

# Tebis : an electrical installation with bus technology and control

an installation system for ever increasing needs for control, command and management features in professional premises and buildings of services organisations.













# Electrical installation with bus technology

This installation concept brings the following benefits :

• integrate within one system services and functions which previously worked independently from each other,

make modifications easier,
make the electrical installation more reliable, reducing the chance of electrocution,

• tailoring the switch commands to ensure greater user comfort.

The above features require the installation of two separate circuits, a supply circuit to distribute energy and the control circuit to carry information and instructions.

Having two distinct circuit offers many advantages :

### • the supply cabling is simplified

The only devices cabled on the LV (240Vac) side are the loads requiring power (lights, garge, door,...)

The control for these loads (by push switches, thermostats.) are connected to the bus circuit.



The command bus transmits information to each of the appliances.

• Freedom to assign functions and applications. An electrical installation based on the bus control concept, makes it possible to assign an ON/OFF, dimming, rising or lowering function without changing he wiring.

This control can then apply to a single receiver, to a group of receivers or to all receivers (general control) used for lighting, door opening or heating.

• Remote controls integration. Adding radio or infrared receivers connected to the bus combines the technological benefits. The bus + radio + infrared combination makes it possible to act on all receivers controlled by the control bus using the remote control keys.

### • Grouping of instructions

One order (from a push-button...) can control a set of lights or other loads or both at once (a scenario).

### Flexibility

Using Tebis to control loads, the electrical installation can be modified and the use or configuration of the building can be changed, without changing the LV wiring. Electrical installation with bus technology is :

### a developing concept

After its success in industrial applications, this installation concept is spreading to include domestic and commercial premises.

### a concept with numerous advantages

- adapts easily to the requirements of current and future users

gives greater conceptual freedom to the architect
easy installation by the electrician

## Electrical installation with bus technology



Tebis is based on simple principles :

• The input devices react to orders, controls and measures. they act on an ON/OFF order from a switch, measure the variation of ambient temperature or of light level, and transmit orders to the bus.

• The output devices receive all information and orders travelling to the bus and execute orders adressed to them.

• The installation bus is the twisted-pair cable which serves as the information network.

- the power circuit

- the control bus



# Tebis : for professional premises and buildings of service organisations

Designed by electricians for electricians, Tebis is an electrical installation system designed to suit the ever increasing needs for control, command and management features in professional premises and buildings of service organisations

- offices
- schools
- hotel and associated business
- health organisations
- local communities
- (...)



### Tebis : electrical installation with bus technology and control

- Tebis can be used to create ambient lighting as desired.
- The heating regulator is used to set heating into comfort or economy mode, override heaters to frost setting or to "off" position.
- Shutters can be controlled individually, by group or all together. From push-buttons, or even from a wind meter.
- In addition to the individual controls each Tebis product offers also simultaneous control of several different loads (for example : lighting & heating) from one single push-button or sensor.





Tebis is an open sysem providing **building technical management** functions such as :

- supervision of installation
- power rates management
- metering
- remote processing, remote services
- remote maintenance
- (...)

Tebis is compatible with EIB and JBUS standards



Tebis makes it possible to freely associate **environment control** for dependent people with the technical management of installations

- rehabilitation centres
- home for special care
- (...)



Tebis provides simple answers to **local comunities** seeking the best solution suited to each type of building as well remote access to multiple sites

 RS 232 modem product reference TH 004

## Tebis : the devices



The same Tebis product can perform different functions and the association of a product and application software determines the fulfilled function.



The fitter uses ETS software common to all members of EIBA to download the application software to the product via the BUS.



### Three types of tebis products can be implemented



**modular** (e.g. 4 outputs 16 A modular TS 204C)



non-modular (e.g.: lighting distributor enclosure TC 124)

Tebis products exchange information on an installation BUS operating under standard protocol EIB.

The number of tebis products and the lengths of BUS which can be implemented cover most usual applications in professional premises and buildings of service organisations.



Designed to run under Windows, ETS software simplifies the various phases of study, design, implementation, documentation and even diagnosis. The 'product' database is specific to each manufacturer member of EIBA.

You may get ETS software, by contacting the EIBA s.c. Association at this address :rue de Neerveld, Neerveldstraat 105, B-1200 Brussels - Belgium (idaho.eiba.com).

You may get Tebis products database in two ways : • by downloading th database from Hager's Internet site at :

www.hager.fr,or

by contacting your commercial agency



projecting (e.g. : temperature regulator TF 014 wit its BCU TA 004)



# Tebis TS is easy to use

### Tebis TS: a system which is easy to install

• All the control units are linked to 2 bus wires via input modules • All the electrical loads are

linked to the output modules • The allocation of links between the push buttons and the loads are carried out by means of an easy to use modular device called a configurator

• The configurator will make it possible to define, for each input, which outputs

are to be commanded and in which way (relay, dimmer, up, down, etc.)

After down loading this data to the different products, the installation is functional. Changes or future developments to adapt the installation to the needs of the client are achieved by simply reprogramming.





A system easy to configure

The configurator defines or modifies the electrical installation

### Some applications:

the "leaving home" scenario. A single gesture is enough to:

- Turn out all the lights
- Lower all the shutters
- Reduce the heating
- Etc.

The scenario, which can be changed at will, can be activated with a push button in the hall, at the garage door or by radio remote control.



### In a sports room

the lighting must be adapted to the activity taking place (tennis, volleyball, basketball, etc.) as well as for the occasion (matches, training, preparation, etc).

To assist Specifiers and Installers, Hager run complementary training sessions. Talk to your Hager representative for a current schedule of seminars.

~	₽.* ₹		<b>F</b>
1/2	1/2	trainina	matches

1/2 training. matches

By assigning a push button to each sport, it is possible to implement the most suitable lighting for the sport being played with a single action, without being obliged to change several switches which are each dedicated to a part of the playing area.





### The "projection" scenario

This makes it possible to move straight from a meeting sequence to a projection sequence and vice-versa with a single command. As well as managing the lighting, this command can also drive the motorised screen and supply power to the projector.

### Benefits that can be sold to the final user:

- Tebis TS offers the highest level of comfort possible
- Tebis TS ensures that inevitable future modifications can be handled at least cost are are easy to do
- Tebis TS offers the most economical control of electricity
- Using remote controls to simplify your life
- Adding new push buttons without touching your decor
- Access all loads from anywhere

4



# Tebis : services for your project

The implementation of a Tebis project includes two steps : - the personnel of the electrical installation contractor is trained to acquire the necessary technical qualification, and - additionally, a competent partner subcontractor can provide services to be included in the initial estimate.

Depending on the need for project integration (including supervision, access control,...) a co-contracting specialist may bring its special expertise.

Tebis is compatible with EIB and JBUS standards.









# Contact your commercial agency !

From the time of the feasibility study and from project design through implementation, the local team ensures project quality and technical solutions performance and results, with the assistance of the Technical Support Staff.

The local team will coordinate the various companies taking part in such a project.

In order to learn about the performance of a BUS control/command electrical installation, project participants may attend a complete training course offered by Hager and tailored to individual needs.

Hager offers the EIBA approved training course (ref. N° IM10) on EIB Bus principles of operation and ETS software application to Tebis system design and startup.

For further information and for course registration, contact your local commercial agency.





### Implementation handbook

Included in the CD-Rom of catalogues, this handbook provides all Tebis product user's instructions, as well as the full technical presentation of each application software. It is an essential tool for designing and implementing a Tebis installation.

The 2002 general catalogue includes :

- products, pages 08 to 24
- the technical guide, pages 25 to 45



# Tebis

- Selection chart

- Selection chart System devices Input devices Remote control Outputs devices Dimming Shutters and blinds Lighting and distributors
- Thermostats
- Wind gauge Regulators Controllers

- Programming and application controllers
- Display and communication software
- Commands
- Accessories



# Selection chart

		Réf.	Forme	Page
	Accesories			
		TC		25
		TG		20
		10		20
	Push - buttons			
ΥĽ	Quadruple push-button			
	Quadruple push-button without BCU	TK 005		24
	Physical Captors			
	Temperature		0	
	standard temperature transmitter	TE 001	L)	18
	Local temperature transmitter with no waiver	TE 006		18
	leating			
	Fil pilote		ß	
	4 outputs heater experimental	TB 042	$\square$	13
	Regulator		ß	
	Regulator for unerfloor heating	TF 005		20
	Room temperature regulator with override	TF 012		20
	Room temperature regulator without override	IF 014		20
	Room temperature with in-conditioning option controller	IF UI6		21
	Communication			
ΥĽ	Series		<u>^</u>	
	modular RS 232	TH 001	b	23
	interface RS 232	TH 002		23
	RS 232 modem	TH 004	Ċ	23
	System devices			
ΤĹ	Supply			
	Supply 320 mA	TS 111	b	10
	——————————————————————————————————————		Â	
	Coupler of line	TA 006	$\mathcal{D}$	10
	BCU		<b>K</b>	
	Bus coupler, flush mounted	TA 004		10
	Controlers			
	Power cutoff system			
	Power cutoff system 1000 channels	TJ 110	ß	22
	Power cutoff system 150 channels	TJ 112	ĥ	22
	Power cutoff system 50 channels	TJ 114	Å	22
	Office logical functions modular	TK 016	L)	24
	Time switches		6	
	Annual time switch - 100 channels	TJ 100B	J	22
	Annual time switch - 50 channels	TJ 102B	J	22
	Annual time switch - 20 channels	TJ 104B	13	22

surface



# Selection chart

				Ref.	Forme	Page
S Lighting						-
	Accessories				R	
		cript of lighting		TK 015	$\square$	24
	Dimmers				A	
	dimmer 600 W			TS 210	Ď	14
	dimmer 300 W			TS 210A	L)	14
	Actuators of dimme	rs 3-ways channels 1/10V		TK 030	ĥ	14
	Not modular dimme	r		TK 013	, and a second s	14
	Lighting controller			TK 022	ß	21
	2 binary inputs					
l l Ĺ	2 push-button input	device		TS 302		11
	4 binary inputs				<i>V</i> ///	
	4 push-button input	device		TS 304		11
	4 impulse inputs mo	odular		TB 004	M	11
	6 binary inputs				لس	
Ĺ	6 inputs 230V mod	ular		TB 030	ß	11
	utato					
	Binary inputs / binary outputs					
	Three phase lighting	u distributor 3 inputs / 3 ou	itouts	TC 033	$\bigcirc$	16
	Single-phase lighting	a distributor 2 inputs / 2 c	uputs	TC 122	$\langle \rangle$	16
	Single-phase lightin	a distributor 2 inputs / 2 c	aputs	TC 122	$\mathbb{Q}$	16
	Single-phase lightin		uipuis	10 124	$\bigcirc$	10
	ning					
	Time switch					
		2 channels		TF 002	ß	22
	Synchronizer			TF 003	ß	22
	Radio receiver					
	4 inputs			TS 350	$\bigotimes$	12
	12 inputs			TS 351	$\widehat{\bigcirc}$	12
	1 hinary outputs					
	4 binary outputs	uts		TS 204	ß	13
	6 binary outputs	uts		15 204		15
	6 6A modular output	ts		TS 206	M	13
		-			للبو	
	/ Blinds					
	shutters / Blinds				n.	
	4 voltage contacts 2	230V AC for blinds		TS 224	<u> </u>	15
	4 voltage contacts 2	24V DC for shutters		TS 225	D	15
	2-way blind actuato	r non modular		G 4803	$\bigcirc$	15
	tion					
	Visualisation software					
	Display editor			TJ 600		23
	——————————————————————————————————————	ses		TJ 601		23
	Display < 400 adres	ses		TJ 602		23
	Display > 400 adres	ses		TJ 603		23
0			<i>₩</i>	_		
) modular	🛇 non-modular	surface	flush		software	



# Tebis System devices

### Tebis supply

Tebis power supply is essential to supply the cable bus with the required voltage for product operation and information exchange. Tebis supply is self-protected against short-circuits and overloads

### Bus coupler

connected

Flush-mounted device in a wall box,Ø 60 mm, fixing with a screw. Application units such as switch sensors, movement sensors and

RS232 interfaces can be

### Line Coupler

Line couplers allow inter-connecting several lines in large buildings and managing information exchange.

□ for technical information,
see pages 25 to 27

Designation	Characteristics	17,5 mm	Qty.	Ref.
<ul> <li>Programming Unit</li> <li>Functions : <ul> <li>numbering the inputs</li> <li>sets the relationships between the input and output devices</li> <li>displays the relations and the type of control</li> <li>downloading of the program</li> <li>saving the program</li> </ul> </li> </ul>	supply : - 240Vac 50Hz - 29Vdc Bus	6	1	TS 100
Supply Functions : - supplies the 29V system voltage for an installation comprising up to 128 products - opens circuit in case of short-circuit or overload	supply : - 240Vac 50Hz output : - 29Vdc extra low voltage - 640mA, max load	7	1	TS 110
Supply 320 mA	output : - 29 V <del></del> TBTS filtered in front face	4	1	TS 111
	output voltage : - 320 mA, - opens circuit case of short-circuit or overload			
	supply voltage : 230 V $\sim$ 50 Hz			
Coupler of line Software application : - TA 301 "coupler of line"	intended for ensuring : - inter-connection between line of network and a main line, or between main line and a secondary line and - galvanic insulation between the lines - includes the filtering table managing the transmission of messages between the lines and limiting traffic on the power supply network.	4	1	TA 006
	power supply : Product supply via the EIB Bus on data rail			
Bus coupler, flush-mounted	Flush-mounted device in a wall box,Ø 60 mm, fixing with a screw. Application units such as switch sensors, movement sensors and RS232 interfaces can be connected <b>power supply :</b> Product supply via the EIB Bus		1	TA 004

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TS 100



TS 110



TS 111



TA 006





# Tebis Inputs devices

Flush mounting inputs EIB Bus input interfaces to include contacts free of potential such as push-buttons, switches These products are fitted at the back of wall-mounted	equipment, in flush-mounting Ø boxes. <b>Modular inputs</b> EIB Bus input interfaces to include 230V contacts of modular equipment.	They are equipped with light in- dicators displaying the state of inputs and push-buttons to simulate the connected control unit.	Impulse inputs EIB Bus input interfaces to de contacts impulses com from meters.		uipped with light in- blaying the state of oush-buttons to connected controlImpulse inputs EIB Bus input interfaces to inclu de contacts impulses coming from meters.Impulse inputsImpulse inputsImpulses coming from meters.Impulse inputsImpulseImpulse inputsImpulseI		es to inclu- coming <i>ion, see</i>
	Description	Characteristics	Width in 17,5 mm	Qty	Ref.		
	2 push-button input device h. 38 x l. 35 x p. 12 mm Application software : - TB 352 "2 inputs to periodic transmission" - TB 353 "1dimming control" - TB 354 "1 blinds control"	2 inputs : - for voltage free contacts, - the device supplies the voltage required to test the contacts : U max. 5 V In 0,5 mA power supply voltage : Bus 29V ELVS		1	TS 302		
TS 302	<ul> <li>4 push-button input device</li> <li>h. 38 x l. 35 x p. 12 mm</li> <li>Application software : <ul> <li>TB 337 "4 periodic transmission inputs"</li> <li>TB 338 "2 dimming controls"</li> <li>TB 339 "2 blinds controls "</li> <li>TB 340 "1 dimming control + 1 blinds control"</li> <li>TB 358 "1 blinds control and 2 on/off controls"</li> </ul> </li> </ul>	4 inputs : - for voltage free contacts , - the device supplies the voltage required to test the contacts : U max. 5 V In 0,5 mA power supply voltage : Bus 29V ELVS		1	TS 304		
TS 304	6 inputs 230 V modular Application software : - TB 350 "6 universal inputs" - TB 351 "6 inputs tariff"	6 inputs Un : 230 V $\sim$ 50 Hz In (inputs 1,2,3) : 2 mA In (inputs 4,5,6) : 10 mA The inputs 4,5 and 6 can receive up to 10 push-buttons with light indicator in parrallel. power supply voltage : 230 V $\sim$ /50 Hz	6	1	TB 030		
TB 030	4 impulse inputs modular Application software : - TB 326 "4 inputs counting and 1 calibrated input"	<ul> <li>4 inputs :</li> <li>binary inputs for counting impulses</li> <li>U nominal : 11 V</li> <li>(opened contact)</li> <li>I max. 10 mA (closed contact)</li> <li>power supply voltage :</li> <li>230 V ~ 50 Hz ou 12 V 48 mA</li> </ul>	5	1	TB 004		
TB 004	<ul> <li>6 input device, DIN-rail mounted</li> <li>240V ac</li> <li>functions : <ul> <li>interprets orders at 240Vac</li> <li>(ie. from timers, wind meters, PE cells, PIR's, push buttons with indicator lamps) and transmits them to the output devices to control lighting, shutters or other electrical</li> </ul> </li> </ul>	Inputs : - 6 terminals rated at 240Vac Supply : - 29V dc bus Installation : - DIN-rail	6	1	TS 310		

oads.



# Tebis Remote control

### Remote control

Transmitter for ON/OFF, dimming or blind controls Transmitter and receiver can be located in different rooms. Several transmitters can send orders to the same receiver.

### Range :

 inside ≈ 50 m (only TU 202 : 25 m)
 outside ≈ 100 m (only TU 202 : 50 m)
 frequency : 433 MHz.

### Radio receiver

radio receiver receives orders from the radio remote controls and transmits them to the bus. Wall mounted with 4 screws.

# □ for technical information, see page 30

	Description	Characteristics	Qty	Réf.
<b>IU</b> 202	Radio remote control with 2 keys h. 61 x l. 29 x p. 16 mm	key-ring type delivered with : - battery (CR 1620) - attaches to key ring	1	TU 202
	Radio remote control with 4 keys h. 111 x l. 51 x p. 18 mm	delivered with : - battery (CR 2430) - wall mounting bracket - a label for the function of each button	1	TU 204
TU 204	24-channel radio remote control with 9 keys h. 111 x l. 51 x p. 18 mm	delivered with : - battery (CR 2430) - wall mounting bracket - a label for the function of each button	1	TU 209
TU 209	Radio receiver Application software : - TB 337 "4 periodic transmission inputs" - TB 338 "2 dimming controls" - TB 339 "2 blinds controls" - TB 340 "1 blind control and 1 dimming control" - TB 358 "2 on/off control and 1 blinds controls" - TB 362 "2 dimming controls and 1 dimming controls"	- frequency 433 MHz power supply voltage : Bus 29V ELVS		
TS 350	h. 80 x L. 130 x p. 35 mm	4 inputs	1	TS 350
	h. 130 x L. 130 x p. 35 mm	12 inputs	1	TS 351

# Tebis TS Remote telephone interface

This product provides ON or OFFcommands for 3 different electrical circuits ( lighting,hot water boiler, household appliances, watering, alarms, shutters) from any touch-tone telephone. Functions : - 3 chanels - voice guide in 4 languages - can be used with a telephone	<ul> <li>answering machine</li> <li>secret access code</li> <li>timed switch-off</li> <li>(1 to 100 hours)</li> <li>manual ON/OFF on the front of the product</li> <li>EC approval for use on PSTNs (Public Telephone Switched Networks)</li> <li>Coding device : To use TS 003 from a telephone without vocal</li> </ul>	frequency.		
Remote telephone interface	supply voltage : 230V~ 50/60Hz	5	1	TS 003
3 chanels	output : 3 changeover contacts			
	5A - 250V~			



TS 003



# Tebis Outputs devices

Modular outputs	Modular outputs with pilot
EIB Bus output interfaces for on-	wire
off control of electrical	EIB Bus output interfaces for
equipment. They have indicator	heating equipment control. The

equipment. They have indicator lights displaying the state of the outputs, an auto/manu selector and push-buttons to test each output.

electrical pilot wire is GIFAM compatible 3 or 4 orders. They have indicator lights displaying the selected set-point, an auto/manu selector and push-buttons for testing each . output

	output.				
	Description	Characteristics	Width in ∎ 17,5 mm	Qty	Ref.
	4 16A modular outputs	4 outputs : - volt-free contacts In : 16 A AC 1	4	1	TS 204C
	Application software - TB 355B "4 lighting outputs"	Un : 230 V ~ 50 Hz			
	- TB 356B "4 heating outputs"	power supply : Product supply via the EIB Bus			
TS 204C					
	6 6A modular outputs	6 outputs : - volt-free contacts Un : 230 V $\sim$ 50 Hz			
	Application software - TB 346B "6 lighting outputs"	power supply : Product supply via the EIB Bus			
10 204A		In : 4 A AC 1 not suitable for compensated parrallel fluo tubes	4	1	TS 206A
IS 206A		In : 10 A AC 1 not suitable for compensated parrallel fluo tubes	4	1	TS 206B
		In : 16 A AC 1	4	1	TS 206C
	4 outputs heater experimental	4 outputs "pilot" wire :	6	1	TB 042
		Un : 230 V ~ 50 Hz I max. : 0,5 A compatible GIFAM			
0.0	Application software - <b>TB 341</b> "4outputs heater wire- thread pilots annual	3 of 4 orders			
TB 042	<ul> <li>rB 342 "4 outputs heater wire- thread pilots simple transmitter"</li> <li>rB 343 "4 outputs heater wire- thread pilots commands"</li> </ul>	power supply : 230 V $\sim$ 50 Hz			
	4 way indicator panel	supply : - 29Vdc Bus		1	TS 400

Functions :

- reproduces on/off contact status of associated output by

installation : - surface mounted  $\Box$  for technical information,

see page 31 and 32



Dimmer

load

### Tebis Dimming 1-10 V dimmer actuator It has indicator lights for the display of outputs on/off state, an EIB Bus output interface for It is designed to control an aea dimming different light sources. of lighting devices equipped with auto/manu selector and electronic ballasts for dimming It includes pushbuttons, an pushbuttons to test each output. or with remote dimmers. auto/manu selector and indicators lights for EV101, EV103. - configuring the type of load One contact per way controls - displaying the faults, and light switch-on/switch-off and - testing the operation of the the 1-10V voltage makes it possible to set the level of brightness from 0 to 100% □ for technical characteristics, see page 34 and 35 Description Characteristics Width Qty Ref. 17,5 mm Dimmer 600 W 1 output : for 35 °C .... incandescent : 20 - 600 W halogen BT : 20 - 600 W halogen TBT + transfo application software : - TK 335B "1 dimming output" ferromagnetic : 20 - 600 VA halogen TBT + transfo electronic : 25 - 600 VA. power supply : ...... . 230 V 🔨 50 Hz



	230 0 0 30 112			
	600 W	4	1	TS 210
	300 W	4	1	TS 210A
Actuators of dimmers 3-ways channels 1/10V	3 ways : - contact : I max : 16 A AC 1, Un : 230 ∼ 50 Hz - dimming output :	6	1	ТК 030
Application software : - <b>TK 330</b> "3 dimming controls"	1-10V variable voltage level power supply : 230 V $\sim$ 50 Hz			

TK 030

TS 210



Not modular dimmer

h. 42 x l. 28 x p. 243 mm

Application software : - TK 304 "dimming actuator" 1 ways :

- contact : I max : 6 A AC 1, Un : 230 V ~ 50 Hz - dimming output :

1

TK 013

1-10V variable voltage level

power supply :Product supply via the EIB Bus



# Tebis Shutters and blinds

### Actuator of blinds/shutters

it is designed to control shutters (rising, lowering, stop), awnings or blinds (rising, lowering stop, inclination of the blinds). It has indicator lights for the display of output state, an auto/manu selector and pushbuttons to test each output.

### Actuator of blinds/shutters non modular

This Tehalit product is designed to control shutters (rising, lowering, stop), awnings or blinds (rising, lowering stop, inclination of the blinds). It is non modular and can be fitted into a duct or false ceiling.

□ for technical characteristics, see page 33

	Description	Characteristics	Width in ∎ 17,5 mm	Qty	Ref.
	4 voltage contacts 230 V AC for blinds	4 outputs : Un : 230 V ∼ 50 Hz In : 6 A AC1	4	1	TS 224
	Application software - <b>TK 336B</b> "4 blinds or shutters controls"	connect a system voltage 29V			
TS 224	4 voltage contacts 24 V DC for shutters	4 outputs : Un : 24 V	4	1	TS 225
13 224	Application software	IN: 6 A ACT			
	- TK 336B "4 blinds or shutters controls"	connect a system voltage 29V			
	2-way blind actuator non modular	2 outputs : Un : 230 V ~ 50 Hz		1	G 4803
	Application software				
G 4803	- TK 337 "2 blinds or shutters	power supply : 230 V 🗙 50 Hz			

h. 60 x l. 360 x d. 60 mm



# Tebis Lighting distributors

### **Distribution boxes**

Single-phase or three-phase boxes dedicated to lighting management for mounting in false ceilings.

They comprise inputs and outputs for connecting control points and lights by means of fast connector syste.

### They offer also lighting management and supervision features.

### Connectors and cables

operation time indication"

Single-phase lighting

2 inputs / 4 outputs

Application software

h. 54,4 x l. 279 x d. 159 mm

- TC 311 "2 inputs 4 outputs with authorization, priority and operation time indication"

distributor

This is the connection system suited to distribution boxes. It ensures safe and fast assembly of pre-mounted cables; alternatively, the connection system can be used for mounting custom cables to the desired lentgh

Description	Characteristics
Three phase lighting distributor 3 inputs / 3 outputs h. 54,4 x l. 279 x d. 159 mm Application software - TC 313 "3 inputs 3 outputs with authorization, priority and operation time indication"	3 inputs : - Un : 230 V ~ 50 Hz, In : 6 mA - levels : 0 20 V ~ → 0 187 253 V ~ → 1 3 outputs : - Un : 230 V ~ 50 Hz - In : 16 A AC1 power supply : 380 V ~ 50 Hz
Single-phase lighting distributor 2 inputs / 2 outputs h. 54,4 x l. 279 x d. 159 mm Application software - TC 310 "2 inputs 2 outputs with outbaciation priority and	2 inputs : - Un : 230 V ~ 50 Hz, In : 6 mA - levels : 0 20 V ~ → 0 187 253 V ~ → 1 2 outputs : - Un : 230 V ~ 50 Hz - In : 16 A AC1
	Description Three phase lighting distributor 3 inputs / 3 outputs h. 54,4 x l. 279 x d. 159 mm Application software - TC 313 "3 inputs 3 outputs with authorization, priority and operation time indication" Single-phase lighting distributor 2 inputs / 2 outputs h. 54,4 x l. 279 x d. 159 mm Application software - TC 310 "2 inputs 2 outputs with authorization, priority and

power supply : 230 V  $\sim$  50 Hz

 $\Box$  for technical information,

see pages 36 and 37

Qty

1

1

1

Réf.

TC 033

TC 122

TC 124

### 2 inputs : - Un : 230 V ~ 50 Hz, In : 6 mA - levels :

 $0 \dots 20 V \sim \rightarrow 0$ 187 ... 253 V ~ → 1

4 outputs : - Un : 230 V ~ 50 Hz - In : 16 A AC1

power supply : 230 V  $\sim$  50 Hz



TC 033



TC 122



TC 124

# Tebis Lighting distributors

		Description	Characteristics	Length	Qty.	Ref
na di ka		Connectors				
TC 900		three phase power connector for TC 033	1 male connector + 1 female connector - 5 black poles		10	TC 900
net.		one phase power connector for TC 122 and TC 124	1 male connector + 1 female connector - 3 black poles		10	TC 910
		input connector	3 green pole 1 male connector +squeezestightens blankwhite cable		10	TC 920
TC 920	TC 930	output connector	3 white pole 1 male connector +squeezestightens blankwhite cable		10	TC 930
TC 940		EIB Bus connector	1 male connector + 1 female connector - 2 black poles		10	TC 940
		EIB Bus connector in T	2 black poles		10	TC 950
1		Cables				
TC 950		three phase power cable H05VV - F5 G 2,5 for TC 033	fitted with 2 connectors 5 poles, black, 1 male + 1 female	7 m	5	TC 903
	-	one phase power cable H05VV - F3 G 2,5 for TC 122 and TC 124	fitted with 2 connectors 3 poles, black, 1 male + 1 female	7 m	5	TC 913
The second secon		input cable H05VV - F3 G 1,5	fitted on one end with a male connector 3 poles, green	8 m	5	TC 923
TC 903	- M	output cable H05VV - F3 G 1,5	fitted on one end with a male connector 3 poles, white	8 m	5	TC 933
7		output cable H05VV - F3 G 1,5	fitted on one end with a male connector 3 poles, white	0,5 m	5	TC 934
		output cable H05VV - F3 G 1,5	fitted on one end with a male connector 3 poles, white	4 m	10	TC 935
TC 913		shunt terminal with lock for output cable	fitted with one male 3-pole terminal and three white female	-	5	TC 964
-	$\sim$	EIB Bus cable	3-pole terminals fitted with 2 connectors 2 poles black, 1 male + 1 female	7 m	5	TC 943
	-01	Shutters				
TC 923		three phase power shutter for TC 033	5 poles, black		10	TC 962
1		single phase power shutter for TC 122 and TC 124	3 poles, black		20	TC 963
TC 964		shutter of input	3 poles, green		20	TC 960
		shutter of output	3 poles, white		20	TC 961

TC 960 TC 961 TC 963



# Tebis Thermostats

Description

### Temperature transmitter

Projecting device for interior or modular mounting designed to associate an external probe or "thimble". Transmitters send the temperature value to the bus.

### Brightness sensor

This sensor is used to measure the level of interior brightness. Depending on the associated software, it transmits the lux value to the bus or warn that the threshold value is exceeded, or it can also control the brightness of an area in association with variable lights.

The wind detector supplies an output voltage based on wind speed compared against the threshold value set on the device. This information is used to move blinds and awnings in safety position.

Wind safety detector



Description	Characteristics	17,5 mm	QIY.	kei.
Standard temperature transmitter	<ul> <li>outside temperature</li> <li>measurement from external probe</li> <li>transmits periodically to the bus</li> </ul>	3	1	TE 001
Software application : - <b>TE 300</b> "universal temperature transmitter"	the temperature value in °C and/or warn that the threshold value is exceeded - range of measurement -30 to +50° C			
	power supply : connected to the EIB via the data rail			
	can be associated with the product EK 086 or EK 083			
Outside temperature sensor	can be associated to the product TE 001,		1	EK 086
h. 50 x l. 52 x p. 35 mm	fixed on facade of buildings			



. .

EK 086

TE 001



EK 083



TE 006

Universal probe	can be associated with the product TE 001	1	EK 083
	for the control of floor temperature, of hot water outflow circuit using a flange,)		

Local temperature transmitter	<ul> <li>local temperature</li> </ul>
with no waiver	measurement from built-in probe
	<ul> <li>transmits periodically to the</li> </ul>
h. 81 x l. 81 x p. 27 mm	bus the temperature value in °C
	<ul> <li>range of measurement</li> </ul>
Software application :	+5 to +40° C
- TE 302 "Local temperature	(supplied without BCU TA 004)

(supplied without BCU TA 004)

power supply : via the BCU TA 004

TE 006 delivered without

1

BCU

transmitter with no waiver"

٦

# Tebis Wind gauge

	Description	Characteristics	Width in ∎ 17,5 mm	Qty.	Ref.
	Wind gauge	Comprises a wind gauge with fixing set and connection enclosure		1	TG 050
S		output contact : 230 V $\sim$ 4 A internal protection over fuse 4A inertly			
G 050		adjustment of wind speed limit : up to 55km/h (range ex-works 25km/h)			
		supply voltage : 230 V $\sim$ 50 Hz			
		connection to the 230V input of the TB 030 product			



TF

TA (

# Tebis Regulators

# Regulator of underfloor heating

Supplies load orders for floor heating to the output devices based on outside temperature, rates orders and rules of loads selected.

### Regulator of room

temperature Measures and controls the local temperature for an area with direct electrical heating (convectors, radiant panels, radiant ceiling, thins slab...) or hot water (radiators, underfloor, heating,...)

### Room temperature regulator with air-conditioning option Measures and controls the room temperature of a hot and cold-air conditioned area (fanconvectors, multi-splits, cold ceilings...)

### Lighting regulator

Measures and controls the level of interior light. Maintains a level of constant brightness, regardless of daylight variations in buildings such as offices or classrooms.

□ for technical information, see pages 40 and 41

	Description	Characteristics	Width in 17,5 mm	Qty.	Ref.
	Regulator of underfloor heating Application software - TF 302 "univeral temperature transmitter"	4 rules of load : - night winter - night half-season - frost free - day restart power supply : connected to the EIB via the data rail	3	1	TF 005
004 TF 012	Room temperature regulator with override h. 81 x l. 81 x d. 27 mm Application software - TF 312 "regulator of ambient temperature"	settable digital regulator PI with 4 set-points : comfort, eco, low and frost-free Limits energy based on reading of outside temperature. Measurement accuracy : +/-0,3°C comprises : - 1 built-in probe - 1 pushbutton of override - 1 wheel for adjusting set-point (supplied without BCU TA 004)		1 delivered without BCU	TF 012
		power supply :			

power supply : via the BCU TA 004



TF 014

# Room temperature regulator without override

h. 81 x l. 81 x d. 27 mm

Application software - TF 312 "regulator of ambient temperature" settable digital regulator PI with 4 set-points : comfort, eco, low and frost-free Limits energy based on reading of outside temperature. Measurement accuracy : +/-0,3°C

comprises : - 1 built-in probe (supplied without BCU TA 004)

power supply : via the BCU TA 004 TF 014

delivered without BCU

1

# Tebis Controllers

	Description	Characteristics	Width in ∎ 17,5 mm	Qty.	Ref.
TA 004 TF 016	Room temperature with air-conditioning option controller h. 84 x l. 84 x d. 16 mm Application software - TF 313 : "Ambient temperature with air-conditioning option controller"	Settable digital regulator PI with 4 heating set-points and 4 air- conditioning set-points : comfort, eco, low and frost-free Controls heating and overhea- ting for air-conditioning Measurement accuracy : +/-5°C Comprises : - 1 built-in probe - 1 pushbutton of override - 1 wheel for adjusting set-point (supplied without BCU TA 004) power supply : via the BCU TA 004		1 delivered without BCU	TF 016
ТК 022	Lighting controller Application software - TK 340	<ul> <li>2 outputs for ballast 0/10 V</li> <li>2 outputs contacts 16 A for galvnic cutoff</li> <li>2 inputs for sensors TK 023</li> <li>power supply for EIB</li> </ul>	4	1	TK 022



TK 023

### Lighting sensor

to be associated with the regulator **TK 022** 

- size : Ø 54 x h 20 mm - link to **TK 022** : 2 x 0,8 mm<sup>2</sup> non 1 modular TK 023



# Tebis Programming of application controllers

Application controllers :

make it possible to control up to

building (lighting/heating/ventila-

tion areas...), each one having its

annual program. Each area has

also permanent and temporary

overrides. Programs are set

using graphic means under

2 channels"

Synchronizer

Application software

- TF 310 "synchronizer"

100 different areas in a service

annual programming

### weekly timeswitch

modular product with LCD display and programming on product front face.

### Synchronizer

master clock transmitting time to the bus and synchronizing the various time switches.

### Windows.

### Power cutoff system

It is designed to shed loads of electrical equipment connected to the bus according to the yellow and green A5 power rates.

### The unballasting is revolving or permanent and allows to define operation priorities. The device is configured under Windows.

□ for technical information, see pages 42 and 43

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3

TF 003

Description	Characteristics	Width in ∎ 17,5 mm	Qty.	Ref.
Weekly time switch 2 channels	power supply :	3	1	TF 002
Application software	data rail			

power supply :

data rail

connected to the EIB via the



TF 002



TF 003



TJ 100B



TJ 110

Annual time switch	power supply : - 29 V supplied by the TS 111 power supply			
100 channels		6	1	TJ 100E
50 channels		6	1	TJ 102B
20 channels		6	1	TJ 104E
delivered with the configuration software Windows3.X or 95/98				

Power cutoff system	power supply : - 29 V supplied by the TS 111 power supply			
1000 channels EDF rate : yellow - green		6	1	TJ 110
<b>150 channels</b> EDF rate : yellow - green		6	1	TJ 112
<b>50 channels</b> EDF rate : blue - yellow		6	1	TJ 114

supplied with configuration software Windows3.X or 95/98



# Tebis Display and communication software

### Display

Based on PC imaging, the devi-ce can be used to control and display the operation of technical equipment of a building connected to the bus, such as : - heating (selection of set-points, temperature display...) - lighting (general

command, state

- domestic hot water - ventilation

### Interface RS 232

This interface converts the EIB signal into signals unable by a series connection of PC COM type.

### Interface RS 232 Modem This interface converts the EIB signal into signals usable by a

telephone modem. The device links two EIB lines by means of public or private telephone network.

I switch-off of outputs)	Two versions are available : mo- dular and projecting		□ for technical information see page 44			
	Description	Characteristics	Width in 17,5 mm	Qty.	Ref.	
	Display editor	Windows 98 and NT compatible software is used to create page screens including graphics and a- nimations for the different sites (in- cludes no access to the bus). Screen pages thus created will be used by software TJ601, 602 or 603		1	TJ 600	
	Display	Includes software floppies for Windows 98 and NT in runtime version, a key for the parrallel		1	T I 601	
	up to 200 adresses	projecting version of RS232		I	15 001	
	up to 400 adresses			1	TJ 602	
	more than 400 adresses			1	TJ 603	
	modular RS 232	it is linked to the PC via a flush 9-pole D-Sub socket. the serial data cable to the PC can be fixed with a strain relief at the top or the bottom. The D-Sub socket and the data cable have a detachable cover.	3	1	TH 001	
		power supply : connected to the EIB via the data rail				
	Interface RS 232 h. 81 x l. 81 x d. 43 mm	connection of RS232 cable by means of 9-point female socket SUB-D with possible locking by screw (supplied without BCU MT004)		1 delivered without BCU	TH 002	
-		power supply : par la BCU TA 004				
2	RS 232 modem	connection :		1	TH 004	
•	h. 146 x l. 80 x d. 55 mm	<ul> <li>bus EIB by specific connector supplied in packing</li> </ul>				
-	Application software : - TH 300 "RS 232 Modem" supplied with numbering	<ul> <li>the modem and its cable are connected to the 9-point female socket SUB-D with possible loc- king by screw (cable and modem not provided)</li> </ul>				
Y	software Windows3.X or 95/98	power supply :				

TH 001

TJ 600



TH 00





# Tebis Commands

Modular scenario script of

Applications software : - TK 315 "8 on/stop controller

TK 316 "8 dimming controller"
TK 317 " 2 on/stop controller and 4 dimming controller "

or 8 blinds controller"

lighting

<b>Quadruple push-button</b> Communication pushbutton connected only to the bus for the control of 4 distinct circuits and display of status by 4 indicator lights.	Modular scenario script of lighting Makes it possible to record 4 standard configurations of ligh- ting : dimming, blinds or shutters. The selection of scenarios is by means of a communication pushbutton.	Office logical functions modular Used to perform a logical combi- nation of different messages going through the bus.	□ for technic see page 4	al informatic 45	on
	Description	Characteristics	Width in <b>1</b> 17,5 mm	Qty.	Ref.
ТА 004 ТК 005	<ul> <li>Quadruple push-button</li> <li>Applications software : <ul> <li>TK 302 "4 on /stop controllers"</li> <li>TK 309 "4 dimming controllers"</li> <li>TK 310 "4 blinds controllers"</li> <li>TK 311 " 1 dimming controllers with preselecting "</li> <li>TK 312 "2 dimming controllers and 2 blinds controller "</li> <li>TK 313 "4 lighting scénarios"</li> </ul> </li> </ul>	communication pushbutton for the control of 4 distinct circuits : - lighting - dimming - shutters or blinds - ventilation or any on/off control or for the selection of ambiance pre-recorded scenarios. Possible display of the state of controlled devices by 4 indicator lights (supplied without BCU TA 004) power supply : by the BCU TA 004	h x l 70 x 70mm	1 supplied without BCU	TK 005



TK 015



Office logical functions stores logical combinations to 1 TK 016 1 modular be applied on reception of some messages and issues Application software : results of the operation. - TK 318 "1 function office AND + 1 function office OR" power supply : - TK 319 "4 function offices connected to the EIB via the reverser" data rail

stores up 4 scenarios for the

connected to the EIB via the

application software.

power supply :

data rail

number of outputs specified in

1

1

TK 015



# Tebis Accessories

<b>Bus wire</b> 4 kV wire interconnecting the different participants and conveying power supply and information.	<b>Printed circuit bottom of rail</b> The printed circuit bottom of rail replaces the bus wire for inter- connecting modular Tebis pro- ducts with bottom of rail connection.	<b>Connectors</b> Connectors ensure the continuity between the bus wire and the bottom of rail printed circuit.	□ for technical information, see page 24			
	Description	Characteristics	Width in ∎ 17,5 mm	Qty.	Ref.	
TG 018	<b>Bus cable</b> length 100 m length 500 m	EIB-Y (ST) Y 2 x 2 x 0,8 mm test voltage 4 kV this wire makes possible installation close to the low voltage conductors.		1	TG 018 TG 019	
TG 022	Printed circuit bottom of rail length 180 mm length 214 mm length 240 mm	for rail mounting with a depth of 7,5 mm	10 12 13	5 5 5	TG 020 TG 021 TG 022	

	Printed circuit bottom of rail				
TG 022	length 180 mm	for rail mounting with a depth	10	5	TG 020
	length 214 mm	017,5 mm	12	5	TG 021
	length 240 mm		13	5	TG 022
TG 023	length 214 mm / 214 mm	for rail mounting with a depth	12	3	TG 028
	length 428 mm / 428 mm	of 15 mm	24	3	TG 023
	length 464 mm / 464 mm (printed circuit / raiser)		24 + reserve	3	TG 024

# Mounting of printed circuit bottom of rail : in the enclosures hereafter

	length of a DIN rail :							
	10	12	13	24				
Gamma			TG 022					
Volta		TG 022						
Vector IP 55		TG 021						
Vega D				TG 023				
Univers	TG 020			TG 023				
Quadro				TG 023				
Vector IP 65		TG 022						

TG 027

TG 011

TG 008

TG 007

# Tebis Accessories

Characteristics	Width in	Otv	Ref
onal detensities	17,5 mm	219.	ner.
it is clipped on the printed circuit bottom of rail and allows to conect two connection terminals TG008 to make 8 bus wire outputs.	1	1	TG 027
Wire equipped with a male and female SUB D 9-point connector to connect a 9-point series PC output to a RS232 modular or projecting device.	length 2 m	1	TG 011
2 plug-in terminals for 4 connections. Connection capacity : 0,6 to 0,8mm single-core wire.		50	TG 008
It is used to cover any free slot of a printed circuit bottom of rail	27	5	TG 007
Frame for one communication pushbutton TK005	h x l 81 x 81 mm	1	TG 014
	Characteristics it is clipped on the printed circuit bottom of rail and allows to conect two connection terminals TG008 to make 8 bus wire outputs. Wire equipped with a male and female SUB D 9-point connector to connect a 9-point series PC output to a RS232 modular or projecting device. 2 plug-in terminals for 4 connections. Connection capacity : 0,6 to 0,8mm single-core wire. It is used to cover any free slot of a printed circuit bottom of rail Frame for one communication pushbutton TK005	CharacteristicsWidth in 17,5 mmIt is clipped on the printed circuit bottom of rail and allows to conect two connection terminals TG008 to make 8 bus wire outputs.1Wire equipped with a male and female SUB D 9-point connector to connect a 9-point series PC output to a RS232 modular or projecting device.length 2 m2 plug-in terminals for 4 connections.SolutionConnection capacity : 0,6 to 0,8mm single-core wire.27It is used to cover any free slot of a printed circuit bottom of rail27Frame for one communication pushbutton TK005h x l 81 x 81 mm	CharacteristicsWidth in 17,5 mmQty.it is clipped on the printed circuit bottom of rail and allows to conect two connection terminals TG008 to make 8 bus wire outputs.11Wire equipped with a male and female SUB D 9-point connector to connect a 9-point connector projecting device.length 2 m12 plug-in terminals for 4 connections.50Connection capacity : 0,6 to 0,8mm single-core wire.275It is used to cover any free slot of a printed circuit bottom of rail275Frame for one communication pushbutton TK005h x l 81 x 81 mm1

TG 014



TG 015



# Technical information

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# Tebis : Network basic components

### Description

All Tebis devices require connection to communication means (Bus cable, bottom of rail printed circuit) and a power supply. One must also conform to several physical limits and rules to ensure trouble free implementation.

### Principle of operation

### 1. The line

The EIB line is the system's smallest entity. It includes a filtered power supply and communicating devices (heating, lighting,...)



The limits of such a line are as follows :

- maximum number of devices : 64,
- maximum distance between power supply and device : 350 m,
- maximum distance between two devices : 700 m,
- maximum total length of all sections of Bus cable, end to end : 1000 m.

All the Tebis devices installed in areas at room temperature (in false ceiling or ducts) shall be connected to the EIB Bus cable. Devices installed in enclosure are connected either to the EIB Bus cable, or to the printed circuit bottom of rail.

Adding a section of Bus cable at any location is feasible.

### 2. The area

In order to extend the installation beyond the capacity of a line, line couplers inter-connecting several lines will be used.

This requires defining a main line to which 15 secondary lines will be connected.

Such a structure is called an EIB area.



In this structure, all the devices can communicate. The maximum capacity of this area is 1024 devices with a 16km Bus cable.

### 3. The network

For installations where more devices is required, the network line can be used to extend the capacity and create 15 inter-connected areas.



The maximum capacity of the structure is then over 15,000 devices and a length of Bus cable greater than 240km.

### Mounting in enclosure

The basic components (i.e. power supply, couplers and connectors) are mounted in enclosures according to the following diagram :





### Power suply unit TS 111

### **Technical specifications**

### **Electrical characteristics**

- supply voltage :230 V~ 50/60 Hz
   output voltage :29 V 320 mA TBTS (protected against short-circuits)
- power consumption : 15 VA
- opens circuit case of short-circuit or overload

### Environment

- operation temperature :-5 °C to +45 °C
- storage temperature : -20 °C to +70 °C

### **Connection capacity**

- flexible : 0,75 to 2,5
- rigid : 0,75 to 4
- connection to the bus by plugable TG008 terminal

### Function

The power supply TS 111 generates the system voltage, which is necessary for the operation of the Tebis devices.

The system voltage generated by the TS 111 meets the requirements of SELV protection measures (safety extra-low voltage).

### **Electrical connection**

System devices

Tebis :





### Line coupler TA 006

### Power supply

Product supply via the EIB BuS 29 V  $\pm$ 

### Environment :

- operation temperature :-5 °C to +45 °C,
- storage temperature : -20 °C to +70 °C.

### Connection :

main line connection by means of plug-out terminal TG008
 secondary line connection by means of contact on a printed circuit at rail bottom

### Galvanic insulation

between inter-connected lies through coupler : 600V

### **Operation characteristics**

The coupler can be used as a line coupler or as an area coupler. Used as a line coupler it joins up a line with a main line; as an area coupler it connects a main line with a secondary line. In doing so, it ensures the lines are isolated from each other.

# Tebis : Network basic components

### Product presentation



### Installation / Implementation



example of a connection between the main line and a secondary line.

### Flush mounting 2- and 4- input devices TS 302, TS 304

### **Technical characteristics**

### Alimentation

Product supply via the EIB Bus 29 V ....

### Environment

- operation temperature : 0 to +45  $^\circ\text{C}$
- storage temperature : -20 to +70 °C
- ingress protection : IP 20

### Connection

- main line connection by means of plug-out terminal TG008
   connection of the entries by plugable connector, the conecting
- cable connector/device is supplied with the product.
- It includes :
- the plugable connector
- csa conductor 22mm≈ length : 200mm

### **Electrical characteristics**

- connectable type of contacts : push-buttons and switches
- inquiry voltage 5 V is generated by the device
- contact current : 0,5 mA

### **Operation characteristics**

- min. closing time : 50 ms
- length of cale extendible up to 5m by twisted pair wire.

### Function

Up to 2 conventional push buttons or switches or other voltage free contacts can be connected with the push button input TS 302.

Up to 4 conventional push buttons or switches or other voltage free contacts can be connected with the push button input TS 304.

These devices are put into a flush mounting box -> 60mm, e.g. behind a connected switch.

These devices transfer operation information and controls to the assigned outputs over the system's line.

### Dimensions

size : 38 x 35 x 12 mm

# Tebis : input devices

### Presentation TS 302



Note : for the connection of one push-button, isolate the 2 input wires which are not used.

### Presentation TS 304



Note : for the connection of one push-button, isolate the 2 input wires which are not used.



# Tebis : input devices

**Electrical connection** 

### 4 impulse input modular TB 004

### Alimentation :

Product supply via the EIB Bus 29 V .... power supply Un = 230 V $\sim$  / 50 Hz, I max. = 55 mA or, DC power supply Un = 12 V ..., I max = 48 mA.

### Environment :

- operation temperature :-5 °C to +45 °C,
- storage temperature : -20 °C to +70 °C,
- ingress protection : IP 20.

### Connection :

- connection to the bus by contact of the data rail,
- connection of network, 12 V ... and inputs by terminals with screw : capacity : 6<sup>D</sup> flexible
- max. distance between impulse transmitter and input : 10 m.

### 4 binary inputs :

- U max. = 11 V ... (open contact),

10<sup>D</sup> riaid,

- I max. = 10 mA (closed contact ).

### transmitters of impulses to be connected :

- type of meter output : contact free of potential with closing, reed relay contact, transistor, optocoupler (make sure that the polarity of inputs is matched),

- impulse : minimum time of 6ms, minimum period of 120ms with a maximum frequency of 1 impulse per 120ms period.

• in case of 230 V network power supply :

- 4 kV reinforced insulation between the 230V power supply network (terminals 1 and 3) and the Bus EIB.

- 4 kV reinforced insulation between the 230V power supply network and inputs terminals

• in case of 12 V DC power supply :

- this power supply must have at least one 2kV simple insulation in relation to the 230V power supply and the Bus EIB,

- the insulation must enter the terminals of transmitters and the 230V power supply, a minimum 2kV simple insulation is required.

### 6 inputs 230 V modular TB 030

### Power supply :

- product supply via the EIB Bus 29 V .--

- power supply : 230 V ∼ / 50 Hz.

### Environment :

- operation temperature :0 °C to +45 °C,
- storage temperature : -20 °C to +70 °C,
- ingress protection : IP 40.

### Connection :

- main line connection by means of plug-out terminal TG008
- 230 V~ power supply conection of output contacts by cage terminals

flexible :  $1^{\Box}$  to  $6^{\Box}$ max. capacity :

rigid : 1,5° to 10°.

### Input characteristics

- Un : 230 V $\sim$  -15 % 50/60 Hz (opened contact), inputs may be connected to different lines
- In : 1 mA (closed contact),
- level for inputs E1 to E3 :
- $\begin{array}{ccc} 0 & \dots & 30 & \bigvee \sim & \rightarrow & 0 \\ 80 & \dots & 230 & \bigvee \sim & \rightarrow & 1, \end{array}$
- level for inputs E4 to E6 and detection :
- $0 \dots 130 V \sim \rightarrow 0$
- 80 ... 230 V~ → 1,
- max. length between sensor and input : 100 m.
- connection of lighted push-buttons to inputs E4 to E6 : up to 10 push-buttons with light indicator in parrallel (1mA per neon light)



### **Electrical connection**



Note : the inputs can be connected to different phases.

### Consequences of network failure

Power supply network failures do not affect inputs connected to the same phase as the device's power supply phase (no undesirable order is issued). The status of inputs is systematically re-transmitted following network failure.

### Radio receiver 4 inputs TS 350

### technical characteristics

### Power supply

Product supply via the EIB Bus 29V ....

### Environment

- operation temperature : 0 to +45 °C
- storage temperature : -20 to +70 °C
- ingress protection : IP 54

### **Functional specifications**

- frequency : 433 Mhz
- encoding :open-ended encoding + encryption
- transmission of remote control orders to the bus
- (4 channels max./receiver)
- EN 300 220-1 compliant

### Dimensions

- housing : 130 x 80 x 35 mm
- housing fastening c-c distance : 63 x 113
- antenna : 110 mm

### Installation

wall mounted with 4 screws

### **Operating principle**

The TS 350 receiver receives orders from the radio remote controls and transmits them to the bus.

It is to be used in combination with remote controls TU202, TU204 and TU209 to control electrical equipment such as lighting, roller shutters, hating, etc...



A TS 350 receiver can be used to interface 4 different orders on the bus via 4 remote control keys. These four keys may be considered to be four inputs.

The TS350 is a projecting device connected to the Bus 29V EIB; The Bus supplies it with power and manages its communication with the output modules. If the number of radio orders exceeds 4, it is necessary to add receivers (1 receiver for each set of 4 orders)

the radio receiver TS351 offers the features of 3 devices TS350 (3x4 inputs) included in one single box, with 3 groups of keys and indicators lights for each block of 4 inputs.

## Tebis : Radio receiver 4 inputs TS 350

### Product presentation



### Implementation

Radio reception LED L1 shows disturbances due to environment : - slightly on : OK

- ON : disturbed environment

In case of implementation of several receivers, maintain a sufficient distance between them about 30cm.

# Tebis : Output devices

**Electrical connection** 

Ph-



### 4 outputs 16 A TS 204C

### Power supply

i ener euppij		output 1 output 2
Product supply via the EIB Bus 29	V	
Electrical characteristics		
- supply voltage : system voltage :	29 V,	
- watt loss : 7W max.		
Environment :		Selection switch TS 204C Indication of
- operation temperature : 0 to +45	°C,	Auto / Manu Sector Switch state
- storage temperature : -20 to +70	°C,	
- ingress protection : IP 20.		LED and $-\phi$ $\circ$ $\circ$ Operating push-button :
Connection :		adressingo (a) programming
<ul> <li>capacity : 1 à 6<sup>□</sup> flexible</li> </ul>		button
1,5 à 10□ rigid,		
- connection to the bus by plugab	le TG008 terminal	System voltage Bus +
Operating data		29 V DC (SELV) 29 V
- Contacts loading capacity indica	tor :	Bus FIB output 3 output 4
250 V / 16 A AC1 (360,000 oper	ations),	
- maximum power for 250,000 ope	erations :	
incandescent lamps	2000 W	
VLV halogen (electronic)	2600 W	
fluorescent with electronic ballas	t 60 x 18 W	
	30 x 36 W	
	18 x 58 W	
- maximum power for 200,000 ope	erations :	
halogen 230 V	1600 W	
- maximum power for 60,000 oper	ations :	
fluorescent parrallel compensate	d lamps (22µF)	
5 lamps	1 x 18 W	
5 lamps	1 x 36 W	

### Function

3 lamps

Output device with 4NO or 6NO contacts to switch lighting or socket circuits or other consumers.

1 x 58 W.

These devices are controlled over the system line by allocated bus inputs.

These devices also provide a manual override facility  ${}^{\textcircled{0}}$  and a visual indicator ON/OFF.

### Installation instructions

- 1. Record operation temperature. Mount device in lower part of the enclosure.
- 2. Connect system voltage ..
- 3. Connect outputs
- 4. Follow the operating instructions of the system.

Note : the outputs can be connected to different phases.

### 4 heating experimental outputs TB 042

### **Technical characteristics**

### Power supply :

Product supply via the EIB Bus 29V .... - power supply : 230 V  $\sim$  / 50 Hz.

### Electrical characteristics :

- absorbed power 5 VA,
- watts loss : 8 W.

### Environment :

- operation temperature : 0 to +45 °C,
- storage temperature : -20 to +70 °C,
- ingress protection : IP 40.

### Connection :

- main line connection by means of plug-out terminal TG008
- 230 V  $\sim\,$  power supply and connected via cage terminals max. capacity : 1 to 6^ $\!\square$  flexible
  - 1,5 to 10<sup>-</sup> rigid

### Outputs characteristics :

- Un : 230 V  $\sim$  (one phase is a requirement),
- Imax : 0,5 A,
- electrical endurance : > 6 000 000 operation
- piot wire output control signals :
- conform to GIFAM specifications

set-point	signal	processing
comfort	<b> </b>	no signal
есо	$\sim$	full cycle
frost free	$\vdash \bigcirc \frown$	negative half-cycle
stop	<u> </u>	positive half-cycle

### Display of set-points for each way

	-¤҉-	C	*
comfort	-Х́-	•	•
есо	•	-☆-	•
frost-free	•	•	-ờ-
stop	•	•	•

Product signalling

- the comfort indicator of output 1 flickers
  - the device is an addressing mode.
- -``Q`- -`Q`-

The four comfort indicators flicker : - no voltage on bus

- · ↓ · the product was discharged with ETS2
  - downloaded software is not compatible with hardware base

# Tebis : outputs devices

### Product presentation



### Installation / Implementation



Pressing simultaneously the four manual control pushbuttons located on front face sets into the physical addressing mode. The product will remain in physical addressing mode until it is addressed and the four pushbuttons are pressed.



# Tebis : shutters and blinds

### 4 voltage contacts 230V AC for blinds TS 224

### Power supply :

- Product supply via the EIB Bus 29V ...
- consumption : 5 mA
- max. power dissipation : < 1 W

### Environment :

- operation temperature :0 °C to +45 °C
- storage temperature : -20 °C to +70 °C
- Ingress protection : IP 20

### Connection :

- main line connection by means of plug-out terminal TG008
- 230 V  $\sim$  supply and outpt contacts connection by cage terminals max. capacity : 1° to 6° flexible
  - 1,5<sup>D</sup> to 10<sup>D</sup> rigid

### Contacts characteristics :

- I max = 6 A cos  $\varphi$  0,6 per 100 000 operations
- displaying status of way :
- indicator light on : motor moving (up or down)
- indicator light off : motor stopped

### 4 voltage contacts 24V AC for shutters TS 225

### **Electrical characteristics**

### Power supply :

Product supply via the EIB Bus 29V ....

- consumption : 5 mA
- max. power dissipation: < 1 W

### Environment :

- operation temperature :0 °C to +45 °C
- storage temperature : -20 °C to +70 °C
- Ingress protection : IP 20

### Connection :

- main line connection by means of plug-out terminal TG008
- 24 V .... supply and outpt contacts connection by cage terminals

### Contacts characteristics :

- I max = 1 A 24 V ....

- displaying status of way :
- indicator light on : motor moving (up or down)

- indicator light off : motor stopped

### Electrical connection



**nota**: terminals 11 and 12 can be connected to different phases. Never connect two motors in parrallel



nota : terminals 11 and 12 are connected to 24V source

### 3-channel dimmer actuator TK030

### Power supply

- Product supply via the EIB Bus 29V ....
- power supply : 230 V~ / 50 Hz +10 % -15 %
- absorbed power : 5 VA,
- max. power dissipation : 10 W.

### Environment

- operation temperature :0 °C to +45 °C,
- storage temperature : -20 °C to +70 °C,
- ingress protection : IP 40.

### Connection :

- main line connection by means of plug-out terminal TG008
- 230 V  $\sim$  supply and /10 controls connection by cage terminals, ma. capacity : 1° to 6° flexible

1,5<sup>°</sup> to 10<sup>°</sup> rigid

### **Contacts characteristics**

- Control 1-10 V :
- 1/10 V output current : 50 mA max.
- max. conection lentgh : 50 m max.
- Output contact :
- contact's loading capacity indicator : 250 V / 16 A AC1 (360 000 operations),
- maxi. power per output for 200,000 operations : halogen 1600 W,
- Indication of switch state :
- indicator light on : lamps are switched on,
- indicator light off : lamps are switched off.
- Product signalling :

the indicator light of channel 1 flickers :

the product is in physical addressing mode

-``D`.- `D`.- `D`.-

the three indicator lights flicker :

- no voltage on Bus
- the product was discharged with ETS2, downloaded software is not compatible with
- hardware base

 Maintaining TBTS voltage domain of EIB Bus: In order to maintain the voltage domain of EIB Bus, it is necessary to use dimmers or electronic ballast ensuring 2kV minimum insulation on 1/10V controls.



### **Electrical connection**





# 

### Dimmers TS 210 - TS 210A

### **Technical characteristics**

- Power supply : \_\_\_\_\_ Product supply via the EIB Bus 29V \_\_\_\_
- power supply : 230 V $\sim$  / 50 Hz
- max. power dissipation : < 5 W
- consumption with no load : 0,5 VA

### Environment :

- operation temperature :0 °C to +45 °C
- storage temperature : -20 °C to +70 °C
- ingress protection : IP 20

### Connection :

- main line connection by means of plug-out terminal TG008
- 230 V $\sim$  supply and output contacts connection by cage terminals 1,5 to 6 flexible max. capacity : 1,5 t 10<sup>-</sup> rigid

### **Technical Characteristics**

		operation tem	perature	
	TS 210 TS 210A	35 °C ( <b>TS 210</b> )	45 °C ( <b>TS 210</b> )	45 °C ( <b>TS 210A</b> )
type of load	mini load	maxi load		
incandescent	20 W	600 W	500 W	300 W
halogen BT	20 W	600 W	500 W	300 W
VLV hal. + dim. convent.transfo	transfo 20 VA load 15 W	transfo 600 VA load 480 W	transfo 500 VA load 400 W	300 VA 250 W
VLV hal. + electro- nic transfo	transfo 25 VA load 20 W	transfo 600 VA load 540 W	transfo 500 VA load 450 W	300 VA 270 W

### Not modular dimmer 1 channel TK 013

### Power supply :

Product supply via the EIB Bus 29V ....

### Environment :

- operation temperature :-5 °C to +45 °C
- storage temperature : -20 °C to +70 °C
- ingress protection : IP 20

### Connection :

- main line connection by means of plug-out terminal TG008
- 230 V  $\sim$  supply connection by no-screw terminals : max. capacity :

1,5<sup>D</sup> flexible 2,5<sup>D</sup> rigid

- 1 - 10 V output contacts connection by 1-10V by no-screw terminals :

1,5<sup>D</sup> flexible max. capacity : 2,5<sup>D</sup> rigid

### Size : | 243 x | 42 x h 28 mm

### Output characteristics :

- Un : 230 V~
- I max. : 6 A AC 1
- maximum connetion capacity with electronic ballasts for dimming :
- 58 W fluo tubes : 10 simple ballasts
- 36 W fluo tubes : 20 simple ballasts
- 18 W fluo tubes : 20 simple ballasts

### 1 -10 V Control :

- quantity of connectable electronic ballasts for dimming : 50

### Operating data :

1-10V Bus EIB controlled dimmer used to control dimming of lights equipped with electronic ballasts in an area (fluo tubes, halogen lamps,...)



Note : before using the TS 210A et TS 210 devices, we have to specify the load type which is connected. The supply voltage of the module and of the load must be joined downstream from the same differential protection (RCB)

### Product presentation

Tebis : Dimmer



### **Electrical connection**



### Lighting distributors TC 033, TC 122, TC 124

### **Tecnical specifications**

### Alimentation

TC 033 : Un : 380 V~ +10 % / -18 % 16 A maxi. 50/60 Hz TC 122 et TC 124 : Un : 230 V  $\sim$  +10 % / -18 % 16 A maxi. 50/60 Hz

### Environment

- operation temperature : 0 to +45 °C
- storage temperature : -10 to +65 °C
- ingress protection :
- IP 20

IP 30 (provide all connectors are used or plugged with suitable plugs shock resistance)

- power connection : 2 joules (IK 07)

### Connection

- Bus connection by 2-pole black connectors -pre-manufactured cables TC 943 - connectors alone TC 940, TC 950
- power circuit connection by 3-pole black connectors
- pre-manufactured cables TC 913
- connectors alone TC 910
- power circuit connection by 5-pole black connectors - pre-manufactured cables TC 903
- connectors alone TC 900
- input connection by 3-pole black connectors - pre-manufactured cables TC 923
  - connectors alone TC 920
- output connection by 3-pole black connectors
  - pre-manufactured cables TC 933, TC 934, TC 935 - connectors alone TC 930

### Input characteristics

- Un : 230 V~ 50/60 Hz
- In : 6 mA
- levels : 0..... 20 V~ -> 0
- 187..... 253 V∼ -> 1
- rebond time : 40 ms
- mini time period between 2 changes of state : 100 ms
- maxmum lentgh 30m in 3 x 1,5

# Tebis : Lighting distributor

### **Outputs characteristics**

contact normally open	
Un : 230 V~ 50/60 Hz	
I max : 16 A AC1	
maximum power per output	
for 250 000 operations :	
incandescent	2000 W
halogen 230 V (for 200 000 operations)	1600 W
halogène TBT (ferro)	1600 VA
halogène TBT (électronique)	2600 W
uncompensed fluorescent	34 x 18 W
$\cos \varphi = 0.3$	17 x 36 W
	13 x 58 W
fluorescent with electronic	60 x 18 W
ballast	30 x 36 W
	18 x 58 W
for 60 000 operations :	
fluorescent compensated parallel	5 lamps 1 x 18 W
(total capacity value	5 lamps 2 x 18 W
not to exceed 22µF)	2 lamps 3 x 18 W
	2 lamps 4 x 18 W
	5 lamps 1 x 36 W
	2 lamps 2 x 36 W
	3 lamps 1 x 58 W
	1 lamps 2 x 58 W

### Size

Dimensions : L 276 x l 159 x h 55 mm

### Product presentation







# Tebis : Lighting distributors

Connectors for lighting distribution boxes TC 900 to TC 964

### Generalities

The TC lighting installation system performs the following functions : - the power circuit (single-phase current or three-phase current) is distributed between distributors from the upstream protection. - pushbuttons are connected and the distributors supply power to the lights.

This system is specifically suited to an installation in false ceiling or in technical floor. A full associated connector range is available for simple and fast aseembly.

The connection to distributors (power, Bus, control units and lights) is carried out by means of clip-on connectors.

Visual keying (by colour coding) as well as mechanical keying is provided for each type of connection.

For greater safety, a mechanical locking is performed at the time of clipping. Unlocking is possible only by using a tool suche as screwdriver.

For an even faster installation, a wide range of pre-manufactured cables of standard length is offered.



### system presentation



# nager

### Universal temperature transmitter TE 001

### Power supply

Product supply via the EIB Bus 29V ....

### Environment

- operation temperature :-5 °C to +45 °C
- storage temperature : -20 °C to +70 °C
- ingress protection : IP 203

### Connection

- probe connection by screw terminals, recommended Ø : 1,5<sup>o</sup> maximum length 50 m.

### Standards

Construction chaacteristics : CEI 669-2-1

### Temperature transmitter

- range of measurement : -30 °C to +50 °C
- measuring accuracy with calibration : +/- 1 °C
- correction range of calibration : +/- 2,5 °C

### Universal temperature sensor EK 083 or outside temperature probes EK 086 :

- CTN 10 kΩ at + 25 °C
- conform fully to requirements of probes installation in a slab or outside

### Probe resistance according to temperature

## Tebis : Sensors

### **Operation characteristics**

- outside temperature measurement from external probe
- temperature measurement of slab from univeral probe
- temperature control of a heating floor
- any temperature safety function

### Product presentation





points of connection calibration to EIB Bus on bottom potentiometer of rail printed circuit

temperature	T (°C)	+50	+40	+30	+25	+20	+15	+10	+5	0	-5	-10	-15	-20	-30
probe	R (kΩ)	3,60	5,33	8,06	10	12,49	15,71	19,90	25,39	32,65	42,32	55,32	72,95	97,07	176,96

### Universal temperature transmitter with no override TE 006

### Power supply

Product supply by the BCU TA 004

### Environment

- operation temperature :-5 °C to +45 °C
- storage temperaure : -20 °C to +70 °C
- ingress protection : IP 302

### Built-in room temperature probe

- range of measurement : +5 °C to +40 °C
- measuring accuracy with calibration : +/- 0,3 °C
- calibration correction range : +/- 2,5 °C

### Standards

Construction characteristics : CEI 669-2-1

### **Operation characteristics**

Room temperature measurement from a built-in probe

### Size

Dimensions : I 81 x I 81 x p 27 mm

### Product presentation



# Installation / Implementation



- seal the sheath to prevent air draining and distorsion of local temperature measurement
- maintain application "connector" protection of BCU to protect it from dirt until the installation begins on site
- use flush-mounting box: Ø 60 mm ; fixing by screw.



- local teemperature measurement calibration potentiometer
- (2) fault warning (red micro-indicator)
   (3) fixing screws of regulator on BCU ref. Ø m 3 x 8 slotted head posidrive



# Light controller TK 022 Light sensor TK 023

### Technical specifications of Light controller TK 022

### **Electrical characteristics**

- power supply : 29V DC (SELV)

### **Operating data**

- typical operating range of control system : 200 ... 1200 lux
- Inputs : 2, for ligth sensor TK023
- Outputs : 2 passive, 0... 10V for electronic ballast units
- Load rating : < 30mA
- Max. cable length between TK 022 and TK 023 : 100 m max.
- Load circuit : 2, potential free contacts
- Switching voltage :230 V∼ 50Hz
- Making / Breaking capacity : 16A / AC1
- 10A / AC3

### Environment

- operation temperature : -5 °C to +45 °C
- storage temperature  $\pm$  -20 °C to +70 °C

### Connection

- multicore : 0,5 mm<sup>2</sup> 2,5 mm<sup>2</sup>
- single core: 0,5 mm<sup>2</sup> 4 mm<sup>2</sup>

### Size

- dimensions : 4 modules (70 mm)

### Commissioning / operation

ETS2 (EIBA Tool software) is used to assign the physical address and the group addresses and to set the parameters.

### Function

The TK022 is designed to switch and dim lighting circuits via the bus EIB in conjunction with electronic ballast units. It features two independent channels.

In conjunction with the light sensor TK0 23, the TK 022 can be used as a twin lighting controller for constant lighting control. The dimming telegrams are converted to 0 ...10 V signals corresponding to 0 ...100 % brightness. The device operates as a passive device, i.e. the 0 ...10 V outputs behave as controlled resistors and the controlled electronic ballast units supply the current. The device requires no additional power supply.

Two relay contacts switch the circuits. The set-point for the lighting controller is set separately for each channel. The light sensor detects the light level in rooms. It is installed in a standard wiring box in ceiling and mounted with a cover (white) using screws. In conjunction with the lighting controller TK 022, the light sensor is used for constant lighting control

### Technical specifications for Light sensor TK 023

### **Operating data**

- maxi. cable length : 100 m max. between TK 022 and TK 023

### Environment

- operation temperature : -5 °C to +45 °C
- storage temperature : -20 °C to +70 °C

### Dimension

- dimension : Ø 54 x h 20 mm



### **Electrical connection**



### Caption :

1 LED and button for entering the physical address

Switch position indicators

Manual operation ON/OFF

3 EIB Bus

 $\widetilde{\textbf{A}}$  Light sensor with one connection terminal

(white/yellow)

<sup>(5)</sup> 0... 10V signal for electronic ballast unit

6 Load circuit

# 

# Tebis : Regulators

### Regulator for accumulation heating floor TF 005

### **Technical characteristics**

### Power supply

Product supply via the EIB Bus 29V ....

### Environment

- operation temperature : -5 to +45 °C
- storage temperature : -20 to +70 °C
- ingress protection : IP 40

### Standards

constructive Characteristics CEI 669-2-1

### Operating data

Load control of floor acuumulation heating according to the outside temperature (time based or proportional control) for :

- electrical heating of "basic+supplement" type
- basic heating of industrial type buildings (storage room, etc...)

### product presentation



### Installation / Implementation

Product presentation

This product is simply clipped on a DIN rail equipped with a printed circuit at bottom of rail. It has no connection terminal.

Regulator of ambient temperature with option air conditioning TF 016

### **Technical characteristics**

### Power supply

Product supplied by BCU TA 004

### Environment

- operation temperature : 0 to +45 °C
- storage temperature : -20 to +70 °C
- ingress protection : IP 20

### Built-in room temperature probe

- range of measurement : 0 to +40 °C
- resolution : 0,2 °C
- measuring accuracy : +/- 0,5 °C
- correction range of calibration : +/- 12,7 °C pe step of 0,1 °C

### **Operating characteristics**

- local temperature control (PI type control) for :
- all types of direct electrical heating such as : convector, radiant panel, heating floor and ceiling,...
- all types of hot water heating such as : radiator, heating floor,...
- all types of air-conditioning systems such as :fan-convector, multisplits, cold floor and ceiling ...
- display of 4 temperature set-points : Comfort O. , Eco O. , Lower ( , frots-free or overheating Display of regulator's off state
- set-point comfort adjustment wheel from + or -3°C
- The presence button signals the presence.

### Size

Dimensions : I 84 x I 84 x p 16 mm



### connector

- (1)Red light indicating the frost-free set-point for heating or overheating of air-conditioning frost-free alarm is through indicator flickering (T < 5°C)
- yellow indicator light of regulator's off state
- presence button
- green indicator light signalling the comfort set-point
- green indicator light signalling the eco set-point green indicator light signalling the lower set-point
- 3 4 5 6 7 set-point adjustment wheel
- fixing screw of regulator on the BCU 8
- (9) fixing screw of the box on the base plate

### Installation / Implementation



- use flush-mounting box : Ø 60 mm, fixing by a screw
- seal the sheath to prevent air draining and distorsion of local temperature measurement
- maintain application "connector" protection of BCU to protect it from dirt until the installation begins on site

### Room temperature regulator TF 012, TF 014

### **Technical characteristics**

### Power supply

product supplied by BCU TA 004

### Environment

- operation temperature : -10 to +45 °C
- storage temperature : -20 to +70 °C
- ingress protection : IP 302

### Built-in room temperature probe

- range of measurement : +5 to +40 °C
- measuring accuracy : +/- 0,3 °C
- correction range of calibration : +/- 2,5 °C

### Standard

construction characteristics : CEI 669-2-1

### Operating data TF 012

- local temperature control (PI type control) for :
- all types of direct electrical heating such as : convector, heating floor, radiant ceiling...
- hot water heating
- display of 4 temperature set-points : Comfort 🔆 , Eco,
- Lower  ${\ensuremath{\mathbb C}}$  , frost-free  $\ensuremath{{\ensuremath{\$}}}$  and a withdraw function
- set-point comfort adjustment wheel,
- The presence buttons signals the presence.

### Operating data TF 014

- local temperature control (PI type control) for :
  - all types of direct electrical heating such as : convector, thin slab, radiant ceiling ...
- hot water heating
- $\bullet$  display of 4 temperature set-points : Comfort  $\dot{\heartsuit}$  , Eco, Lower (  $\zeta$  , frost-free \* and a withdraw function

### Current set-point display

	ţĊ.	ECO	C	*	withdraw
red indicator	- <b>`</b>	$\bigtriangleup$	$\bigtriangleup$	$\bigtriangleup$	<u>کلا۔</u>
green indicator	$\bigtriangledown$	<b>*</b>		$\bigtriangledown$	$\bigtriangledown$

### Size

dimensions : L 81 x I 81 x P 27 mm

# Tebis : Regulators

### Product presentation TF 012





centre Bus controller

### Product presentation TF 014







- regulator (yellow LED)
- 2 room temperature measurement calibration potentiometer
- ③ fault indication (red mcro-LED)
- (4) fixing screw of the regulator on the BCU Ref. M3x8 slotted head
- (4) posidrive
   (5) indicators lights for display of the current set-point (rend and green LED)

### Installation / Implementation



- used flush mountig box:  $\varnothing$  60 mm, fixing by screw
- seal the sheath to prevent air draining and distorsion of local temperature measurement
- maintain application "connector" protection of BCU to protect it from dirt until the installation begins on site.

# 

### Weekly two-channels time switch TF 002

### Power supply

Product supply via the EIB Bus 29V ...

### Environnement

- working temperature : -5 °C to +45 °C
- storage temperature : -20 °C to +70 °C
- ingress protection : IP 20

### Connection

Connection to the bus by a data rail

### **Operating characteristics**

Weekly time switch with 2 independent channels including easy winter/summer time change, unlimited program storage, selection of temporary or permanent override, program display and control. Switching orders of both channels are issued directly on the communication network.

### Main Characteristics

- cycle : weekly
- programming accuracy : 1 min
- programming capacity : 24 set-points to be distributed over both channels
- time accuracy : + or 5 minutes / year
- in the event of Bus failure, the display disappears, but time is stored for 24h, program steps are saved permanently,
- override : permanent : on or off for maintenance, vacation, ... - temporary : on or off for temporary override until the next program step
- summer / winter : two distinct keys + and 1 hour are used to change winter/ summer time,
- display : the display mode makes it possible to check the program with no risk of modification or removal of set-points.
- grouping of days : makes it possible to store set-points common to several days and to save program steps.

### Synchronizer TF 003

### Power supply via the EIB Bus 29V ...

### Environment

- working temperature : -5 °C to +45 °C
- storage temperature :  $\$  -20 °C to +70 °C
- ingress protection : IP 20

### Connection

Connection to the bus by a data rail

### **Operating Characteristics**

Is used as reference clock for all weekly and annual time switches installed on the communication network.

### Main Characteristics

- time setting accuracy : 1 min
- time accuracy: + or 5 minutes / year
- summer / winter : two distinct keys + and 1 hour are used to change winter / summer time,
- in the event of Bus failure, the display disappears, but time is stored for 24 hours.

### Product presentation



EIB Bus on bottom of rail printed circuit



0

Adressing LED

Adressing push-button

EIB Bus on bottom of rail printed circuit

Tebis :

Programmer

Product presentation



# Tebis : Programming, application controllers

### Load shedding devices

- References TJ110, TJ112, TJ114 include respectively :
- the modular load shedding device 1000, 150 or 50 channels
- the diskettes of Tebis application "load shedding" to be installed on  $\ensuremath{\mathsf{PC}}$
- the 3-m long modular controller cable.

### annual time switches

- References TJ 100B, TJ 102B, TJ 104B include respectively :
- the modular annual time switch with 100, 50 or 20 channels
- The Tebis application diskettes: annual programming to be installed on PC, and
- the 3-m long modular controller cable.

### Power supply

- power supply from TS 111
- Un = 29 V ..., I max = 114 mA (3,3 W equivalent to 23 devices)
- Bus EIB powers the device

### Environment

- operation temperature :-5 °C to +45 °C
- storage temperature : -10 °C to +50 °C
- ingress protection : IP 20

### Connection

- connection to the Bus cable by plug-in type connection terminal TG008
- connection of 29 V  $_{\overline{\mbox{...}}}$  power supply and series link by terminals with screw
- Capacity : flexible 1,5
- rigid 1,5<sup>o</sup> - max. length of power supply cable : 5 m

### Standards

Construction characteristics : CEI 801

### Hardware architecture

- micro-controller S 80C 165
- Flash EPROM 512 KB for resident software
- RAM 256 kB with battery backup, contains downloaded data
- time meter with backup in case of power supply failure :
- accuracy +/-0,5s per day at +25°C (up to 6,3s at +45°C)
- long life lithium battery for time meter and data :
- back-up > 10 years of total failure at 20 °C
  - > 3 years of total failure at 45 °C

	fault indicator		
power/ mode indicator	Off	flickering	permanently on
off	no power	"initialisation" state hardware fault is detected in self-test	undefined state permanent reset or EPROM access problem
flickering	off-line mode : no fault is detected		off-line mode : application mode error
permanently on	on-lie mode : no fault is detected		on-line mode : application mode error

### Prodcut presentation



### **Electrical connection**





### Modular RS 232 - TH 001

### Power supply

Remote supply by Bus EIB 29 V ...

### general characteristics

RS232 cable connection : 9-point female socket SUB-D with possible locking by screw

### Product presentation



# Tebis : Communication

### surface RS 232 - TH 002

### Power supply via BCU TA 004

### general characteristics

RS232 cable connection : 9-point female socket SUB-D with possible locking by screw

### Size

Dimensions : L 81 mm x l 81 mm x d 43 mm

### Product presentation



### Installation / Implementation



### RS 232 Modem TH 004

### Technical characteristics

### Power supply :

- via Bus EIB 29 V ....,
- auxiliary power supply by power transformer  $\sim$  / ... 230 V  $\pm$  10 % 50 Hz / 6 V ... / 150 mA.

### Environment :

- operation temperature : -5 to +45 °C,
- storage temperature : -25 to +55 °C.

### Connection

- to the network, by power transformer provided,
- to the modem : the product is equipped with a SUB-D- 9-point male connector (the connecting cable and the modem are to be provided)
- to Bus EIB by provided cable. One end is equipped with a connector RJ45, the other end with a 2-pole connector Wieland.

### Recommended modem to be used

- Hayes compatible ,
- speed : 9600 Bds or more,
- size of data : 8 + 1 stop bits.
- The TH 004 device pack includes :
- RS 232 Modem box,
- device's power supply transformer,
- device's fixing support,
- 45cm long cable section for connection of RS232 modem to Bus  $\ensuremath{\mathsf{EIB}}$  ,
- the Tebis application diskettes "Dialer" to be installed on PC,
- one diskette including dialer's documentation

### **Functional features**

the device makes it possible to connect two distant EIB sites via the telephone network (each site must be equipped with a RS232 Modem and an associated modem, not provided in TH004 device pack).





### **Product presentation**



supply cable length = 2 m Bus connection cable length = 45 cm

### Size

Dimensions : L 146 x I 80 x h 54,8 mm



# Tebis : Controller

### Lighting scenario TK 015

### **Technical specifications**

Power supply via Bus EIB 29 V ....

### Environment

- operation temperature : 0 to +45 °C,
- storage temperature : -20 to +70 °C,
- ingress protection : IP 20.

### Connection

To Bus by contact on printed circuit bottom of rail.

### Principle of operation

The device can store 4 standard lighting scenarios, each scenario controlling up to 8 groups of lights (a group is a set of lights operating always together).

Use the quadruple communication button to select one of four scenarios.

Depending on software used, 4 scenarios can be stored which define :

- the on/off state of each of the 8 lights groups
- the up/down state of each of the 8 gropus of blinds or shutters
- the level of brightness for each of the 8 groups of lights
- the on/off state of each of 2 groups and the level of brightness for 4 groups of lights.

### Logical functions TK 016

### **Technical specifications**

### Power supply

via Bus EIB 29 V ....

### Environment

- operation temperature : 0 to +45 °C,
- storage temperature : -20 to +70 °C,
- ingress protection : IP 20.

### **Functional features**

Can be used to create simple automatic controls with messages transmitted on EIB network.

Depending on software used, it is possible to set :

- a logical function AND and a logical function OR from 8 incoming messages

- a REVERSAL function for 4 incoming messages.



Product presentation TK 015 and TK 016

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## Tebis TS : Description of the system

Tebis TS is a new installation system providing enhanced functionality for controlling lighting, shutters and heating.

Tebis TS offers simple solutions for complex and changing needs. The more demanding the user, the more evident the benefits. In a traditonal installation, the functions are fixed once the cabling is finished. In the simplest installations, loads are directly connected to the control devices. As the users become more demanding, their needs change. Central or grouped controls are required, cabling and labour increase rapidly.

How is a Tebis TS installation structured ?

The method of wiring a Tebis TS installation is always identical, independent of the functions needed, which reduces the time for planning and installation.

Thus, with Tebis TS, any push button can deliver any command (on, off, up/down variation, as an individual, group, master or scenario command) to any installation load.

These new possibilities simplify life for current and future occupants by freeing them from certain tasks while guaranteeing that the electrical installation has a high level of adaptation and development potential.



bus supply and allow the installation to be configured.

### Electrical connection

the loads



The control circuit (bus) joins all the input modules together to which the control units and the output modules are attached. After wiring, simply program the installation according to the desired operation.

Input products

Register the information coming from the control units (push button, switch, timer, etc). These orders are then carried via the bus cable to the output modules.

### Output products

Interpret the information transmitted by the input products, convert them into action and power the connected loads. The output products are divided into three large families: lighting, shutters/blinds and heating.

System products

They are of two types:

The power supply supplies the 29 V dc to power the bus.
The configurator connects the input and output modules. In other words, it enables the operation of the installation.

### **Operating principle**

The Tebis TS installation differs from the traditional installation in that it separates control and power. The power circuit comprises the protection and the power supply to the electrical loads by means of the output modules. The control circuit (bus) joins all the input products and sends orders to the appropriate output contacts.

# Tebis TS : Configuration principle



### Configuration principle

Configuration is concerned with associating each input with the outputs which are to be controlled as well as with the type of control. In other words, specifying the required action (on/off command, dimmer, up/down, etc.).

The choice of "type of control" is carried out directly on the configurator matrix. Using easily understandable symbols, the electrician can choose the essential functions in the three fields of application.

Whatever the functions may be, which are to be carried out, the configuration principle remains identical and is based on the creation of configuration links.

A configuration link connects an input to "n" outputs ( $n \ge 1$ ) by carrying a "type of control".

### Configuration

Is carried out at the end of the construction with the help of the TS 100 configurator. The TS 100 module is the only necessary programming tool required to carry out all the logical links which define the function of the installation.

The configuration takes place in 3 successive stages.

The mode selector of the configurator allows the passage from one stage to the other.



1. Numbering of the inputs

This operation gives a unique number to identify each input connected to the installation. Done by simply closing the input contacts once whilst in numbering mode

### 2. Programming the links

This involves creating all the configuration links (see the principle).

TS 100 auto 4 <u>.</u> prog 0...9. -<u>A</u> -<u>Ö</u>-Ò -Ö lighting  $\bigcirc$ F Ħ D F CL 0 \* າທ ġ ¢/(( C nc 0  $\bigcirc$ 0 `O  $\bigcirc$ OK selection keys for "type of command'

Creation of a configuration link

**Operation principle** 



The inputs and the types of control are selected on the configurator.

The outputs are designated by the keys of the modules concerned.

### 3. Downloading of the program

When the selector is moved to Auto mode, the programming data is transferred to the different input and output products in the installation.

After downloading, the installation is operational. All the information is decentralised to each product. Each module is autonomous. The configurator simply facilitates subsequent program changes.

## The Tebis TS system



# Tebis TS : Switching functions

Tebis TS has been further enriched with version 8.0. The following functions are now available on any outputs:

- Priority commands (override), represented by the symbol "P" on the display

- Adjustable delay times from 1 sec to 12 hr represented by the symbol "t" on the display

### Applications, functions and product offers

- Dimming scenarios allow preset lighting levels to be called upon at the push of a button (dimmed loads only). Symbol "S"  $\,$ 

The new functions are available on the configurator's display. Press the desired control function (- $c_{\rm c}^{-}$ , ) button for more than 3 seconds and the new functions appear.

Applications	Control units	Functions	Input products	Output products
Lighting		on, off, on/off, dimming delay time on or off scenario on, off priority on/off	TS 302 - TS 304 - TS 310 TS 350 - TS 351	TS 204(ON/OFF control) TS 210 - TS 211 - TS 210A - TS 204A - TS 204B TS 206A - TS 206B (dimmers)
Shutters & blinds		up, down, stop delay time down* up/down priority up/down wind safety	TS 302 - TS 304 - TS 310 TS 350 - TG 050 - TS 351	TS 223 - TS 225 (shutters and canopy blinds) TS 224 - TS 226 (blinds with adjustable slats)
Heating	-{- -/	comfort, minimum delay time comfort or minimum comfort/min, non-freeze stop, priority, comfort, min	TS 302 - TS 304 - TS 310 TS 350 - TS 351 TS 303 - TS 320 TS 321 - TS 322 - TS 330	TS 244

The above functions can be integrated into the individual, group, master or scenario controls:

- The individual (local) control corresponds to : one or more inputs controlling a single output

- The group (zone) control corresponds to : one or more inputs controlling a group of outputs

### Tebis TS : Overview of the types control

- The master control corresponds to : one or more inputs controlling all the outputs

- The scenario function: this is a multi-action command which can act simultaneously on lighting, shutters and heating (see page 15).

symbol on TS 100	type of control	input connected to
	ON A press of the button or closing of the contact always switches the assigned outputs ON	Push Buttons Switch contact (switch clock, twilight swit- ch)
•	<b>OFF</b> A press of the button or closing of the contact always switches the assigned outputs OFF	Push Buttons Switch contact (switch clock, twilight swit- ch)
- <u></u> <sup>¬</sup> . ●	<b>ON/OFF</b> Closing of the contact switches the assigned outputs ON. Opening of the contact switches the assigned outputs OFF	Switch contacts (switch clock, twilight switch)
	<b>ON/OFF (remote switch control)</b> Each press of button changes the assigned output status ON/OFF , Assigned output is ON with one press of the button,OFF with next etc	Push buttons (tactile switches, remote controls)
	Dimming A short press of the push button switches ON/OFF. A long press of the button dims BRIGHTER/DARKER	Push buttons (tactile switches, remote controls)
-Ö,- + <b>P</b>	<b>Priority ON</b> Closing the contact switches the assigned outputs ON (remain ON whilst switch is closed). Opening contact assigns: OFF with inversion mode, remains ON if the hold mode is selected	Switch contacts (switch clock, twilight switch)
● + Ø	<b>Priority OFF</b> Closing the contact switches assigned outputs OFF (remain OFF whil- st switch is closed). Opening contact assigns: ON with inversion mode, remains OFF if the hold mode is selected	Switch contacts (switch clock, twilight switch)
-Ö- + F	<b>Timer ON</b> A pressed button or closed contact always switches assigned output ON for time delay (1s to 12h) outputs switch OFF at end of time delay	Push buttons Switch contact (switch clock, twilight swit- ch)
● + E	Timer OFF A pressed button or closed contact always switches assigned output OFF during time delay (1s to 12h) outputs switch ON at end of delay	Push buttons Switch contact (switch clock, twilight swit- ch)
-,0,- + 5	Ambients Press button or closed contacts restores preset levels on the assigned dimming outputs. Three different levels can be memorised	Push Buttons switch contact (switch clock, twilight switch)

# Tebis TS : Switching functions

Tebis TS : Overview of the types of control - Venetian blind or roller-shutter control			
symbols on TS 100	type of control	input connected to	
	<b>UP</b> A longer press of the push button or closing contact commands UP. Continues to the upper stop position until stopped. Short press stops movement. After stopping every short press adjusts the blade angle.	Push Button Switch control (switch clock, twilight switch, wind sensor)	
Ē	<b>DOWN</b> A longer press of the push button or closing contact commands DOWN. Continues to the lower stop position until stopped. Short press stops movement. After stopping every short press adjusts the blade angle.	<b>Push Button</b> Switch control (switch clock, twilight switch, wind sensor)	
	<b>UP/DOWN</b> Closing contact commands DOWN (close). Open contact commands UP (open). Command will continue to stop position. Stopping movement is only possible through separate push buttons controlling UP or DOWN.	Switch contacts (switch clock, twilight switch)	
P *	Wind Safety Closing of the anemometer's contact comands UP to the upper stop position (security position). All controls are ignored until anemometer's contact opens	Wind strength set TG 050	
<b>₽</b>	Priority UP Closing contacts commands UP. Remains UP whilst switch is closed. Opening contacts commands: DOWN in inversion mode, remains UP if hold mode is selected	Switch	
<b> </b> ↓ + <b> </b>	Priority DOWN Closing contacts commands DOWN. Remains DOWN whilst switch is closed. Opening contacts commands: UP in inversion mode, remains DOWN if hold mode is selected	Switch	
<b> </b> ↓ + ≿	Timer** Press button or close contact commands UP to upper stop postion. Preset time delay commands DOWN to stop position	Switch	

### Tebis $\ensuremath{\mathsf{TS}}$ : Overview of the types of control - individual room temperature regulation

symbols on TS 100	type of control	input connected to
-``,'`.	Day temperature A press of the button or closing of the contact activates the day temperature	Switch contacts (switch clock, buttons)
C	Drop temperature A press of the button or closing of the contact activates the drop temperature	Switch contacts (switch clock, buttons)
-;ċ;-/œ	Day/Drop* Temperature regulator: Short press of button for day/drop. Switch contact: closing contact activates day temperature, opening contact activates drop temperature	Temperature regulator Switch contact (switch clock)
*	Frost protection* Temperature regulator: Long press for frost protection. Next press returns to currently applicable state. Switch contact: closing contact activates frost protection. Opening contact returns to currently selected state	Temperature regulator Switch contact (window contact, swit- ch clock)
M STOP	<b>STOP*</b> Closing contact stops the heating, opening the contact re-activates the currently selected day, drop or frost protection temperature. This function has priority over the day, drop or frost protection temperature.	Switch contacts (switch clock, twilight switch)
-☆- + <b>P</b>	Priority Day Temperature Closing contact activates day temperature and remains while switch is closed. Opening contact: changes to drop if inversion mode is selected, remains to day temperature if hold mode is selected	Switch contacts (switch clock, twilight switch)
<b>q</b> + D	Priority Drop Temperature Closing contact activates drop temperature and remains while switch is closed. Opening contact: changes to day if inversion mode is selected, remains to drop temperature if hold mode is selected	Switch contacts (switch clock, twilight switch)
-ờ́- + <b>F</b>	Timer Day Temperature Press button or close contacts activates the day temperature during a time delay 1s to 12h. After time delay drop temperature is activated	Push Button Switch contact (switch clock, twilight switch)
C + E	Timer Drop Temperature Press button or close contacts activates the drop temperature during a time delay 1s to 12h. After time delay day temperature is activated	Push Button Switch contact (switch clock, twilight switch)

 $^{\star}$  The configuration unit TS 100 only allows one relationship with those type of control



# Tebis TS : The scenario function

### The scenario function

The scenario function is a multi-action, multi-application command. It enables up to 13 different commands to be associated with any input in the system.

Example: in the evening it is dark and you are leaving your home. By pressing the PB at the front door, the garage door and/or the radio remote control, with one gesture you will be able to:

- Turn on the exterior lights on a timer
- Turn off all the lights in the house
- Turn on a controlled socket outlet to simulate your presence (radio and light)
- Lower all the shutters

- Switch all the heating to the minimum mode



### Advantages and application situations

The scenario function frees the user from small daily constraints each time s/he is obliged to carry out multiple and repetitive tasks. This is particularly the case for all small businesses. In the morning and evening it is necessary to operate the metal shutters, the lighting for the shop, the shop window, the storeroom and the shop sign, the power supply for the cash register, video cameras, etc.

These successive operations can be replaced by a single command, thus eliminating any oversights.

In a Tebis TS installation, the scenario function can be allocated to any one of the system's inputs, including remote control. It enables the number of control points to be reduced and simplifies repetitive procedures; this increases the level of comfort for the user. The diversity of activities in the service sector enables each user to imagine situations in his professional environment where he is called on to start up different technical equipment once or several times a day.

Examples in multi-purpose rooms: 1 PB per practical activity, occupancy scenario (non-occupancy of hotel room), projection scenario in a meeting room or classroom.

### Configuration

20 scenario functions are available per installation. The scenario functions exploit the "types of controls" corresponding to the first two columns in the configurator's matrix.

To program a scenario, you only need to ok the first configuration link by holding down the OK key > 2 secs. In these conditions the input number does not increment; this enables the association of several links to the one input. The final link of the scenario is recorded by pressing the key normally.



### "Leaving" scenario



### Tebis TS : technical data

Maximum number of products per installation

- 64 products with a TS 111 power supply

- up to 128 products with a TS 110 power supply

Max. 300 input numbers

Total bus width : 1000m max.

Max. distance between the power supply and the TS products : 350m.



### Recommendations for implementing a TS installation

- 1. Install the TS products in the base of the cabinet to avoid an excessively high operating temperature.
- 2. Connect all the input/output products to the 29 V bus.
- 3. Connect the electrical cables to the different outputs in the output modules.
- 4. Follow the configuration instructions for the system.

# Tebis TS : Technical Data

### Structure of the bus wiring

It can be star-shaped, linear, tree or ring-shaped.

The EIB Y (ST) Y 2 x 2 x 0.8 (ref. TG 018, TG019) bus cable can be laid within immediate proximity of the low voltage network. However, you are advised to make provision for wall boxes which are separate or fitted with separating partitions for the bus cable connections and the LV cable connections. The EIB cable is insulated to 4 kV. (NFC 3209)

Transmission technique EIB bifilary technique, metal-clad twisted pair.

Command information modulated symmetrically, superimposed on the system voltage of 29 V - (VLV), transmission of serial asynchronic data (time-division multiplex), CSMA/ CA access process, transmission speed 9600 BPS.

Immunity to interference in accordance with IEC and EIBA standards.

### Joints in the bus cable

Where joints in the bus cable are required, we recommend (in order to minimise any conductor damage) the use of the EIB screwless terminal TG008 within a suitable junction box.

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