0.2.0
0x2007 : 5	Pulse length	uint16	30...2000 ms	7.0.3.0
0x2007 : 6	Min. pulse pause	uint16	30...2000 ms	7.0.4.0

3.10 0x2008 Analog output

Index (hex)	Name	Data type	Value range	JUMO ID
0x2008 : 1	Size of an instance			
0x2008 : 2	Signal type	enum	0: switched off 1: 0...20mA 2: 4...20mA 3: 0...10V 4: 2...10V 5: 0...5V 6: 1...5V 7: Customer spec. (don't use)	8.0.0.0
0x2008 : 3	Value to be output	enum	0: Switched off (don't use) 1: Load voltage 2: Load voltage^2 3: Load current 4: Load current^2 5: Power [W] 6: Power [kW] 7: Load resistance 8: Mains voltage 9: Device temperat. 10: Setpoint 11: From interface	8.0.1.0
0x2008 : 4	Signal range start value	float	0.0...9999.9	8.0.2.0
0x2008 : 5	Signal range end value	float	0.0...9999.9	8.0.3.0

3.11 0x2009 Modbus

Index (hex)	Name	Data type	Value range	JUMO ID
0x2009 : 1	Size of an instance			
0x2009 : 2	Baud rate	enum	0: 9600 baud 1: 19200 baud 2: 38400 baud 3: 115200 baud	9.0.0.0

Index (hex)	Name	Data type	Value range	JUMO ID
0x2009 : 3	Data format	enum	0: 8-1-none 1: 8-1-odd 2: 8-1-even 3: 8-2-none	9.0.1.0
0x2009 : 4	Device address	uint16	0...255	9.0.2.0
0x2009 : 5	Min. response time	uint16	0...500 ms	9.0.3.0

3.12 0x200A Profibus

Index (hex)	Name	Data type	Value range	JUMO ID
0x200a : 1	Size of an instance			
0x200a : 2	Device address	uint16	0...125	10.0.0.0
0x200a : 3	Data format	enum	0: Motorola 1: Intel	10.0.1.0

3.13 0x200B Customized parameters

Index (hex)	Name	Data type	Value range	JUMO ID
0x200b : 1	Size of an instance			
0x200b : 2	Customized parameter 1	uint16	0...65535	11.0.0.0
0x200b : 3	Customized parameter 2	uint16	0...65535	11.0.1.0
0x200b : 4	Customized parameter 3	uint16	0...65535	11.0.2.0
.	.	uint16	0...65535	.
.	.	uint16	0...65535	.
.	.	uint16	0...65535	.
0x200b : 91	Customized parameter 90	uint16	0...65535	11.0.89.0

3 Address tables

3.14 0x6001 PDO Digital system input

Index (hex)	Name	Data type	Flags
0x6001 : 01	Toggle	uint8	RO
0x6001 : 02	Identifying	bool	RO
0x6001 : 03	PLC active	bool	RO

3.15 0x6002 PDO Digital input

Index (hex)	Name	Data type	Flags
0x6002 : 01	External inhibit input	bool	RO
0x6002 : 02	External digital input 1	bool	RO
0x6002 : 03	External digital input 2	bool	RO

3.16 0x6002 PDO Digital output

Index (hex)	Name	Data type	Flags
0x6003 : 01	Digital output	bool	RO

3.17 0x6102 PDO Analog input

Index (hex)	Name	Data type	Flags
0x6102 : 01	Setpoint value	real	RO

3.18 0x6103 PDO Analog input

Index (hex)	Name	Data type	Flags
0x6103 : 01	Alpha default value	real	RO

3.19 0x6104 PDO Analog output

Index (hex)	Name	Data type	Flags
0x6104 : 01	Analog output	real	RO

3.20 0x7002 PDO Digital output device state

Index (hex)	Name	Data type	Flags
0x7002 : 01	Inhibit	bool	RO
0x7002 : 02	Inhibit slave 1	bool	RO
0x7002 : 03	Inhibit slave 2	bool	RO
0x7002 : 04	Soft start is running	bool	RO
0x7002 : 05	Current limiting is active	bool	RO

Index (hex)	Name	Data type	Flags
0x7002 : 06	Ext. change-over to phase angle op.	bool	RO
0x7002 : 07	Ext. current limit value is used	bool	RO
0x7002 : 08	Reconfiguration	bool	RO
0x7002 : 09	Manual mode	bool	RO
0x7002 : 0A	Keyboard locked	bool	RO
0x7002 : 0B	Display lighting off	bool	RO
0x7002 : 0C	Rotary field detection was passed	bool	RO
0x7002 : 0D	Resistance limitation is active	bool	RO
0x7002 : 0E	Ext. change-over of setpoint input	bool	RO

3.21 0x7003 PDO Digital output master

Index (hex)	Name	Data type	Flags
0x7003 : 01	Collective fault	bool	RO
0x7003 : 02	Min alarm	bool	RO
0x7003 : 03	Max alarm	bool	RO
0x7003 : 04	Load error	bool	RO
0x7003 : 05	Teach-in is missing	bool	RO
0x7003 : 06	Blown fuse	bool	RO
0x7003 : 07	Thyristor breakage	bool	RO
0x7003 : 08	Thyristor short circuit	bool	RO
0x7003 : 09	Power limitation due to excessive temp.	bool	RO
0x7003 : 0A	Excessive temperature	bool	RO
0x7003 : 0B	Mains voltage too low	bool	RO
0x7003 : 0C	Mains voltage too high	bool	RO
0x7003 : 0D	Temporary mains voltage drop	bool	RO
0x7003 : 0E	Wire break in current input	bool	RO
0x7003 : 0F	Wire break in voltage input	bool	RO
0x7003 : 10	Bus error	bool	RO

3.22 0x7004 PDO Digital output slave 1

Index (hex)	Name	Data type	Flags
0x7004 : 01	Min alarm slave 1	bool	RO
0x7004 : 02	Max alarm slave 1	bool	RO
0x7004 : 03	Load error slave 1	bool	RO
0x7004 : 04	Blown fuse slave 1	bool	RO
0x7004 : 05	Thyristor breakage slave 1	bool	RO
0x7004 : 06	Thyristor short circuit slave 1	bool	RO
0x7004 : 07	Power Limitation due to excessive temp. slave 1	bool	RO
0x7004 : 08	Excessive temperature slave 1	bool	RO

Index (hex)	Name	Data type	Flags
0x7004 : 09	Mains voltage too low slave 1	bool	RO
0x7004 : 0A	Mains voltage too high slave 1	bool	RO
0x7004 : 0B	Temporary mains voltage drop slave 1	bool	RO

3.23 0x7005 PDO Digital output slave 2

Index (hex)	Name	Data type	Flags
0x7005 : 01	Min alarm slave 2	bool	RO
0x7005 : 02	Max alarm slave 2	bool	RO
0x7005 : 03	Load alarm slave 2	bool	RO
0x7005 : 04	Blown fuse slave 2	bool	RO
0x7005 : 05	Thyristor breakage slave 2	bool	RO
0x7005 : 06	Thyristor short circuit slave 2	bool	RO
0x7005 : 07	Power Limitation due to excessive temp. slave 2	bool	RO
0x7005 : 08	Excessive temperature slave 2	bool	RO
0x7005 : 09	Mains voltage too low slave 2	bool	RO
0x7005 : 0A	Mains voltage too high slave 2	bool	RO
0x7005 : 0B	Temporary mains voltage drop slave 2	bool	RO

3.24 0x7006 PDO Digital output master slave

Index (hex)	Name	Data type	Flags
0x7006 : 01	Master slave synchronization failed	bool	RO
0x7006 : 02	Error in master slave communication	bool	RO
0x7006 : 03	Data cable faulty	bool	RO
0x7006 : 04	Rotation field detection failed	bool	RO
0x7006 : 05	Rotation field error	bool	RO
0x7006 : 06	Wiring error	bool	RO

3.25 0x7007 PDO Digital output hardware

Index (hex)	Name	Data type	Flags
0x7007 : 01	Inhibit input	bool	RO
0x7007 : 02	Digital input 1	bool	RO
0x7007 : 03	Digital input 2	bool	RO
0x7007 : 04	Digital output	bool	RO

3.26 0x7102 PDO Analog output Master

Index (hex)	Name	Data type	Flags
0x7102 : 01	Load voltage	bool	RO
0x7102 : 02	Load current	bool	RO

Index (hex)	Name	Data type	Flags
0x7102 : 03	Power	bool	RO
0x7102 : 04	Load resistance	bool	RO
0x7102 : 05	Actual value	bool	RO
0x7102 : 06	Effective setpoint value	bool	RO
0x7102 : 07	Output level	bool	RO
0x7102 : 08	Alpha	bool	RO
0x7102 : 09	Mains voltage	bool	RO
0x7102 : 0A	Mains frequency	bool	RO
0x7102 : 0B	Device temperature	bool	RO
0x7102 : 0C	Current input	bool	RO
0x7102 : 0D	Voltage input	bool	RO

3.27 0x7103 PDO Analog output Slave1

Index (hex)	Name	Data type	Flags
0x7103 : 01	Load voltage slave 1	bool	RO
0x7103 : 02	Load current slave 1	bool	RO
0x7103 : 03	Power slave 1	bool	RO
0x7103 : 04	Load resistance slave 1	bool	RO
0x7103 : 05	Mains voltage slave 1	bool	RO
0x7103 : 06	Device temperature slave 1	bool	RO

3.28 0x7104 PDO Analog output Slave2

Index (hex)	Name	Data type	Flags
0x7104 : 01	Load voltage slave 2	bool	RO
0x7104 : 02	Load current slave 2	bool	RO
0x7104 : 03	Power slave 2	bool	RO
0x7104 : 04	Load resistance slave 2	bool	RO
0x7104 : 05	Mains voltage slave 2	bool	RO
0x7104 : 06	Device temperature slave 2	bool	RO
0x7105 : 01	Three phase power	bool	RO

3.29 0x7105 PDO Three phase Power

Index (hex)	Name	Data type	Flags
0x7105 : 01	Three phase power	bool	RO

3 Address tables

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