Medium – Control – Systeme
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MCS

Operation Manual MCS 4000 Control Panel

Each operation on the gas alarm control panel requires the accurate knowledge and attention of this operation instruction manual.

Liability of Operation & Defects

The liability of operation of this device is transferred to the owner or operator insofar the unit is operated by any person who are not part of the service team of the manufacturer, or improper service, maintenance or repair or if an operation has been conducted which is not in accordance and compliance of the intended use and application.

The manufacturer will not take any responsibility for damages occurring through non-observance of the above notice.

Service / Maintenance

In order to ensure proper operation of the unit / device bi-annual inspection and maintenance must be conducted by trained and authorized personnel.

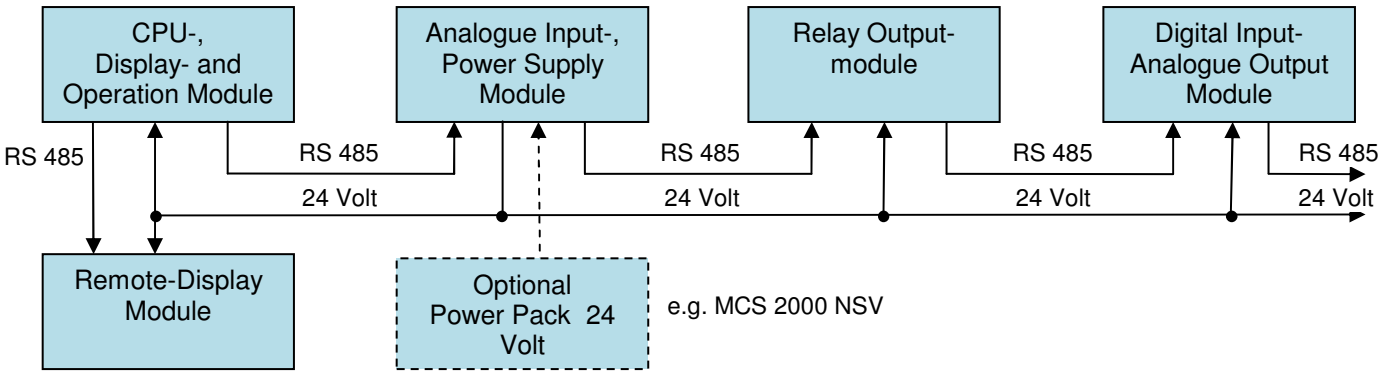
It is recommended to obtain a service contract with the manufacturer in order to validate full warranty oft he gas alarm control panel.

Authorized Application

The device is designed to:

- measure and analyze analogue and digital signal inputs.
- display / control of alarm notifications (warning lights, sirens, safety valves, aeration, ventilation etc..)

System Set-Up



CPU,- Display & Operation Module

Microprocessor controlled unit with graphic capable display and connected push buttons.

The communication with all other components is realized through the internal RS485-Bus.

Analogue Input Module AEM8

Up to 16 analogue input modules AEM8 can be connected to the CPU module.

The analogue input module can be integrated into an additional housing or into the main / central unit.

The analogue input module provides 8 analogue inputs 4-20 mA and per input a regulated 24 Volt power supply.

The inputs can be freely programmed with through the MCS programming software.

The analogue input module is connected to the system BUS RS484 and addressed. The distance between the central unit and the last analogue input module must not exceed 200 meters maximum. If the distance is to be covered is larger, the system has to be added with a repeater.

For the electrical connections refer to the electrical connection diagram.

The address has to be set at the analogue input module via a dip-switch.

AEM8 No.	Address Software	Addressing AEM8
01	01	0 0 0 0
02	02	1 0 0 0
03	03	0 1 0 0
04	04	1 1 0 0
05	05	0 0 1 0
06	06	1 0 1 0
07	07	0 1 1 0
08	08	1 1 1 0
09	09	0 0 0 1
10	10	1 0 0 1
11	11	0 1 0 1
12	12	1 1 0 1
13	13	0 0 1 1
14	14	1 0 1 1
15	15	0 1 1 1
16	16	1 1 1 1

Important ! ***The address can only be awarded one time!***

Relay Output Module RAM10

Up to 16 relay output modules RAM10 can be connected to the CPU module.

The relay output module can be integrated into an additional housing or into the main / central unit.

The relay output module consist of 10 relays with potential free changeover contacts, which are free programmable with the MCS programming software, based on different alarms and zones.

The relay module is connected to the system BUS RS484 and addressed.

The distance between the central unit and the last analogue input module must not exceed 200 meters maximum. If the distance is to be covered is larger, the system has to be added with a repeater.

For the electrical connections refer to the electrical connection diagram.

The address has to be set at the relay output module via a dip-switch (see table AEM8).

Important ! ***The address can only be awarded one time!***

Digital Input and Analogue Output Module DEM8 / AAM8

Up to 16 digital input and analogue modules DEM8/AAM8 can be connected to the CPU module.

The digital input and analogue module DEM8/AAM8 can be integrated into an additional housing or into the main / central unit.

The digital input and analogue module DEM8/AAM8 provides 8 digital inputs potential free and 8 analogue outputs 4-20mA.

The outputs and inputs can be freely programmed with the MCS programming software.

The digital input and analogue module DEM8/AAM8 is connected to the system BUS RS484 and addressed.

The distance between the central unit and the last analogue input module must not exceed 200 meters maximum. If the distance is to be covered is larger, the system has to be added with a repeater.

For the electrical connections refer to the electrical connection diagram.

The address has to be set at the relay output module via a dip-switch (see table AEM8)

Important ! ***The address can only be awarded one time!***

Alarm Notification

The unit provides 4 alarm switch point levels.

Once a measuring signal is reaching its average value of its switch point level, the respective alarm will be triggered.
The respective alarm-LED (L1) illuminates and the connected and programmed relay will activate with a time-delay of 5 seconds. Once the alarm is quit the connected and programmed relay will de-activate with a time-delay of 5 seconds.
The setting of the measuring parameters and the switch point levels for the different measuring points as well as the addressing of the output relays for the alarm notification are programmed. The adjusted parameters are documented in the inspection and test report records.

Single alarm notifications may still be present, even after the abolition and lapse of the initiating cause.
This is the case if for the alarm level a timed over-running has been programmed, e.g. for sufficient area ventilation or if minimal fan running times have to be followed, or if the alarm level has been programmed as `self-storing`.

Those can be only reset through the operation of the key button:

Alarm-Reset **T8**

A reset of a stored gas detector alarm is only possible after the cause for the gas alarm has been eliminated. Otherwise the alarm will be automatically deleted after completing a signal hysteresis (min. 3 digits), once the cause for the alarm notification has been removed.

Connected acoustic alarm transmitters can be reset as well in case of an alarm, through operation of the key

Horn-Reset **T7**

Unit Failure Indication System

An unit failure will be indicated under following conditions:

- Mains power failure (*)
- During coldstart 1 min after power re-establishment
- Failure of cutout fuse
- Unit defect
- Supply voltage dip of the gas detectors (< 18 V) (*)
- Disruption or short circuit of the gas detector feed cable, (*)
- Measuring signal deviates from max. measuring range (<2.5mA bzw. >25mA) (*)
  The surveillance of the gas detectors for their failure includes this situation as well
- Disruption of software
- Loss of parameter adjustments (*)

The respectively programmed disruption relay will be activated in case of any failures.

The standby state LED switches off and a device error notification LED will flash continuously.

With (*) marked device failures can be programmed, that they automatically trigger alarm level 1… 4 and subsequently start ventilation systems, warning lights, sirens, horns, safety valves etc.

The other device failures can only through looping of the alarm relay take action via the failure notification relay.

Mains Power Failure Alarm Suppression

The unit is fitted with a programmable time delay which will be activated after each failure of power supply (coldstart) and suppresses any alarms until the sensors are operational ready. During this period the service LED will flash.

If the time delay is activated the unit will be operational after 1 minute, once the power supply is re-established and if there are no other failures present.

Data Interface USB and TCP/IP

The interface USB Type B is used for the connection of a computer or terminal for the programming of the alarm control panel and the output of test-, measuring- and alarm reports.
The length of the connecting cable to the computer or terminal shall not be longer than 5 meter (direct connection).
As a connecting cable a commercially available USB-connecting cable can be used.

TCP/IP-Interface

This interface is optional. Integrating this interface allows the user via the software to address any IP-address, alternatively via DHCP.
This interface can be used for the parameterization, alternatively to the USB port.

Otherwise is this interface used during normal-modus to transfer data regarding current status and occurrences for a visualization.

Start-Up of Operation

The system start-up must be only conducted by factory authorized and trained personnel.

Programming of the Control Panel

The programming of the alarm control panel must be only conducted by MCS service technicians or factory authorized and trained personnel.

For the programming the software TMCS4000 is required. The software is not part of the unit order and delivery.

Operating Control Pad

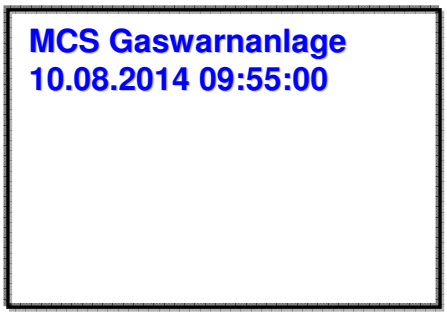
Key Button		Function
Set Menu	⇧	In menu forward
Set Menu	⇩	In menu backward
Set Menu	⇨	Selection of detailed information regarding the present menu item
Set Menu	⇦	Display of parameters
Menu	☐	Offnet menu
ESC	☐	Leave menu subitem, return to normal operation mode
Reset Alarm	☐	Quitting of alarm relay during self-preservation
Reset Horn	☐	Quitting of acoustic signal (relay horn)
E1	☐	Not assigned

LED-Display

LED	Color	Status	Description	Miscellaneous
Power	green	continious flashing	Mains power supplied Mains power loss	
Ready	green	continious flashing	Unit without disturbance Process disturbance	Software bug / processor defect
Error	yellow	flashing	Unit in disturbance	Failure of the central unit , gas detector
Service	yellow	continious flashing	service cycle maintenance / service required	During programming of the unit New calibration required
A1	red	continious	Alarm 1 triggered	
A2	red	continious	Alarm 2 triggered	
A3	red	continious	Alarm 3 triggered	
A4	red	continious	Alarm 3 triggered	
Menu	yellow	continious	Menu selected	
Acoustic	red	continious	Acoustic triggered	
E 1	green		Optional / not assigned	

LCD-Display

Normal Operation



Display of date and time.
There are no reports of disturbance or alarm notifications.

Warranty

The manufacturer provides a warranty of 4 years with the signing of a service contract conducted by the manufacturer's service team or an authorized and appointed service partner.

In case of no service contract, the provided warranty expires after 12 months of date of installation and no longer than 18 months after date of purchase.

Shutdown

During a shutdown the programmed data is not lost.

The data saved in the memory for past notification is not lost as well.

If the unit is more than 4 weeks out of operation, it is required that after system re-activation, the gas detectors are tested with test gas and if necessary re-calibrated.

Service / Maintenance

Gas warning systems must be serviced and maintained bi-annually or annually when indicated.

The service interval is mentioned on the service sticker. A service and maintenance contract with the service team of the manufacturer is highly recommended.

As a notification for the required service following information is displayed on the display:

Additionally the service-LED will flash.

This notificatioin will only be de-activated after successful service.

Technical Specifications

Subject to change

Case	Wall housing	or blind frame for switch cabinet installation	
Case material	Polystyrene		
Measurements	H x L x W	260 x 250 x 90 mm, incl. cable glands	
Protection class	IP 58		
Temperature range	-20°C …. +50°C		
Relative humidity	15-90%		
Signal thresholds	Alarm 1	self-extinguishing / saving	free programmable
	Alarm 2	self-extinguishing / saving	free programmable Alarm 3
	self-extinguishing /	saving	free programmable
	Alarm 4	self-extinguishing / saving	free programmable
Switching outputs	10	potentialfreie Wechsler 250 V/2,5A frei programmierbar	
	Erweiterbar mit Relaismodulen bis 120 Relaisausgänge über RS 485Bus		
Operating elements	1 button	horn-reset	
	1 button	alarm-reset	
	1 button	digital input	
	7 buttons	system control	
External connection	2 digitale Eingänge frei programmierbar		
Indicators	LED - Display	red Alarm 1... 4 horn aktive	
		yellow Error Service Menu	
		green Power Ready	
	LCD - graphic- display illuminated		
Data interface	USB	RJ45	
Connected loads	230 V/50Hz/60W or	24V /DC/60W	
Sensor connection	basic structure with 8 sensor connection inputs		
	Expandable with sensor input modules up to 120 measuring points via RS 485Bus		
	Series terminal 3-pole	24V/DC, measuring signal 4-20 mA, GND	
Sensors	all sensors with 4-20 mA – output		
Options	sensor input modules	8 inputs per module	
	Relay output modules	10 Relays per module	
	digital-/Analogue module	8 digital inputs/8 analogue outputs per module	
	emergency power supply module 24 Volt		
	GSM telephone dialing unit	forwarding of alarm- and default reports	
	Key switch	blocking of alarm in case of service	
	LAN TCP/IP	visualization, remote service	