Technical Data Sheet

a-eberle

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Central station coupling-module type REG-P

**** as 19" rack version***

Application

Working as a coupling-device with control centres or with central units, the REG-P operates with all telecontrol protocols.

Features

- boots itself after power-on
- coordinates the telegram traffic between one or more substation units and WT- and/or modem-connections to central stations or substations
- checks automatically and continuously the memory of the device
- controls the watchdog
- parameters can be set online at any time
- adjustable to any telecontrol protocol
- multiple choices for connection such as fibre optics, RS 485, RS 232

Specification

The REG-P board is equipped with an 8Bit CMOS - processor 80C400 and represents an independant computer, with an address-range of 16 MB.

The CPU runs at a speed of 18 MHZ. The board has a maximum capacity of 1 RAM modules with 8MB in total memory as working memory.

Depending on the kind of the module the storage capacity for saving of special system device data as well as for the specific remote control protocol structure are up to 16MB flash memory.

All four hardware-timers are required for the TELE-DATA - realtime operating system TDXact. One timer is used for the system cycle.

Both of the prozessor-included UART - modules turn the two asynchronous V.24-interfaces. Each of these interfaces have their own baudrate timers.

Serial interface 0 is able to work from 600 Bd. up to 115200 Bd. and serial interface 1 from 400 Bd. up to 38400 Bd. The last timer is used for the protocol software.

For serial coupling in pulse-width-modulation (pulse-duration-m.) 100 Bd. up to bis 2400 Bd. are available. Both interfaces can be used either in PWM- or in PCM (pulse-code-m.) -mode or as control lines for modem, so that up to 2 coupling partners can be served.

Despite the functions running by different software branches on REG-P, there are general functions in order to protect the REG-P module against malfunctions. These functions are realized by hardware supplements and by software parts.

Interfaces

The REG-P module offers the following interfaces for communication with parametrizing PC and for connection with serial communication partners:

- 1 serial interface to the parametrizing PC
- 1 10/100 Mbit Ethernet interface with RJ45-connnector
- 1 serial interface to the control centre or central unit
- 1 serial interface to PCM or PWM coupling partners
- 1 serial interface RS485 (optional)
- 1 serial interface fibre optic ST-type (optional)
- all transmitters and receivers are galvanically isolated by optocouplers
- all drivers are able to work as V24 or 10-20 mA current loop

Interfaces for serial communication are connected via rackmount connector. They include control lines, data lines and the requested power supply potentials. With the help of softwareparameters you can adjust the inversion of the specific signals. The status of each channel is shown on the 3 LEDs on the front panel.

Socket Connections on the front

On the left hand side of front panel you see a 9pin-Sub-D-socket. This is used as a serial port to a standard-PC in order to supply parametrizing data called "Param".Via this connection you can easily parametrize REG-P online at any time with a softwaretool.

General Functions

Beside the functions, running by different software applications , there are main functions protecting against malfunctions of the device. These functions are realized by hardware-implementations and by software-routines:

Reset

There are four possibilities to trigger a reset on a REG-P. A proper restart of REG-P is garanteed in each case:

- by pressing "RESET" on the front panel
- Watchdog runs up
- reconnection and return of power supply
- Reset by montoring software module

Watchdog

Watchdog is a hardware-supplement to monitor the smooth process of the software. It consists of a timer that has to be triggered continuously by a background software program. Lack of retriggering leads to a hardware-reset.The correct status of watchdog is displayed by a green LED on the front panel.

Contact position s for serial interfaces

z	b	d	
COM1-TXD	COM1-GND	COM1-RXD	2
COM1-RTS	COM1-GND	COM1-CTS	4
PE-COM1	PE-COM1	PE-COM1	6
			8
PE-CPU	PE-CPU	PE-CPU	10
VCC 5V	VCC 5V	VCC 5V	12
GND	GND	GND	14
TTL-TXD		TTL-RXD	16
			18
485-N		485-P	20
PE-485	PE-485	PE-485	22
			24
PE-COM2	PE-COM2	PE-COM2	26
			28
COM2-TXD	COM2-GND	COM2-RXD	30
COM2-RTS	COM2-GND	COM2-CTS	32

Technical Data

Processor	80C400
Processor Technology	CMOS
Memory	1024KB RAM
Operating system	realtime, TDExact
Serial Interfaces	max. 2
Input-resistance	1000 Ohm
Output-resistance	120 Ohm
Input voltage	+-3..24V
Power supply REG-P	+ 5 V +/- 10% 0,4 A max.

Reference conditions during operation in a 19" rack

temperature:	- 10..+55C
relative humidity:	max. 85% at 25°C
Storage:	
temperature:	-25..+65C
relative humidity:	max. 80% at 25°C

Parametrizing REG-P

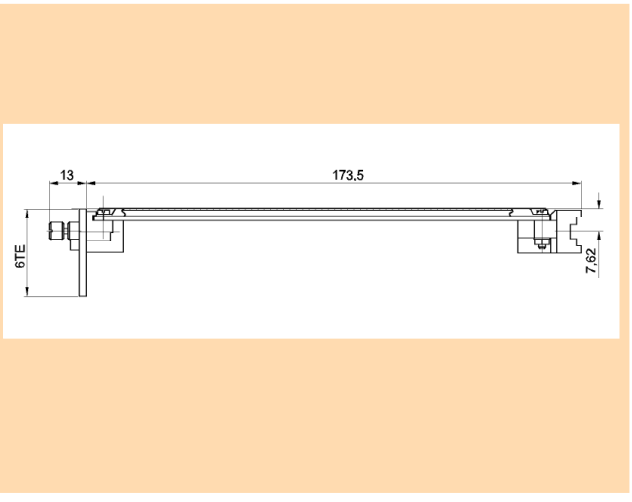
An edited file is transferred via serial interface from a standard PC into REG-P. Data is kept in flash memory.

Applied rules and standards

EN 55011: 1991 und EN 50082-2: 1995
DIN 40050
EN 50178 / VDE 0160 / 11.94
ICE 1010/EN61010 (VDE 0411)
ICE 255-4
ICE 529
VDE0110 / IEC 664-1
VDE0106 Teil 100

Mechanical construction

Front Panel	ALU, RAL 7035
height, width	3U, 6TE (129 mm, 30 mm)
weight	£ 0,4 kg
Protection class	
plug in device	IP 00
terminal block	IP 00
Mounting	according DIN 41494 Part 5
connector block	DIN 41612



Picture 3 Dimensions plug-in module

Data programming cable

Cable has to be shielded and may not be longer than 1.5m.

PC-Sub-D connector 9 pin	meaning	REG-P Sub-D-connector 9pin
1	SHIELD	1
2	RXD	3
3	TXD	2
4		4
5	GND	5
6		6
7	RTS	8
8	CTS	7
9		9

Electric security

Protection class I
Grade of pollution 2
Overvoltage category, rated isulation voltage

Name	Overvoltage	max. Overvoltage
aux. voltage	II	15 V
Serial interface	II	5 KV

Transient voltage strength 5 kV, 1,2/50 ms, 0,5 Ws

Immunity
Electrostatic discharge Airload 8 kV
Contactload 4 kV

Electromagnetic fields 80 MHz...1000 MHz 10 V / m
900 MHz ± 5 MHz 10 V / m
pulsemodulated

Rapid transient disturbance quantities (Bursts)
Power supply AC 230 V, 2 kV

Contacted RF-disturbance factors
0,15 MHz...80 MHz
U_{eff} = 10 V

50 Hz-magnetic field 30 A / m

Disturbance emission Group 1
limit class A

CE

Electrical Connection

Terminal screws with selflocking protection; clip on connector block

Mode setting

The processing modes RS 232, RS 485 and fibre optic are set by software parameters.

Commissioning of the card

There is a commissioning guidance available, a quick guide and a detailed commissioning and parameterization description.

Commissioning of the card

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Scope of Application

The telecontrol card REG-P is able to process the following telecontrol protocols:

- IEC 60870-5-101
- IEC 60870-5-103
- DNP 3.0

TCP/IP (typical application: COM-Server)

The telecontrol connection is made with RS 232, RS 485 or fibre optics (ST or FSMA).

The parameters are set with the help of the supplied software running under Microsoft Windows®. For standard users the parameterization is done in a common part, where baud rate and device addresses can be entered.

Advanced users can use an advanced part of the software, where deeper protocol specific parameters can be modified: Addresses of data points, timeout settings, scaling and thresholds of analogue values, etc.

Note:

New REG-P hardware V400 with RJ45

Please pay attention to the following:

- The new hardware version V400 has the a-eberle article number 111.9016.12, the article number is indicated on the side of the rating plate of the REG-P.
- The new version has additionally to the already existing IEC interfaces an RJ 45 Ethernet interface on the front. This new REG-P enables the mixed use of IEC-protocolls AND COM-server-operation in the future. It will be possible to address for example the device group REGSys directly via Ethernet with the parameter software WinReg and REG-P.
- Please use the new REG-P commissioning files with version V400, please use the new data from the provided REG-P commissioning CD.
- A firmware update of REG-P is not necessary as the according firmware version was already uploaded in the parent company.
- Please consider, only in firmware versions with V400 the file name can be used for the version V400, e.g. asciireg103_**V400**Vxxxx.hex, older firmware versions are no longer compatible to the new version V400 e.g. asciireg103_EXTVxxxx.hex
- Please contact Mr. Straußberger Tel. (+49) (0) 911 628108-76, Mr. Schobert Tel. (+49) (0) 911 628108-48 or Mr. Borchers Tel. (+49) (0) 911 628108-95 for commissioning support.

Ordering details

CHARACTERISTICS	CODE
Telecontrol interface card (6TE/3HE) for the connection	REG-P
of the automatic voltage controller system REGSys™ to control stations according to IEC 60870-5-101 in balanced/unbalanced mode or IEC 60870-5-103 (vdew) or DNP 3.0 software licence and cable for parameter setting and loading included	
design	
19" plug-in card (6TE/3HE)	B1
wall mounting version wired	B2
instrumentation and control connection	
to REG-D	L1
to REG-D and PAN-D	L2
to more than one REG-D(X)	L9
L9 can only be combined with XZ15..XZ18, XZ91	
connection	
Copper RS 232	V10
RS 485, two wire operation only	V11
fibre optic connection with FSMA	
glass (wavelength 800..900nm, distance 2000m)	V13
palstic (wavelength 620..680nm, distance 50m)	V15
two or three fibre optic connections on demand	V90
fibre optic connection with ST	
glass (wavelength 800..900nm, distance 2000m)	V17
palstic (wavelength 620..680nm, distance 50m)	V19
two or three fibre optic connections on demand	V90
protocol 103	
IEC 60870-5-103 for ABB	Z10
IEC 60870-5-103 for Alstom	Z11
IEC 60870-5-103 for SAT	Z12
IEC 60870-5-103 for Siemens (SAS)	Z13
IEC 60870-5-103 for Siemens (LSA)	Z14
IEC 60870-5-103 for other protocols	Z90
protocol 101	
IEC 60870-5-101 for ABB	Z15
IEC 60870-5-101 for IDS	Z16
IEC 60870-5-101 for SAT	Z17
IEC 60870-5-101 for Siemens (LSA/SAS)	Z18
IEC 60870-5-101 for other protocols	Z91
DNP	
DNP 3.00 (REG-D only)	Z20
operating manual	
German	G1
English	G2
software and accessories	**CODE**
cable for parameter setting and loading	582.020C
tester for serial interface	REG-TR

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