Brief Description

The SMZ x140 serves as an error message unit, as monitoring/ communication system and as a data logger unit in controller networks based on the E-Link protocol.

The SMZ is able to log data and to connect a controller network to a remote PC (alarm head office), so in many cases a local PC isn't necessarv.



ELEKTRONISCHE REGELUNGEN GMBH Technical Manual Error Message Central Unit

ELREHA

SMZ 3140

5310902-16/19E from Software Version 3.59

Type:



The main features

Error Message Unit

Captures a maximum of 16 error messages by configurable digital inputs.

- **Communication and Monitoring Device** • Connects a controller network to a remote PC (no local PC recommended). Captures error messages from networked controllers. Error messages can be forwarded via internal relays or via telephone modem as SMS, Fax and eMail.
- Data Logger .

Records parameters from up to 64 connected controller units. Recorded temperatures can be read on the display.

Remote Control

Specific controller units can be operated remotely by the SMZ. This can be advantageous for difficult or narrow mounting positions.

Relay Module

Error messages, received or calculated by PC-software can be distributed to and forwarded by the SMZ's relay outputs.

Watchdog

The SMZ monitors the regular operation of PC-software. The connected modem will be monitored and restarted in intervals

Accessories (must be ordered separately)

Standard Telephone Modem, SMS or GSM modem

Software CV-Scheduler for PC (XP, W7, W8, W8.1), for operating, configuration, up-/download and graphical display.

Type Overview

J , I
D) 153 x 114 x 59mm
2, 2x RS-485



SMZ 23140 like above, but supply voltage 115V AC

SMZ 5140 Panel/Door, 230V AC (W x H x D) 213 x 125 x 90mm Interfaces 2x RS-232, 2x RS-485



SMZ 25140 like above, but supply voltage 115V

Technical Data

Supply Voltage	see Type Overview
Power Consumption	appr. 9VA max.
Ambient Temperature	0+50°C (32122°F)
Air Humidity	max. 85% r.H., not condensing
Digital Inputs	
Relay Outputs	4x SPDT, isolated, 8A cos phi= 1
	4A inductive / 250V AC
Interfaces	see Type Overview
Real Time Clock	x-tal, automatic summer/winter sw.
Clock / Parameter Backup	min. 3 years without mains voltage
Data Storage	unlimited
Display	LCD, 2 rows, backlighted
Case	plastic, for DIN-rail, foil keypad
Protection	



Please note Safety Instructions on page 7 !

Operating

All settings of the **SMZ** can be made by 4 keys, all parameters will be displayed in plain text on the backlighted LC-Display.

The unit can also be remote operated by the PC-Software 'CV-Scheduler'.



See parameter listings on the next page.

Programming

All parameters are collected on 'pages'. After power-up or latest if no key is pushed for about 4 minutes, the display shows 'SMZ', time and date, the backlight is off. If an error occurs, the display switches to 'current error' and shows this message with flashing text.

Select Pages:

- '\u03c2/\u03c4' select page which contains the desired value or subpage.
- 'RET' enter subpage
- 'ESC' back to previous page

Pages and Parameters - Overview

Change parameters:

- Select desired parameter
- 'RET' starts programming, parameter name flashes.
- (If the unit asks for an identification, see "Access Protection")
 'û/\0.'
 change value (holding the key: value changes continuously)
- 'RET' end of programming, parameter name stops flashing.



Access Protection

A code number protects the unit from accidental operating. The code number depends on time: hours of current time + 10.

Example:

If the internal real time clock works correctly and you want to change a parameter at 9:35 am, you must enter code 19. (13:00 = 23, etc.)

If no key is pressed for about 4 minutes, the code number must be entered again.

Language

The display language can be changed to four languages "*Sprache/lan-guage*" (parameter page).

The languages are : German, English, French and Dutch.

Current Errors	- all current errors	Setup Page	- Address (0)	sensor name 1
Error Page	- the last 120 error messages beginning with the youngest		1	archiving 1
Inputs Menue	- input 1 inp.(ut) x active/passive inp.(ut) x alm delay			sensor name 2 archiving 2 sensor name 3
	inp.(ut) x almremain inp.(ut) x almrepeat inp.(ut) x almreprem(ain) inp.(ut) x priority inp.(ut) x modemmess inp.(ut) x resetmode inp.(ut) x designat. SV-funct. comp.1 (input 12 only) SV-funct. comp.2 (input 13 only) to EEV-off comp.2 (input 14 only) input 16 EEV-off comp.1 (5 only) input 16 only)	Parameter Page	 ddress (78) software plant ident	archiving 3 sensor name 4 archiving 4 sensor name 5 archiving 5 sensor name 6 archiving 6 data logging unit name unit priority change unit type
Modem Page	- modem baudrate modem type modem at K3 modem auto hook modem init tel.no.1, tel.no.2 checkup message kind of mess. (A) kind of mess. (B) kind of mess. (B) protocol (A) protocol (B) protocol (C) phone# prov. (A) phone# prov. (B) phone# prov. (C) phone#target (A) phone#target (B) phone#target (C) eMail address (A) eMail address (B) eMail address (C) messTimeRange(A) messTimeRange(B) messTimeRange(C) repetitions		plain ident serial number DDC-password current time current date summer/winter Sprache/language buzzer with K4 alm repeat buzzer wdg priority 1 wdg apriority 1 wdg off time 1 wdg trials 1 wdg priority 2 wdg alm delay 2 ExtErr priority	
Remote Page	- Address 1 Contents of the display of the unit at up to Address 78 this address	Scan Page	baudrate PC operation mode	
Archive Page	1. connected controller unit sensor 1 least recorded value sensor 3 sensor 6 up to last connected controller unit		address x scanmode line baudrate alm delay comm alm delay mess priority act.val interval setp.interval overflo.priority line units 0-15 line units 16-31 line units 32-47 line units 348-63 line units 64-78	

How to reset Error Messages	How to enter Message Texts
Error Messages see page 4 Manually resettable messages are:	First of all you have to select the parameter where the text can be enter then start programming by pressing " RET ":
 Error messages from the internal digital inputs. "inp. x reset mode" (x depends on input) must be set to "manual or auto", "man. after fail." or "manual". 	Parameter name and the first character start flashing
How to reset	
 Enter page "Current Errors", select message and press "RET". (If an error message has been occured, you enter the page automatically by pressing the "ESC" key several times.). If an error message on the network is still present the message will be 	By "RET" you select the position of the new character
repeated after a few minutes. If an error from a digital input is still present, the message will be repeated after (<i>inp. x almrepeat</i> , input pages).	
 Instead of a key, digital input #16 can be used as an external reset input. Set parameter "reset input" on input page 16 to 'yes'. 	presentable characters appear one by one
To reset, connect input 16 to mains voltage.	
	Pressing " RET " again moves the cursor to the next character position
	A
• Errors from units on the network can only be recognized by the SMZ if this units are listed on the	and you can select the next character by the up/down keys.
Scan Page' resp. 'Setup Page'.	
 In opposition to a manual reset by keys, the alarm relay state <u>will not change</u> if a reset is initiated by a PC. 	If you have entered the desired text that way, you can leave the parameter by "ESC".

Readout the Internal Archive

'仓/圦'	Select 'Archive' Page	archive page	<u>Moving di</u>	rectly to a specific date	
		11.02.04 10.00	While any	value of this sensor is displayed:	
'RET'	Address and type of the first connected unit appears	Adr(5) TKPxx30 test unit 1	"RET"	"change year" flashes	11.02.04 9:15 6.5°C
'仓/圦'	Select desired unit	Adr(6) TKPxx30 test unit 2	"仓/圦"	Select year if necessary	change year 11.02.04
'RET'	"sensor 1" of this unit with its designation appears	sensor 1 freezer room	"RET"	"change month" flashes	change year 11.02.03
'①/끇'	Select desired sensor	sensor 6 freezer room	"仓/圦"	Select month if necessary	change month 11.02.03
'RET'	The last stored value with date and time of appearance will	(11.02.04 9:45 6.4°C	"RET"	"change day" flashes	change month 11.09.03
	be displayed. The date position changes cvclically to sensor designation		"仓/琭"	Select day if necessary	change day 11.09.03
	and controller type		"RET"	The last recorded value of this day appears	change day 8.09.03
'仓/圦'	Move within the record list of this sensor	(11.02.04 9:30 6.3°C	"仓/圦"	Move within the record list	8.09.03 23:45 5.5°C
'ESC'	Always one step back	(11.02.04 9:15 6.5°C	"ESC"	Always one step back	5.5 C

Recording of Error Messages

Always the last 120 error messages (in operation mode 'automatic': error- and ok-messages), independent from their source, remain stored with date and time of their appearance. They can be read on the 'error page' or recalled by modem.

The description of the error on the display is made in a short form. Examples:

> le01 14.03. 15:14 stock door

Last error #1, the digital input with the name 'stock door' has been activated. Date 14th. march, Time 15:14

le01	14.03	3.	15:16
stock	door	(0}	()

The message 'stock door', has ok-message: been reset. Date 14th. march, Time 15:16.

The form of an displayed error from a networked device can be set by parameter "Error Display" (Parameter Listing).

Examples:

If "Error Display" is set to "unit type", the display shows a message like this:

le04	13.03.	18:42
MiniM	EP(14)	Comm

Last error #4, there is a communication malfunction with the connected MiniMEP with address 14. Date: 13th. march, Time 18:42

If "Error Display" is set to "unit name", the assigned text will be displayed instead of the unit type.

le04	13.03.	18:42
cold	room3	Comm

11 characters max. max. 4

Inputs Menue

The Inputs Menue contains status messages (ok/alarm active) for each digital input, which shows that input is activated or not. With (RET) you enter the individual input pages containing the parameters which determine how the message at this input should be processed.

Parameter	d.o.	Description	Range
input 1	. x	. current state of input 1	stat ok, stat alm active, stat rep delay
up to		with 'RET' you call up the parameter page of	stat rep active, stat alm delay
input 16	. x	the corresponding input (input page) . current state of input 16	
input overview		. Overview about input 1-16	numbers of the active inputs are displayed

Error Page

Contains the last 120 error messages with date and time of their appearance.

Parameter	Description (flashes as long the error is present)
le01 date time	Stored error message #1 with date and time
le120 date time	Stored error message #20 with date and time

Remote Page

Here you will find the parameters for remote control of other controller units within the network

Parameter Name	Description	Range
Address x	.Here you must enter the network address of the unit to be remote controlled After starting by "RET" the message "Initialisation Parameter" appears. If no connection is possible (Timeout), the function can be left by pressing the up/down keys simultaneously. The SMZ is only able to control remote, if it works as "Master" (with or without modem) and its own network address is set to "79".	0-78

Error Messages

1. SMZ-internal error messages on the 'Error Page'

- no error present init the unit was switched on the first time or data loss hard hardware error mon mains voltage was switched on moff mains voltage was switched off wdg1 no feedback from a COOLVision-software with activated watchdog-function wdg2 no feedback from a COOLVision-software with activated watchdog-function comm no communication with a connected controller unit remva connected unit was deleted from the scan page ovfl memory overflow (full) 2. SMZ-internal error messages on the 'error page' and the 'current errors' page error X digital input X is activated. 'error' is the factory set name of this input. If you have entered a specific name, this name appears instead of 'error'.

3. Error Messages of connected controller units

The SMZ show error messages equal to the connected unit itself. Please read the technical manuals of the single types for more information.

Example: Some messages of the cold storage controller TKP 3130:

SiCh security chain open SBr X sensor X broken SSH X sensor X short

- LT X one of the alarm sensors of circuit X has high temperature
- MRC X cooling of circuit X has exceeded OPC X alarm on digital inp. X, assigned as alarm input
- DOR X door contact of circuit X open too long.
- number of defrost events without termination by temperature exceeded in circuit X, DEF X maybe too many ice or heater malfunction.

Information Messages

- COon controller unit switched ON by interface or by optocoupler COof controller unit switched OFF by interface or by optocoupler OFF X circuit X switched off by interface or by optocoupler

Input Pages

S Each of	the 16 digital inputs ow	n a page with parameters	which determine how an c	occured error message should be processed.
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Parameter	d.o.	Description	Range	Factory Settings
inp.(ut) x		. Fixes, if the input reacts on mains voltage (active) or 0V (pass.)	active/passive	active
inp.(ut) x alm delay		. This timer must be run down before a message will	00:00 to	00:00
		be generated	12:00 h:m	
inp.(ut) x almremain	. X	. Remaining time until a message will be generated		
inp.(ut) x almrepeat		. If a message from an input will be reset even though	00:00 to	00:00:00
		the error is still present, the message will be	12:00 h:m	
		repeated after this timer is run down.		
inp. x almreprem(ain)	. X	. Remaining time up to alarm repetition		
inp. x priority		. Which relay must forward the message ?	1/2/3/4	1
the second second second second		(single relays or relay combinations possible)		
inp. x modemmess		. Should this message be forwarded by modem ?	yes / no	yes
inp. x resetmode		. How the message should be reset ?	manual er auto	manual or auto
		manual = manually only		
		auto - automatically only manual after error - manually but only if error is removed	auto	
		manual area anto = manually or automatic that means a	manual	
		reset can be made manually although an error is still		
		nresent Alarm repetition is active. If the error is removed		
		the error message will be reset automatically		
inp. x designat		Designation for this input resp. error.	anv	error 1
··· [-····		All important characters of the alphabet can be used.		
SV-funct. comp.1		. (input 12 only) this function closes all solenoid valves	ves / no	using the MSR eco 3130
		of TKx cold storage controller units assigned to compound 1	or 31	40 the inputs 12-15 with
SV-funct. comp.2		. (input 13 only), like input 12, but compound 2	yes / no	ial functions cannot be
EEV off comp. 1		. (input 14 only) limits the aperture rate of all Electronic	yes/no used	if cold storage control-
		Expansion Valves at controllers assigned to compound 1	lers a	are connected behind the
EEV off comp. 2		. (input 15 only) like input 14, but compound 2	yes / no MSR	eco.
reset input		. (input 16 only) mains voltage effects like a reset key	yes / no	

Modem Page:

This page contains all necessary parameters for controlling specialized modems. **Standard modems will not work** with a few of this parameters:

Parameter Name	d.o.	Description	Range	Factory Settings
modem - baudrate		. Transmission speed and communication parameters	1200.N.8.1	9600. N.8.1
		of data from or to the modem.	to 19200,N,8,1	, ,-,
modem type		. Type of the used modem. The settings	Standard,	Standard
21		SMS FAX EMAIL ans INSYS only work with specialized	SMS FAX EMAIL, GSM, INSYS	
		modems with specific features (e.g. MDM-1002 / 3002),		
		the setting GSM works with a wireless modem only.		
modem at K3		. Supply voltage of the modern switched by rel. K3 ?	yes / no	yes
modem auto hook		. Modem hangs up automatically if data transmission fails	yes / no	yes
modem init		. Init string for the connected modem (individually on type)	20 char. max	AI&FS0=1&W
		Modemtype "Standard":		
		Modemtype "MDM 10027 3002":	AT = 0.0000000000000000000000000000000000	
		Modernitype GSM	AI 50= 1+CPIN=0000	
tol no. 1		Noderniype INSTS	AI&F30=173	
tel no 2		2nd telephone number the modern must dial	22 char may	
checkup message		Daily at that point in time the SMZ rings up and		off
checkup message		tries to transmit a checkup message to a PC	00.00 to 23.59	011
kind of mess	(A)	error message will be forwarded as	off SMS FAX Email	off
protocol	(A)	the necessary protocol for this kind of message	automatic Mobilcom A TAP	automatic
p. e.e.ee.			D1 TAP. D2 UCP. PSTN.	
phone# prov	. (A)	. phone# of the provider for SMS/eMail/Fax services		
phone#target	l. (A)	. phone # of the target (mobile phone resp. fax).	For sending an SMS,	
Attention: Each		Additionally, the code# for the kind of service	insert mobile phone # only	
provider has		must be entered ahead of the number.		
different codes !!		If you want to send eMails, the code# for mailservices		
		of your provider must be entered here.		
eMail address	l. (A)	. Address, if this kind of message is an "eMail"		
messTimeRange	. (A)	. period of time the messages will be transmitted	0 h - 0 h (=24 hrs.)	~
kind of mess.	l. (B)	. error message will be forwarded as	off, SMS, FAX, Email	Off
protocol	. (В)	. the necessary protocol for this kind of message	automatic, Modilcom_A_IAP	automatic
nhonott prov		shanatt af the sea idention CMC (aMail/Eau aan isaa	D1_IAP, D2_UCP, PSIN,	
phone#prov	. (B)	. phone# of the provider for SMS/eMail/Fax services	For conding on SMS	
Attention: Each	. (Б)	Additionally the codeff for the kind of sonvice	incort mobile phone # only	
provider bas		must be entered abead of the number	Insert mobile priorie # only	
different codes !!		If you want to send eMails, the code# for mailservices		
unerent codes !!		of your provider must be entered here		
eMail address	(B)	Address if this kind of message is an "eMail"		
messTimeRange	. (B)	period of time the messages will be transmitted.	0 h - 0 h (=24 hrs.)	
kind of mess.	. (C)	error message will be forwarded as	off, SMS, FAX, Email	off
protocol	l. (C)	. the necessary protocol for this kind of message	automatic, Mobilcom A TAP	automatic
	l`´		D1_TAP, D2_UCP, PSTN,	
phone# prov	. (C)	. phone# of the provider for SMS/eMail/Fax services		
phone#target	. (C)	. phone # of the target (mobile phone resp. fax)	For sending an SMS,	
Attention: Each		Additionally, the code# for the kind of service	insert mobile phone # only	
provider has		must be entered ahead of the number.		
different codes !!		If you want to send eMails, the code# for mailservices		
		or your provider must be entered here.		
		. Address, if this kind of message is an "eiviali"	0 + 0 + (-24 + m)	
ropotitions may	. (C)	. period of time the messages will be transmitted	0.63	2
		SMS/FAY_modem		∠
repetit interval		Time duration up to a repetition	10 min - 17 h	15 min

Setup Page

This page contains the individual settings for the single sensors and their recording

Parameter Name	Description	Range	Factory Settings
<adr (x)=""></adr>	First address on the databus. If no unit is connected with this	Select desired	
	address, the display shows "" instead of controller type.	address by <☆/↓>	
(Address (x) Controller	······································	To register a unit	
Type)		manually, enter	
	If no controller unit appears although connected, you can search	subpage by <ret></ret>	
	automatically by "line units" (Scan Page) or register it manually.		
<adr (x)="" type=""></adr>	If a controller unit is registered at an address, it appears on the		
Add (x) Type>	display with address, type and unit designation	to a subpage with	
	(= position designation)	further settings for	
		this unit	
Settings for each unit on	the databus:		
sensor name 1	Position designation for sensor 1 of the unit	16 char any	
archiving 1	Should the values of this sensor be copied to internal archive ?	On, Off	On
sensor name 2	Position designation for sensor 2 of the unit	16 char., any	
archiving 2	.Should the values of this sensor be copied to internal archive?	On, Off	. Off
sensor name 3	Position designation for sensor 3 of the unit	16 char., any	
archiving 3	Should the values of this sensor be copied to internal archive?	On, Off	Off
sensor name 4	Position designation for sensor 4 of the unit	16 char., any	0."
archiving 4	. Should the values of this sensor be copied to internal archive ?	On, Off	Off
sensor name 5	Position designation for sensor 5 of the unit	16 char., any	0#
sonsor name 6	Desition designation for sonsor 6 of the unit		
archiving 6	Should the values of this sensor be conied to internal archive ?	On Off	Off
data logging	On = All data of this controller unit will be stored by the internal	On Off	On
	data logger system with the set intervals		
	Off = No data of this controller unit will be stored.		
	This setting is independent from the additional internal archive .		
unit name	.Designation (name) of this controller unit	16 char., any	
unit priority	In opposite to the global priority settings on the	relay 1 - 4	
	Scan Page, you set here the relay or relay group	also combined	
	used to forward an alarm of this specific controller.		
change unit type	. Here you can change the type of controller at this		
	Attention II: If the controller type will be changed		
	all stored data of the old unit are lost!		

Scan Page

The scan page contains parameters for network connection.

Parameter Name	Description	Range	Factory Settings
mode	Basic operation mode of the SMZ	slave	Slave
(operation mode)	"slave" = SMZ works as alarm unit only (Scanmode auto "off").	masterstandalone	
	"masterstandalone" (Scanmode autom. "error mode")	master w(ith) modem	
	"master w.modem." (Scanmode autom "connect mode")	automatic	
	"automatic" = SMZ works as active frontend.		
	If the display shows " ", "Scanmode" or		
	"Quitmode" (input pages) has been changed afterwards.		
address x	Address of the SMZ in a network. In modes		78
	"Master" and "Automatic" this address will be set to '79		
soon modo	automatically, which is necessary for master operation.	off connect mode	
scan mode	. The kind of processing recognizes enors norm the network	arror modo	
	mode SMZ is not active but works as alarm message unit	error mode autorosot	
	"connect mode": set automatically if operation mode =	automatic	
	"master w modem" All recognized error-/ok-messages	datomato	
	from the network can be transmitted by the modem		
	"error mode": set automatically if operation mode =		
	"masterstandalone". Recognized errors from the		
	network will be forwarded by the relays and must be		
	reset manually.		
	"f.mode autoreset" is equal to "error mode", but the relays will be		
	reset automatically after the end of error message.	1000 11 0 1	
line - baudrate	I. I ransmission speed and communication parameters		9600, N, 8, 1
alm dolov comm	Of data within the controller network	19200,IN,8,1	00:05
aim delay communication	. Delay lime for communication disturbances		00.05
	incorrect haudrate or broken cable	00.30 111.1111	
alm delay mess	Delay time for messages from other units in network	0-90 min	2 min
priority	Which relay must forward a message from the network?	1/2/3/4	2
act.val interval	The time between two recordings of actual sensor values	0:031:00 hh:mm	0:15
setp. interval	The time between two recording of setpoints and other		24:00
	parameters	hh:mm	
overflow warning	.Do you want to get an error message prior to the	yes/no	no
-	memory is full and you haven't fetch the data?		
overflo.priority	Select here which relay or relay group should	relay 1 - 4	
line unite 0 15	torward the memory overflow error message	also combined	
line units 0-15	Select parameter (RET) opter ident No. (if pageson)	the start of automatic searc	ch for connected controllers
line units 10-31	(PET) parameter (RET), enter ident. No. (II necessary)	xisting entries, e.g. device	and probe names, will be
line units $48-63$	SMZ starts searching for connected units Please note dele	ted. If only new controller	s should be added, please
line units 64-78	the transmission speeds (haudrates) of the single units	r them on the Setup Page a	at <adr>.</adr>

Parameter Page

Contains basic settings. Parameters marked by an "X" are 'display only' (column d.o.) and cannot be changed.

Parameter Name	d.o.	Description	Range	Factory Settings
software	. x	Software version of this SMZ + additional info	.additional info: "pro" = data logger already unlocked by PIN-code	
plant ident serial number	X	Name of this refrigerating plant Serial number of this SMZ-Unit	.any, max. 16 char	.ELREHA .unique
DDC-password		Necessary password to access to the SMZ via data connection from a PC-software. all recordings depend on this time	.any, min. 5 max.8 char.	
current date summer/winter		summer/winter switching on/oFF	.none, EU since '96	.EU s. 96
Sprache/language		display language	.deutsch, english francais, Nederlands	.deutsch
error display		If the error message of a networked unit is displayed, the unit can be identified either by its type and address (e.g. MiniMEP (14)) or a specific text (11. characters max.) The selected mode will be used also with transmitting an SMS	unit type, unit text	.unit type
buzzer with K4		Relay #4 works as buzzer relay. This relay can be	.yes / no	.no
almrepeat buzzer		Alarm repetition time of the buzzer	.0:00 to 24:00 hh:mm / oFF	.0:05
wdg priority 1		Watchdog function. If the external PC-software doesn't work any more, this relay interrupts the supply of the PC and starts it up again after 'wdg off time 1' is run down.	.1/2/3/4	
wdg alm delay 1		Delay time for the watchdog function	.00:02 to 00:30 hh:mm	:
wdg off time 1		How long the PC should remain switched off ?		.00:10
wdg trials 1		How often the SMZ should try to restart the PC ?	.0-20, endless	.5
wdg priority 2		Watchdog function. If the external PC-software does not work any more, this relay can be used for forwarding an alarm message.	.1/2/3/4	
wdg alm delay 2		Delay time for the watchdog function		:
extĔrr priority		External errors, that means errors which are transmitted from the PC-Software via RS-232, can be forwarded by this relay.	.1/2/3/4	
baudrate PC		Data transmission speed from/to the PC, can be reduced e.g. for slower PC's	.120057600 N, 8, 1	.57600

CONNECTION INFORMATION & SAFETY INSTRUCTIONS



The guarantee will lapse in case of damage caused by failure to comply with these operating instructions! We shall not be liable for any consequent loss! We do not accept liability for personal injury or damage to property caused by inadequate handling or non-observance of the safety instructions! The guarantee will lapse in such cases.

This manual contains additional safety instructions in the functional description. Please note them!



If you notice any damage, the product may <u>not</u> be connected to mains voltage! Danger of Life!

- Danger A riskless operation is impossible if:
 - The device has visible damages or doesn't work
 - After a long-time storage under unfavourable conditions
 The dovice is strongly draggled or wot
 - The device is strongly draggled or wet
 After inadequate shipping conditions
 - Never use this product in equipment or systems that are intended to be used under such circumstances that may
 - intended to be used under such circumstances that may affect human life. For applications requiring extremely high reliability, please contact the manufacturer first.
 - The product may only be used for the applications described on page 1.
 - Electrical installation and putting into service must be done from qualified personnel.
 - During installation and wiring never work when the electricity is not cut-off ! Danger of electric shock!
 - Never operate unit without housing. Danger of electric shock!
 - All 'PE' terminals must be connected to ground.
 Danger of electric shock! Additionally, the internal noise filter will not work, faulty indicated values may occur.
 - Please note the safety instructions and standards of your place of installation!



Before installation: Check the limits of the controller and

- the application (see tech. data). Check amongst others:
 Make sure that all wiring has been made in accordance with the wiring diagram in this manual.
- Supply voltage (is printed on the type label).
- Environmental limits for temperature/humidity.
- Maximum admitted current rate for the relays. Compare it with the peak start-up currents of the controlled loads (motors, heaters,etc.).
- Outside these limits malfunction or damages may occur.
- Sensor/probe cables must be shielded. Don't install them in parallel to high-current cables. Shielding must be connected to PE at the end close to the controller. If not, inductive interferences may occur.
- Please note for elongation: The wire gauge is not critical, but should have 0,5mm² as a minimum.
- Mounting the controller close to power relays is unfavourable. Strong electro-magnetic interference, malfunction may occur!
- Take care that the wiring of interface lines meets the necessary requirements.
- All used temperature sensors must be identical. Never use different types at the same time. This will not work.
- TF-type sensors are not designed for being immersed in fluids permanently. In such a case, always use dip-fittings. With extreme temperature variations, the sensor may be damaged.



The use of a dry, lint-free cloth and household agents is sufficient to clean the product.

Never use acids or acidic fluids! Risk of damage!

Practise Example: Cooling Plant with local PC Monitoring



The requests:

Data recording and remote control should be made by a local PC. The PC itself is monitored by a watchdog software, relay #4 (N/C-contact) switches the supply voltage for the PC.

The controller units are connected to the SMZ by the 'Line485' interface.

The PC is connected to the 'PC485' interface of the SMZ via an interface converter (series SSC). The SMZ generates error messages if no voltage is present at its inputs and controls the communication from/to the controller units down the line.

Start-Up

If the SMZ will be switched ON, the display shows the current error, the backlight is off. If you press any key, the backlight of the display will switch on. The parameterizing order:

Functio	on	Parameter	Value
On Parame Set curl Set curl Change Relay 4 How lor How lor How off	ster Page: rent time rent date ss for summer/winter switching e display language I should switch the supply voltage of the PC ng after a PC-software crash the PC should be restarted ? ng the PC should remain switched off ? ten the SMZ should try to restart the PC ?	current time current date summer/winter. Sprache/language wdg priority 1 wdg alm delay 1 wdg off time 1 wdg trials 1	EU since '96 english 4 suggestive: 10-20 min. 1 min. minimum 3-5 times
On Scan P • Set ope • Check i • Check i • Adjust a • Adjust a • Which i controll	age: eration mode network address (Was set automatically) scan mode (Was set automatically) alarm delay time for communication disturbances alarm delay for errors detected by the digital inputs relay should forward the error messages from ers in the network ?	mode addressscan mode alm delay comm . alm delay mess priority	automatic must be "79" must be "automatic" 5 minutes min. 5 minutes min. as you want
 Check, 	, if all controllers in the network got the correct 'address in network' (1-	77). A network address may no	ot exist twice in the network !
Check corr For connect For connect For a connect	rect data transmission speed (Baudrate): ted controllers via interface "Line 485" ted modem or PC via interface "Modem 232" ected PC via interface "PC 485"	"Baudrate Line" (Scan Page) "Baudrate Modem" (Modem Pa "Baudrate PC" (Parameter Pag	ge) e)
 Scan no Select enter a Paran SMZ s 	etwork for controller units t parameter ' <i>line units</i> ' (RET) access code if necessary (RET) neter name flashes (RET) starts scanning the network for controller units	Alternative: Enter type number	manually (Setup Page).
 Set pro Enter Ir 	cessing criteria for the SMZ's digital inputs. You will find them on the individu nputs Menue (RET) and select Input Page of the desired input (RET).	al input pages.	
- Input a - Delay - Time u - Which - Shoul - How t - Enter	active or passive time of the input up to alarm repetition after a reset relay should forward the error message ? d this message be forwarded by the modem ? he error message should be reset ? designation of this input.	inp. x inp. x alm delay inp. x alm repeat inp. x priority .inp. x modemmess inp. x resetmode inp. x designat.	passive as desired as desired as desired se desired see Input Page as desired
With this p	arameters you have entered the basic settings. Further changes of par	ameters depend on your reque	ests.
• <u>Test of</u> Remov After 'w	the Watchdog Function: e interface cable from the PC and wait until the supply voltage of the PC will 'dg off time 1' is run down, the PC must restart with all necessary programs.	be switched off by relay #4.	
i Ou	r recommendation		
Set 'mo	de' (Scan page) to "automatic". Use all other modes only if an old SMZ or B	SA unit should be replaced.	
Use the for prog	e PC-software COOLVision-MES gramming the SMZ	SM22900 - Advesser 29 SM2 - Subsec SM2 -	Isg 1 1 2 3 4



PC-Configuration

aktueller Fehler kein Fehler	41
Meldesingänge Betriebsarten Modern Extern Partyline	Fehler Fehlerhistorie
1 2 3 4 5 6 7 8 9 10 11 12 13 14	15 16
Meldeeingang 1 Meldetest Kühlhaustür	Optokoppler 0 V
Warnverzögerung 00:15 HH:MM	Priorität Relais 1
Warnwiederholung	Quitiermodus Hand oder Auto 💌
Restlaufzeit Wanwerzögerung HH:MM:SS	Modernweitermeldung Nein 💌
Deuterterby/anniatebalance	Modus Aktiv



The requests:

A Cooling Plant is equipped with controllers which are connected by a databus.

- Detecting error messages from controllers on the data bus
- Recognizing error messages from internal digital inputs (0V = error)
 Automatic forwarding by modem to a local or
- remote error message head office
 Automatic fetching and processing of
- Optional: Local PC, if the customer wants to
- operate the plant too.Monitoring and automatic initializing of the
- Monitoring and automatic initializing of the modem.

Start-Up

If the SMZ will be switched ON, the display shows the current error, the backlight is off. If you press any key, the backlight of the display will switch on. The parameterizing order:

	Function	Parameter	Value
On • •	Parameter Page: Set current time Set current date Set rules for summer/winter switching Change display language	current time current date summer/winter Sprache/language	.EU since '96 .english
On • •	I Scan Page: Set operation mode Check network address (Was set automatically) Check scan mode (Was set automatically) Adjust alarm delay time for communication disturbances Adjust alarm delay for errors detected by the digital inputs Which relay should forward the error messages from controllers in the network ?	modeaddress. scan mode alm delay comm alm delay mess priority	.automatic .must be "79" .must be "automatic" .5 minutes min. .5 minutes min. .as you want
On • •	Modem Page: Set data transmission speed to the modem (This factory setting can be used with each modern modem) Select relay #3 for switching the modems power supply Enter Initstring for the modem (standard modem) First telephone number to dial Second telephone number to dial At which daily point in time the SMZ should transmit a check-up message ?	modem - baudrate modem at K3 modem init tel.no.1. tel.no.2. checkup message	.57600 .yes .AT&FS0=1&W .any .any .any

• Check, if all controllers on the data bus got the correct 'address in network'. A network address may not exist twice in the network !

Scan network for controller units

- Select parameter 'line units...' (RET)

- Enter access code if necessary (RET)
- Set processing criteria for the SMZ's digital inputs. You will find them on the individual input pages.
 Enter Inputs Menue (RET) and select Input Page of the desired input (RET).

- Input active or passive	inp. x	passive
- Delay time of the input	inp. x alm delav	as desired
- Time up to alarm repetition after a reset	inp. x alm repeat	as desired
- Which relay should forward the error message ?	inp. x priority	as desired
- Should this message be forwarded by the modem ?	inp. x modemmess	as desired
- How the error message should be reset ?	inp. x resetmode	see Input Page
- Enter designation of this input	inp. x designat	as desired

With this parameters you have entered the basic settings. Further changes of parameters depend on your requests.

Our recommendation

Т

- Set 'mode' (Scan page) to "automatic". Use all other modes only if an old SMZ or BSA unit should be replaced.
- Connect a laptop to the interface 'PC-232' and program the SMZ by using the comfortable PC-software COOLVision-MES.

Connection of an optional local PC

SMZ 3140: Via interface PC 485. Therefore, the PC must be equipped with an RS-485 interface or connected via an SSC Interface Converter.

SMZ 5140: Via interface PC 485 (cable lenght 1000m max.) or PC 232 (cable lenght 15m max.).

Practise Example: Cooling Plant with error message transmission to several mobile phones



The requests:

- . Detecting error messages from controllers on the
- data bus Recognizing error messages from internal digital inputs (0V = error) Automatic forwarding by a specialized modem/ provider (DTAG german telekom) to the mobile phones of 2 servicemans at different points in time
- Additionally, the message must be sent as email for archiving
- Optional: Local PC, if the customer wants to operate the plant too.
- Monitoring and automatic initializing 20f the modem.

Start-Up

If the SMZ will be switched ON, the display shows the current error, the backlight is off. If you press any key, the backlight of the display will switch on. The parameterizing order:

	Function	Parameter	Value
On	Parameter Page:		
•	Set current time	current time	
•	Set current date	current date	
•	Set rules for summer/winter switching	summer/winter	EU since '96
•	Change display language	Sprache/language	. english
On	Scan Page:		
•	Set operation mode	mode	automatic
•	Check network address (Was set automatically)	address	must be "79"
•	Check scan mode (Was set automatically)	scan mode	must be "automatic"
On	Modem Page:		
•	Set data transmission speed to the modem	modem - baudrate	57600
	(This factory setting can be used with every modern modem)		
•	Select modem type	modem type	SMS FAX EMAIL
•	Select relay #3 for switching the modems power supply	modem at K3	yes
•	Enter Initstring for the modem	modem init	AT+tixi=0S0=1x3&W
•	The 1st of the 3 kinds of message should be a SMS	kind of mess. (A)	SMS
•	The transmission protocol used by the provider	protocol (A)	PSIN
•	The phone # of the servicecenter DTAG (German Telekom)	phone# prov (A)	0193010
•	I ne mobile phone# of serviceman 1	pnone#target (A)	any
	Space of time the messages will be transmitted	kind of mana (P)	any, e.g. betw. 61-1511
	The transmission protocol used by the provider	protocol (B)	
	The phone $\#$ of the service center DTAG (German Telekom)		0193010
•	The mobile nhone# of serviceman 2	nhone#target (B)	any
•	Snace of time the messages will be transmitted	messTimeRange (B)	any e.g. betw 15h-24h
•	The 3rd of the 3 kinds of message should be an email	kind of mess. (C)	EMAIL
•	The transmission protocol used by the provider	protocol (C)	PSTN
•	The phone # of the servicecenter DTAG (German Telekom)	phone# prov. (C)	0193010
•	Provider-Code# for transmission as email	'phone#ťarget`(Ć)	8000
•	Email address of the recipient	eMail address (Ć)	any
•	Space of time the email will be transmitted	messTimeRange (C)	always, 0h-0h
•	Set alarm delay time for communication disturbances	alm delay comm	5 minutes min.
•	Set alarm delay for errors detected by the digital inputs	alm delay mess	5 minutes min.
•	Which relay should forward the error messages from		
	controllers in the network ?	priority	as you want
•	Check, if all controllers in the network got the correct 'address in network'.	A network address may not ex	ist twice in the network !
•	Scan network for controller units		
	- Select parameter 'line units' '(RFT)		
	- Parameter name flashes (RET)		
	- SMZ starts scanning the network for controller units	Alternative: Enter type number	manually (Setup Page).
	Preset processing criteria for the SM7's digital inputs. You will find them on the in	dividual input pages	
-	Enter Inputs Menue (RET) and select Input Page of the desired input (RET)	arriadal input pages.	
	- Input active or passive	inp. x	. passive
	- Delay time of the input	inp. x alm delay	as desired
	- Time up to alarm repetition after a reset	Inp. x aim repeat	as desired
	- Which relay should follward file effort message ?	inp x modemmess	as desired
	- How the error message should be reset ?	inn v resetmode	see Innut Page
	- Enter designation of this input	inn x designat	as desired
Wi	th this parameters you have entered the basic settings. Further changes of p	parameters depend on your rec	juests.
Ī	Our recommendation		

Set 'mode' (Scan page) to "automatic". Use all other modes only if an old SMZ or BSA unit should be replaced.

Connect a laptop to the interface 'PC-232' and program the SMZ by using the comfortable PC-software COOLVision-MES.

Connection of an optional local PC SMZ 3140: Via interface PC 485. Therefore, the PC must be equipped with an RS-485 interface or connected via an SSC Interface Converter. SMZ 5140: Via interface PC 485 (cable lenght 1000m max.) or PC 232 (cable lenght 15m max.).

Example: Plant with Message Forwarding to Mobiles and Data Transmission to a Service-PC



The requests:

- Detecting error messages from 10 controllers on the data bus
- Recognizing error messages from
- Automatic forwarding by a specialized modem/ provider (DTAG german telekom) to the mobile phones of 2 servicemans at different points in time
- Additionally, the message must be sent as email for archiving
- All parameters of the connected controllers must be recorded by the SMZ and fetched by a service-PC from time to time
- The customer wants to read the actual values of all 10 control sensors at the display of the SMZ, because there is no local PC available.

Start-Up

If the SMZ will be switched ON, the display shows the current error, the backlight is off. If you press any key, the backlight of the display will switch on. The parameterizing order:

	Function	Parameter	Value
On	Parameter Page:		
•	Set current time	current time	
•	Set current date	current date	
•	Set rules for summer/winter switching	summer/winter	EU since '96
•	Change display language	Sprache/language	english
05	Soon Bager	, 00	0
	Set operation mode	mode	automatic
	Check network address (Mas set automatically)	address	must be "70"
	Check scan mode	scan mode	must be "automatic"
On	Modem Page:		
•	Set data transmission speed to the modem	modem - baudrate	
	(This factory setting can be used with every modern modem)		
•	Select modem type	modem type	SMS FAX EMAIL
•	Select relay #3 for switching the modems power supply	modem at K3	yes
•	Enter Initstring for the modem	modem init	AI+tixi=0S0=1x3&W
•	The 1st of the 3 kinds of message should be a SMS	kind of mess. (A)	SMS
•	The transmission protocol used by the provider	protocol (A)	
•	The phone # of the servicecenter DTAG (German Telekom)	pnone# prov (A)	
•	I ne mobile phone# of serviceman 1	pnone#target (A)	any
•	Space of time the messages will be transmitted	mess i imercange (A)	any, e.g. betw. on-15n
•	The transmission protocol used by the provider	KIND OF MESS. (B)	
	The transmission protocol used by the provider		
	The phone # of the servicecenter DTAG (German Telekom)	priorie# prov. (B)	
	The mobile phone# of servicement 2	priorie#largel (B)	dily
	The 3rd of the 3 kinds of message should be an omail	kind of moss (C)	
	The transmission protocol used by the provider	nrotocol (C)	
•	The phone # of the service center DTAG (German Telekom)	nhone# prov. (C)	0193010
	Provider_Code# for transmission as email	nhone#target (C)	8000
•	Email address of the recipient	eMail address (C)	any
•	Snace of time the email will be transmitted	messTimeRange (C)	always 0h-0h
•	Set alarm delay time for communication disturbances	alm delay comm	5 minutes min
•	Set alarm delay for errors detected by the digital inputs	alm delay mess	5 minutes min
•	Which relay should forward the error messages from		
	controllers in the network ?	prioritv	as vou want
	Check if all controllers in the network act the correct laddress in network		eviet twice in the network I
•	check, if all controllers in the network got the correct address in network	. A network address may not	exist twice in the network !
•	Scan network for controller units		
	- Select parameter 'line units' (RET)		
	- Parameter name flashes (RET)		
	- SMZ starts scanning the network for controller units	Alternative: Enter type num	iber manually (Setup Page).
•	Allow 'memory full' error message	overflow warning	ves
	Select relay for forwarding this error message	overflo.priority	
•	Select controller units whose data must be recorded (Setup Page)	data la varia a	
•	Data logging OIV/OFF for this controller	data loggirig	
•	Chie actting is independent from the data loging acttings)	acriiviiig x	
	(This setting is independent from the data loging settings)		

With this parameters you have entered the basic settings. Further changes of parameters depend on your requests.

Þ Our recommendation

- Set 'mode' (Scan page) to "automatic". Use all other modes only if an old SMZ or BSA unit should be replaced.
- Connect a laptop to the interface 'PC-232' and program the SMZ by using the comfortable PC-software COOLVision-MES. • Connection of an optional local PC

SMZ 3140: Via interface PC 485. Therefore, the PC must be equipped with an RS-485 interface or connected via an SSC Interface Converter. SMZ 5140: Via interface PC 485 (cable lenght 1000m max.) or PC 232 (cable lenght 15m max.).

Functional Description

The SMZ x140 consists of several functional parts with different tasks.

These functional parts are:

- Error Message Module with Digital Inputs
- **Communication- and Monitoring** Module
- Data Logger System
- **Remote Control Unit**
- **Relay Module for external Error** Messages
- Watchdog Module
- **Further Functions**

Digital Inputs The SMZ x140 owns 16 mains voltage digital inputs.

Error Message Module with digital inputs

Each input is able to process captured states with presettable criteria.

All inputs are listed on the 'Inputs Menue' with their current state (ok, alarm active, alarm repetition, etc.). Each input owns an 'Input Page' with parameters which determine if the signal should captured (inp.

X) active (voltage present) or passive (no voltage) and how the signal should be processed. The inputs need about 2 seconds to recognize a voltage change.

Special Functions of the Control Inputs

The inputs 12-16 have additional special tasks.

"SV funct. comp.1" (input 12) closes the solenoid valves of all TKP/TKC/EVP cold storage controllers connected to the interface 'Line-485' and assigned to compound 1.

"SV funct. comp.2" (input 13), like above, but compound 2.

"EEV off comp.1" (input 14), limits the aperture rate of all electronic expansion valves controlled by TKP 3150/EVP cold storage controllers which are connected to the interface 'Line-485' and assigned to compound 1.

"EEV off comp.2" (input 15) like above, but compound 2.

"reset input" (input 16), if mains voltage will be connected to this input, all resettable error messages will be reset.

While using the MSR eco 3130 or 3140, the inputs 12-15 with special func-tions cannot be used if cold storage controllers are connected behind the MSR eco.

Error message display

The first line of the display shows "current error", in the second line the preset designation (inp. X designat.) appears flashing.

Relay Outputs

The message will be forwarded time-delayed (inp. X alm delay) by one or more relays (inp. X priority). An information parameter shows the remaining time up to the relay will switch (inp. X almremain). The output relays will always be de-activated and an assigned LED lights up.

A reset of a message can be done manually by keypress or automatically (inp. x resetmode), see input pages.

Buzzer Relay

Relay K4 can be configured to switch an external buzzer or horn with different characteristics (Parameter Page, "buzzer with K4" yes/no). If relay K4 is configured for a horn, this horn can be reset by the first keypress (RET, 'current errors' page). If the timer 'almrepeat buzzer' is run down, relay K4 will be de-activated again.



For an audible alarm with an external horn at relay K4, the priority of the desired error message (inp. X priority) must be set to '4'.

Alarm Repetition

After the alarm has been reset manually, but the error is still present, the relays will switch again after the timer "inp. X almrepeat" is run down. "inp. X almreprem" gives an information about the remaining time up to a new alarm.

Error Message via modem

Error messages can be forwarded via a connected modem ("inp. X modemmess", input pages). This function implies that the SMZ works in mode "automatic" resp. one of the "Master ... "-modes (Parameter Page).

The destination of the messages can be a service head office with PC and the software 'COOLVision', a Fax device, a PC with email-client or a mobile phone.

Real Time Clock

To generate a time stamp for occured error messages, the SMZ x140 contains a realtime clock (current time, current date, parameter page) with automatic summer/winter switching (summer/winter, parameter page).

The summer/winter switching depends on the rules of the european nations which are valid since 1996, but can also be switched off.



These functions are disabled in operation mode "Slave".

Data connection to other controller units

The SMZ x140 is equipped with two RS-485-interfaces. In opposition to the RS-232 interfaces (= COM1 and COM2 at a PC) this interface allows multiple units on the same connection and wire lenghts of up to 1 km.

Each controller unit connected to the data connection must get an individual network address (address x, scan page).

This address must be entered at each individual unit.

The SMZ itself gets the network address '79' (*address x*, scan page) automatically, if it works in the '*Master...*' resp. '*automatic*'-modes.

The units to control must be connected via the interface 'Line-485'. The network addresses of this units can be set in a range within 0 and 78.

If the SMZ does'nt work as a master but as normal alarm unit its own address may also be located within 0 and 78.



No address may be used twice in the network.

Data connection to other controller units

Data will be transmitted with a certain speed (*line -baudrate*). Please make sure that the transmission speed of all units is set to the same value. There are two options to start a connection to other controller units:

Automatic Search

If the parameters "*line units 00-15, line units* ...", are activated, the SMZ starts searching for controller units in the network automatically. If the transmission speed of the SMZ and the speed of the searched units are equal, the units will be found in a few seconds.



With the start of automatic search for connected controllers all existing entries, e.g. device and probe names, will be deleted. If only new controllers should be added, please enter them on the Setup Page at <Adr ...>.

Manual entry

A manual entry is suggestive if you don't want to search automatically or if only one unit in the network has been replaced or added. Enter the "setup page", select desired address and branch to the subpage. This subpage contains all necessary parameters for the new unit.

Operation Modes

- masterstandalone
 (for replacing older units only)
- master w. modem
- slave (standard if the SMZ should work as alarm module only)
- automatic (recommended if the SMZ works as a frontend)

Slave

In this mode the SMZ works as standard alarm module only. All active communication functions are disabled.

Automatic

Standard setting if the SMZ has to control other units remotely or should connect a network to a PC or a modem.

Forwarding Error Messages from the network

Recognized errors will be differenced to 'Error Messages', 'Line Malfunctions' and 'Line Error Messages'.

Line Malfunctions

If Line Malfunctions occur (controller unit switched off, data connection interrupted, incorrect transmission speed) they will be forwarded by the output relays if timer 'alm delay comm' (scan page) is run down. The message appears as current error "line error address x" on the display and will be stored on the error page.

Error Messages

Error Messages will be forwarded after the delay timer 'alm delay mess' is run down.

Priority

The messages can be distributed to 4 priority levels (*priority*, scan page), each with an own relay.

Individual Line Error messages

Error messages from connected controller units (e.g. temperature too high, etc.) can also be distributed to the four priority levels and forwarded by one or more relays

Transmission of Error Messages by Modem

Transmitting error messages by modem to a service host with the software COOLVision should work with any modem. But in practice the products of the most manufacturers have different behaviours, even different models of the same manufacturers differ.

So we recommend to use only the modems we have tested before.



Start a connection SMZ --> PC/COOLVision If an error occurs, the SMZ tries to initialize a connected modem at first. For this purpose the SMZ sends a package of commands to the modem (modem init, scan page), the so-called 'Initstring' or 'Initialization String'. The modem type must be selected before (modem type, modem page).

This initistring switches the modem to the transmit mode. The initistring itself and the data transmission speed (*modem-baudrate*, parameter page) depend on modem type, because of this the parameters are adjustable.

The next step is to dial the entered telephone numbers (*tel.no x*, modem page) to get a connection to a "*COOLVision*"- software.

The SMZ repeats dialing until it gets a connection and the PC-Software confirms a correct data transmission.

While normal operation the SMZ transmits a checkup message to a service-PC at a certain time (*checkup message*, scan page) to indicate that it is ready for operation.

If this message does not reach the PC-software, matching functions can be initiated.

To identify the SMZ (= the plant), an additional plant name will be transmitted, which can be preset at the SMZ (*plant ident*, parameter page).

Start a connection PC/COOLVision --> SMZ

The PC-Software "COOLVision" dials the phone number of the modem connected to the SMZ. If the modem answers, a connection to the plant is only possible if the correct password for this plant is entered. This password must be preset at the SMZ (DDC-password, Parameter Page). If the password is accepted, "COOLVision" has full control over all parameters of the plant.



If a modem connection fails

The reason for a modem connection malfunction can be e.g. a modem crash or a malfunction of the telephone exchange. So it may be suggestive to switch the modem to a defined state before it tries to dial. For this purpose, let relay K3 (terminal 13-12, relay de-activated normally) switch the supply voltage of the modem and set parameter 'modem at K3' (modem page) to 'yes'. If the SMZ must transmit a message and gets no connection, it de-activates the supply voltage of the modem after 3 minutes. Two seconds later it switches the supply on again and tries to transmit the message once more. If the modem gets a connection and no data will be transmitted (e.g. because a telephone network error occurs) the modem hangs up automatically, if parameter 'modem auto hook' (modem page) is set to 'yes'.

Modem supply,

for automatic initialization switched by relay K3, in this example by an SMZ 3140.



Direct PC-Connection

SMZ-5140: A PC can be connected via the interfaces "PC 232" or "PC 485".

The data transmission speed (baudrate) can be set by "Baudrate PC" (Parameter Page).

SMZ-3140:APC can be connected via the interface "PC 485" by using an interface converter (series SSC). The data transmission speed (baudrate) can be set by "Baudrate PC" (Parameter Page). If no modem is used, a PC can also be connected via the "Modem 232" interface, but the data transmission speed must then be set by parameter "Baudrate Modem".



From serial-no. 120, a PC and a modem can be operated simultaneously.



Transmission of Error Messages by Modem as SMS, SMS-Fax or eMail



To transmit error messages as SMS, Fax or Email specialized modems must be used (MDM-3003, Insys for 'SMS in Landline networks'. GSM modems for wireless). These services are impossible with standard modems.

The direct transmission of a SMS to a receiver is impossible. To transmit an SMS-message, the feature "SMS in Landline Networks" of the service providers or a GSM wireless modem must be used (See listing below). "SMS in Landline Networks" has the advantage that no mobile phone contract is necessary, but not all providers offer this alternative.

On the Modem Page of the SMZ you will find 3 kinds of messages (kind of mess. A-C). Each of this can be SMS/Fax/eMail, so it is possible to send e.g. 3 SMS to different recipients at different times or to transmit an error message as SMS, Fax or eMail at the same time.

The messages can be repeated ("repetitions") in adjustable intervals ("repetit.interval").

Message transmission as SMS

In this example we only use 'kind of message A', but B and C are also possible.

- Please use modem MDM-3003 •
- "modem type" = SMS FAX EMAIL "modem init" =AT+tixi=0S0=1x3&W "kind of mess. (A)" =SMS = Matching protocol "Protocol (A)" "phone# prov. (A)" = Number of your service provider "phone#target (A)" = Number of the mobile phone which must receive the message "messTimeRange(A)" = Period of time the messages will be transmitted Depending on parameter "error display" (Parameter Page) the addressee gets either the unit type + address (e.g. MiniMEP (14)) or an individual unit text to identify the error source.



INSYS-Modem: With this modem only sending of SMS is possible. At this time for "SMS in Landline Networks" no international standard exists. Because the development of this service is not completed, changes of protocols, phone numbers and codes may occur. Using the feature "SMS" inside the own networks is unproblematic, but a transmission to foreign networks can make problems. In germany, only the providers 'DTAG' and 'AnnyWay' are able to forward to all networks at this time. Only the providers 'D1' and 'DTAG' are able to forward messages as Fax and Email. Note: The german Telekom wants to cancel the service 'SMS in Landline Networks' from 2018.

GSM-Modem

To use this, you need a mobile phone contract or a matching prepaid card. It only makes sense to use such modems at positions with a good radio contact. Depending on the position of the plant, outdoor antennas may be necessary.

Send messages as FAX

A direct transmission as conventional fax directly to a fax-device is impossible with the SMZ. The MDM-3003-modem sends messages always as SMS, independent from it's destination. Based on an additional information, the provider redirects the message to the desired destination. This additional information is a CODE#, which must be inserted before the phone number.

In the following example we only use 'kind of message B', but A and C are also possible.

- Please use modem MDM-3003 = SMS FAX
- "modem type"
- "modem init"
- "kind of mess. (B)"
- "Protocol (B)"
- "phone# prov. (B)"
- "phone#target (B)" = 99 + Nun FAX-devid
- must rece message "messTimeRange(B)" = Period message

Send messages as eMail

Sending a message as email will be also done by a provider redirection. The MDM-3003-modem sends messages always as SMS, independent from it's destination. Based on the CODE#, the provider redirects the message to the desired eMail address.

In the following example we only use 'kind of message C', but A and B are also possible.

IDM-3003 = SMS FAX EMAIL = AT+tixi=0S0=1x3&W = FAX = Matching protocol = Number of your service provider = 99 + Number of the FAX-device which must receive the message t = Period of time the	 "modem type" = SMS FAX EMAIL "modem init" = AT+tixi=0S0=1x3&W "kind of mess. (C)" = EMAIL "Protocol (C)" = Matching protocol "phone# prov. (C)" = Number of your service provider "phone#target (C)" = 8000 (Code# for eMail) "eMail address (C)" = email address of the recipient "messTimeRange(C)" = Period of time the messages will be transmitted
messages will be transmitted	Provider Services Codes Attention: This codes may differ or changed by the provider. Deutsche Telekom
	If the message should be transmitted as FAX:
	99 (german) + Fax number of destination 98 (english) + Fax number of destination
	If the message should be transmitted as eMail:
	8000 + eMail address

Please use modem MDM-3003

Service provider and services for SMS, Fax and SMS-eMail with the modem MDM-1002 or 3002

Attention: The following numbers are without guarantee, they may differ or may be changed by the provider. The most reliable provider for us in europe till now was DTAG (Deutsche Telekom). !! Service Numbers must be unlocked in the Telephone System !!

Provider	Country	Service	Phone#	Protocol
DTAG (Telekom)	Germany	. SMS to all mobile phone networks + Fax (Code 99) and Email (8000)	0193010	PSTN
Anny Way (Siemens)	Germany	. SMS to all mobile phone networks		PSTN
D1 Telekom	Germany	. SMS to the own network only + Fax (Code 99) and Email (8000)	0171 2521002	D1_TAP
E-Plus	Germany	. SMS to the own network only	0177 1167	D1_TAP
Viag Interkom	Germany	. SMS to the own network only		D2_UCP
Vodaphone D2	Germany	. SMS to the own network only	0172 2278020	D2_UCP
A1 Austria	Austria	. not longer available, please cont	act the provider	

Data Logger



The SMZ x140 has an integrated Data Logger System, suitable for recording measured values and parameters of the connected controller units. Recorded data can be fetched by a local or a remote PC.

Data recording

With connecting a controller (see "Data connection to other controller units") the SMZ is able to record all measured values and parameters of this unit to a nonvolatile memory in presettable intervals. Two (2) separated interval settings for actual values and parameters help to limit the amount of data.

In practise, actual values must be recorded in 15 minute intervals, for setpoints and other parameters one record a day is adequate.

Interval setting for Actual Values

Use parameter "*act.val interval*" (Scan Page) to set the timing for recording actual values.

Interval setting for Setpoints/Parameters

Use parameter "*setp. interval*" (Scan Page) to set the timing for recording setpoints and other parameters.

Data Recording ON/OFF

Each connected unit can be excluded from data recording by parameter "*data logging*" (Setup Page).

Storage Capacity

The storage capacity of the SMZ depends on number and type of the connected controller unit and the set recording interval.

An extreme example would be 64 connected TKP controllers, in this case the memory has a capacity of 3 days only (15min/24h interval). Within this period, the data must be fetched by a host.

See some practise examples at the right margin of this page.

Removing Controller Units

If controllers are removed whose data are recorded before, these data will not be erased but can be read as if the controller unit would be available yet.



Fetching data by a PC

To download data from the SMZ the software "COOLVision-Scheduler" is used.

The COOLVision-Scheduler cares for automatic download of recorded data from any number of cooling plants. This enables you to operate an "Alarm Head Office", which need no operation by personnel.

The fetched data will be stored in several databases and can be processed by the 'Analysis Module'.

Download and presentation of recorded
data is only possible, if the data logger of

the SMZ was unlocked before. For this purpose, you must enter an Unlock-Code at the PC-Software, which you got before.

This code is suitable to unlock one SMZ only. If there is no Unlock Code available, the software can be used to read current data and to configure controller units only.

How to check if your data logger system is unlocked:

Read parameter '*software version*' on "Parameter Page". If the version No. has the extension "pro", then your data logger is ready to use.

If memory is full

About to the memory is full, the SMZ generates an error message ("overflow warning", Scan Page). With "overflo.priority" (Scan Page) you select the relay to forward the message.

Set position designations

To enhance survey, each connected controller and each sensor position can get an individual name with up to 16 characters. If the connected controllers are able to store such a name in their own memory (depending on type), they take it over from the SMZ automatically.

- Name/designation for controllers:
- Parameter "*unit name*", Setup Page • Name for single sensor positions:
- Parameter "sensor name x", Setup Page

1

The data logger system works with the FIFO principle (First In/First Out), i.e. if the memory is full, the oldest values will be overwritten by the newest ones.

Examples of Storage Capacities in Practise

<u>Numb.</u>	<u>Type</u>	<u>Act.</u>	<u>Setp.</u>	Storage
of units		Interval	Interval	Capacity
64	.TKP	. 15 min	.24 h	3 days
32	.TKP	. 15 min	.24 h	6 days
10	.TKP	. 15 min	.24 h	18 days

The data logger system always stores all values and parameters of a connected controller.

Data can be recorded from the
following controller units:
BMT
EGS
EVP 1130 / 1140
EVP 3150-2 / 3160 / 3167 / 3168 / 3170
EVP 3260
HMR 3168
MINIMEP (ab Version 2.20)
MSR, MSR eco 3130, MSR eco 3140,
NA
RFR
SM 501
SMP
SMZ (units in slave mode only)
IAR
TKPxx30, TKPxx40, TKPxx50
IRE
VBZ 3004/3006, 3004-2/3006-2

	박 CV-Scheduler	
	Datei Projekt 2	
B CV-Scheduler		
Projekt Schedul Letzte Übertragung	Bezeichnung Scheduler Verbindung Identifikation C Aus Image Monte Verbindung Statt 0000 Arlage Monte To Direntag Arlage Monte To Direntag Stasse Viederholungen 10 Viederholungen To Direntag Viederholungen Viederholungen To Direntag Viederholungen Voorhentich Viederholungen 10 Voorhentich C Samstag Viederholungen	
Scheduller v0.31	Teleform.	
06.02.2004.09.55.58 - Programmstart	US.UZ.2004 US:SS:SS - Programmistan	
	06.02.2004 0	J9:54 //
	The COC)LVision-Schedul

Local Archive System

The Local Archive System of the SMZ takes over recorded actual values from the data logger. This allows the user to read them at the display together with date and time of their occurence. Example:



With "*archiving ja/nein*" (Setup Page) you determine for each sensor, if its recorded values should be readable on the display.



This values also remain in the Local Archive, if the data logger is overwritten again.

This values are taken over to the Local Archive:

- Temperature in the range -100°C...+100°C, Resolution 0,1K
- Sensor broken
- Sensor short circuit
- Sensor OFF
- Temperature fallen short of -100°C
- Temperature has exceeded +100°C

Read Archive see chapter "Operating"

Examples for Archiving Capacities Number Act. Archiving Capac. of sensors Interval 40 40 15 min. 1 year 20 15 min. 2 year 10 15 min. 4 year The archiving capacity increases if not neces

By reducing the recording intervals, the time for archiving will be reduced too.

Data of the following controller units can be archived and can be read at the SMZ display:

BMT

USP (only if phys. unit is = °C) EVP 3150-2, 3160, 3170 EVP 1130 / 1140 / 3167 / 3168 HMR 3168 MINIMEP (from version 2.20) MSR eco 3130, MSR eco 3140 TAR, TEV TKPxx30, TKP xx40, TKPxx50 USP

Remote control of connected controllers

If connected controller units are mounted at inaccessible or distant positions, it may be an advantage to operate them remotely (Remote function).

With this function, display and keys of the SMZ work like the same operating elements of the remote controlled unit.

Exceptions are units with different operating elements like e.g. the VBZ-Energy Counter Module:

VBZ-key	corresponds to	SMZ-key		
Short press	>>	Down (single)		
Long press	>>	Up (single)		
Long press	>>	RET (single)		
(Programming Mode)				

Some ELREHA controller units cannot be controlled remotely. Please contact us.

Start a remote connection

A remote control of other units is only possible, if the SMZ works in one of the both "master"-modes resp. in "automatic" mode.

Select the address of the desired unit. After you have pressed 'RET', "*initialisation parameters...*" appears on the display, while the SMZ tries to get a connection to this address. If no connection is possible after a few seconds, the display shows "*Timeout*".

Reasons for failed remote connections:

- The desired unit is not suitable for remote control
- Data connection is interrupted
- Data connection too slow, e.g. set to 1200 Baud, because older controller units are connected to the network. We recommend to use the remote control function only, if the data transmission speed is set to 9600 Baud.

To leave this mode, press 'up/down'-keys simul-taneously.

Relay Module for External Errors

The alarm message module "SMM" of the PC-Software "*COOLVision*" captures and processes a huge number of values. While this processing, messages may be generated which must be forwarded by a relay contact. The software is able to transmit the messages to the SMZ which can work as a switching module. The SMZ forwards this messages by the relays preset by parameter "*extErr priority*" (Parameter Page).

Watchdog

If a local PC works as a recording system (e.g. with 'COOLVision') mostly it works unnoticed, without regularly check. If the PC crashes, it may occur that no values will be recorded for a longer time.

To prevent this case, the PC-Software transmits a check-up signal in intervals via interface.

If this check signal fails, the SMZ reacts with its watchdog functions. After a delay time (wdog alm delay 1, parameter page) one or more relays will be de-activated (Wdog priority 1) for a certain time (wdog off time 1). This relays can be used to switch the supply voltage of the PC ON or OFF.

The number of trials to restart the PC can be set by "wdg trials 1".

At the same time, 'wdog priority 2' starts with an own delay (wdog alm delay 2).

With this function the PC-crash information can be forwarded to another destination or, with a longer delay time, it can be indicated that a restart of the PC is impossible.

PC-Power Supply,

for the watchdog function switched by relay K4 or any other relay (Param. 'wdg priority').



After using the following procedures, data will erased once and for all and cannot be restored !!!



Switch SMZ unit OFF

- Push and hold "Down"-key, switch SMZ ON
- Wait until "Wartungsliste" appears on the display, then let key go

Erase Data Memory, Reset to factory Settings

- · "Protok.Speicher löschen" appears on the display
- Push "RET" and enter Access Code (hour + 10)
- · Confirm with "yes", then "Protk.Speicher" flashes.
- Confirm with "RET" again.
- Now the erase procedure runs, display shows "...."
- After the end of the erase procedure "Protk.Speicher
- löschen" appears on the display again, not flashing
- "Wartungsliste" can be left now by "ESC"

Erase Data Memory and Local Archive at the same time

- Switch SMZ unit OFF
- Push and hold "Down"-key, switch SMZ ON
- Wait until "Wartungsliste" appears on the display, then let key go
- · "Protok.Speicher löschen" appears on the display
- Push "RET" and enter Access Code '42'
- Confirm with "no", then "Protk.Speicher" appears again
- Scroll in 'Wartungsliste' up to "Archivspeicher 66%" appears
- · Push "RET" and confirm with "yes"
- "Archivspeicher" flashes
- Start erase procedure with "RET"
- · SMZ unit cannot be operated for about 40 seconds now

Network and Grounding (simplified)

- · Use standard data cable for the data bus
- · Each connected controller unit gets an individual address
- · Connect shieldings and shown ground terminals of the unit to the nearest ground terminal in the cabinet
- The unshielded part of the data cable must be as short as possible

See chapter "Installation / Start-up" for further information.





SMZ 3140 - Datenverbindungen, Anschlusskabel





SMZ 5140 - Data Connections, Data Cables



EG-Conformity CE							
For all described products there is a declaration of conformity which describes that, when operated in accordance with the technical manual, the criteria have been met that are outlined in the guidelines of the council for alignment of statutory orders of the member states on EMC-Directive (2004/108/EC) and the Low Voltage Directive (LVD 2006/95/EC). This declarations are valid for those products covered by the technical manual which itself is part of the declaration. To meet the requirements, the currently valid versions of the relevant standards have been used.							
This statement is made from the manufacturer / importer			by:			/	\cap
ELREHA Elektronische Regelungen GmbH D-68766 Hockenheim		Werner Roemer, Technical Director					
www.elreha.de		Hocken	heim	11.06.200	8		
(name / adress)		city		date	sign		
This manual, which is part of the product, has been set up with care and our best knowledge, but mistakes are still possible. Technical details can be changed without notice, especially the software. Please note that the described functions are only valid for units containing the software with the version-number shown on page 1 of this manual. Units with an other version number may work a little bit different.							
set up: 3.6.15, tkd/jr	checked: 3.6.15, ek/jk	approved: 3.6.15,	mkt/sha	transl.(E): 3	3.6.15, tkd/jr	transl.(F):	upd: 17.8.2016, tkd/jr