ABB i-bus® EIB

Zone Terminal, 2-fold, FM
MT/U 2.12.1, GH Q631 0060 R0111

SK 0001 B 01

The zone terminal is used for the monitored connection of detectors from security technology on the EIB.

The device is installed in conventional switch boxes (Ø 55 mm). The connection to the EIB is established via the bus connecting terminal supplied.

The device makes two monitored cables ("Zones") available which constantly monitor an EOL resistor of 2.7 kΩ. This offers security against deliberate or accidental isolation/short-circuiting of the detector cables.

Since the device is flush-mounted, it can be positioned in the vicinity of the detectors. It is suitable for the connection of conventional detectors such as
– magnetic contacts,
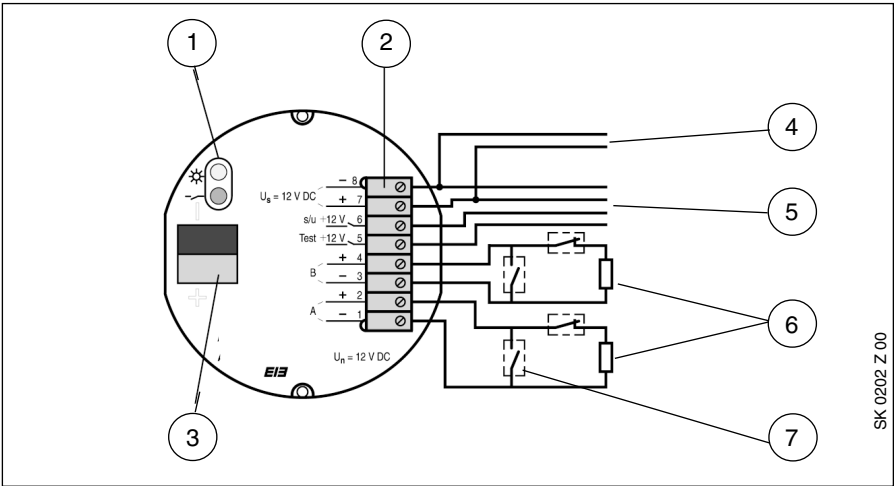– passive infrared motion detectors,
– glass-breakage sensors.

It is also possible to connect floating contacts in applications with increased security requirements.

Technical Data

Power supply	– EIB	24 V DC, via the bus line
	– Auxiliary voltage	12 V DC ± 2 V, SELV
	– Residual ripple	≤ 1.0 Vss
	– Power consumption	< 35 mA, typically 25 mA
Inputs	– 2 zones	A and B Primary circuits, EOL resistor 2.7 kΩ Open-circuit voltage 12 V DC Short-circuit current: max. 6 mA Permitted cable resistance: max. 200 Ω
Outputs	– 2 control outputs	"Set/Unset", "Walk Test" Output impedance 1.5 kΩ
Display and operating elements	– Red LED and push button	for assigning the physical address
Connections	– Inputs and outputs	Screw terminals Wire range 0.2 … 1.0 mm²
	– EIB	Bus connecting terminal included with supply
Type of protection	– IP 20 according to EN 60 529	
Ambient temperature range	– Operation	- 5 °C … 45 °C
Mounting	– Switch box, FM (Ø 55 mm)	
Dimensions	– 54 x 28 mm (Ø x H)	
Weight	– 0.05 kg	
Certification	– EIB-certified	
CE norm	– in accordance with the EMC guideline and the low voltage guideline	

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Application programs	Number of communication objects	Max. number of group addresses	Max. number of associations
Monitor Report /1	10	18	18

Circuit diagram

U$_s$ = 12 V DC
s/u +12 V
Test +12 V
B
A
U$_n$ = 12 V DC

SK 0202 Z 00

1 Programming button and LED
2 Supply terminals of the inputs and outputs
3 Bus connecting terminal

4 12 V DC auxiliary voltage
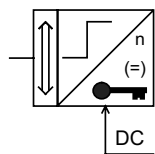**5** Connection for the motion detector
6 EOL resistors 2.7 kΩ
7 Signalling contacts

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Note

The two zones must be provided with EOL resistors of 2.7 kΩ which are included with supply. It is important for the correct operation of the zone terminal that unused inputs are also terminated with a 2.7 kΩ resistor. In this case, the resistor can be connected directly to the input terminals.

Monitor Report /1

Selection in ETS2

– ABB
  └Security
    └Zone Terminal

The ETS program displays different communication objects and parameters depending on the parameter settings.

The zone terminal has three different operating modes: unset, set or unset with stored alarm. The device reacts differently to various events depending on its operating mode.

The toggling between operating modes is carried out via communication object no. 2 "Set/Unset Request". The device can normally only be set if the zone terminal is in unset mode without stored alarm and there are no faults in the zones or supply voltage. If it is not possible to select set mode, the object sends a telegram with the value "0". Any zone terminals that are already set are switched to unset mode as a result. This behaviour can be deactivated with the parameter "Negative acknowledge via object 'Set/Unset Request'".

If it should be possible to select set mode when a zone or supply voltage fault is present, the parameter "Prevent setting if zone detects a fault" should be set to "no".

Caution: This parameter should only be modified in combination with an intruder alarm control unit or a central alarm logic which controls the setting of the device. Otherwise, if an attempt is made to set the zone terminal when an active zone has been tripped, an alarm will immediately be triggered.

As soon as the device has been set, the communication object "Set Confirmation" adopts the value "1". The actual status of the zone terminal can be indicated on display units or visualisation terminals with this value. When using several devices that are armed simultaneously, it should be ensured that the telegram load does not become too high. It is better to use the communication object "Set/Unset Request" for status monitoring in this case.

If possible, several zone terminals should not acknowledge the set request at the same time. The setting "Time delay of confirmation via object 'Set Confirmation'" specifies a time for carrying out the acknowledgement of a set/unset request on the EIB. If several devices are used, different values should be selected for the time.

The output "s/u" reports the status of the zone terminal and can be used for example to control the memory logic in PIR detectors. In set mode, the voltage at the "s/u" output is normally 12 V. In unset mode, it is 0 V (high-resistance). The output can also function with "time-limited operation". This means that the output only adopts a voltage of 12 V for a set period once the device has been set. The operating time is calculated with a base and a factor:
    Switch ON time = Base * Factor

The zone terminal has a walk test function available. This is activated via the communication object "Walk Test". If the object receives a telegram with the value "1" during normal operation, a voltage of 12 V is applied at the walk test output. A telegram with the value "0" switches the voltage off again.

The walk test can be carried out during "normal operation" or "time-limited operation". In contrast to "normal operation", the walk test output switches itself off automatically during "time-limited operation" once a preset period has elapsed. The operating time is defined with a base and a factor:
    Switch ON time = Base * Factor

If the zone terminal switches off the walk test automatically during time-limited operation, this information is not sent on the bus.

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A telegram with the value "1" at the communication object "Reset" triggers a reset of the zone terminal. A reset is only possible in unset mode.

Monitor

A failure of the 12 V auxiliary voltage is reported via the communication object "Supply Voltage Fault". An "On" telegram indicates a failure. If the auxiliary voltage is restored, an "Off" telegram is sent. The information about the auxiliary voltage can also be used to carry out a physical check of the device. A cyclical sending of the object can be activated via the parameter "Cyclic sending of object 'Supply Voltage Fault'". The zone terminal is functioning while the object continues to send a "0".

It should be ensured that the bus load does not become too high when several devices are used. The cyclical intervals should therefore not be too short. The cyclic times are defined with a base and factor:
   Cyclic time = Base * Factor

After a fault, the value of the communication object remains set until a reset has been carried out.

It can be set that the communication object "Alarm" is also set to "1" in the event of a supply voltage fault. The corresponding parameter must be set to "yes".

The zone terminal monitors the connected zones and the 12 V auxiliary voltage. The zone inputs cannot be evaluated if the auxiliary voltage is not applied. The display of the zones on the EIB is thus undefined.

Report

There is a separate 1 bit communication object available for zones A and B, which can send the current status of the zone on the EIB. If a telegram with the value "0" is sent, there is no zone fault. If a telegram with the value "1" is sent, a fault is present in the zone.

A common debounce time can be set for both zone inputs. This prevents chattering at the detector contacts which can lead to telegrams being sent unnecessarily.

In set mode, a zone fault normally activates the alarm memory. As soon as the alarm memory has been set, the communication object "Alarm" sends an "On" telegram once. The alarm memory can also be permanently deactivated via the general parameter "Activate alarm storage". In this case, the object "Alarm" still sends its modified status but it is not stored in the alarm memory.

An alarm can only be reset by carrying out a reset in unset mode. If an alarm telegram from another zone terminal is received at the "Alarm" object, the alarm memory is likewise switched on.

It can be defined individually for zones A and B whether they trigger an alarm or not. If "no" is selected for the setting "Zone ... triggers alarm", the alarm object is not set to "1" in set mode after a fault in the corresponding zone. The alarm memory is also deactivated for this zone and a fault does not prevent the device from being set.

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Zones A and B can alternatively also be switched on and off individually via the EIB. To do so, the parameter "Possibility to switch off zone ... via object" must be set to "yes". The ETS program then makes a further communication object "Switch Off Zone ..." available. A telegram with the value "1" switches the zone off while a telegram with the value "0" switches it on. As soon as a zone has been switched off, it can no longer trigger any alarms. The current status is however still sent on the bus. A disconnected zone does not prevent the arming of the device.

Bus voltage failure/recovery

All the zone inputs are switched off (0 V) during a bus voltage failure.

After bus voltage recovery, the zone terminal requires an initialisation period during which no telegrams are sent. The parameter "Inactive waiting time after bus voltage recovery" is used to prevent several devices starting to send telegrams simultaneously after bus voltage recovery. Differerent values should be set if several devices are used.

After the initialisation, all the output communication objects send their value by default on the EIB. This function can also be deactivated if required.

During the initialisation period, all the "Walk Test" and "Set/Unset" outputs are undefined. The set state of the device remains unchanged after bus voltage recovery.

An alarm can immediately be triggered by an armed device after bus voltage recovery. To do so, the parameter "If device is set: trigger alarm after bus voltage recovery" must be set to "yes". The value is only sent if the object values are also sent on the EIB after bus voltage recovery. To prevent false alarms, the parameter should only be set to "yes" if a backup supply against mains failure is available for the bus voltage.

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Communication objects

No.	Type	Object name	Function
0	1 bit	Output Telegram: Zone A	Status Zone A
1	1 bit	Output Telegram: Zone B	Status Zone B
2	1 bit	Input/Output Telegram: s/u	Set/Unset Request
3	1 bit	Input/Output Telegram: Alarm	Alarm
4	1 bit	Input Telegram: Walk Test	Walk Test
5	1 bit	Input Telegram: Reset	Reset
6	1 bit	Output Telegram: Fault	Supply Voltage Fault
7	1 bit	Output Telegram: s/u	Set Confirmation

Communication objects
with switching off objects

No.	Type	Object name	Function
…			
8	1 bit	Input Telegram: Zone A	Switch Off Zone A
9	1 bit	Input Telegram: Zone B	Switch Off Zone B

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Parameters
The default setting for the values
is **printed in bold type.**

General:

– Activate alarm storage	**yes**
	no
– Inactive waiting time after bus voltage recovery	5 s / **10 s** / 15 s / 20 s / 25 s / 30 s
– Send object values after bus voltage recovery	**yes**
	no
– If device is set: trigger alarm after bus voltage recovery	yes
	no

Zones:

– Debounce time of zone A and B	20 ms / 40 ms / … / **100 ms** / 120 ms
– Zone A triggers alarm	**yes**
	no
– Possibility to switch off zone A via object	yes
	no
– Zone B triggers alarm	**yes**
	no
– Possibility to switch off zone B via object	yes
	no

Supply Voltage:

– Fault of supply voltage triggers alarm	yes
	no
– Cyclical sending of object "Supply Voltage Fault"	yes
	no
Only if "yes" is selected:	
– Cyclic sending: time base	130 ms / … / **1.0 s** / … / 1.2 h
– Cyclic sending: factor	**10**

Walk test:

– Walk test after bus voltage recovery	switched on
	switched off
– Behaviour of output 'test'	time-limited operation
	normal operation
Only if "time-limited operation" is selected:	
– Switch ON duration: time base	130 ms / … / **1.0 s** / … / 1.2 h
– Switch ON duration: factor	**40**

Setting/Arming:

– Prevent setting if zone detects a fault	**yes**
	no
– Time delay of confirmation via object "Set Confirmation"	0 ms / 100 ms / … / **500 ms** / … 2 s
– Negative acknowledge via object "Set/Unset Request"	**yes**
	no
– Behaviour of output 's/u'	time-limited operation
	normal operation
Only for "time-limited operation":	
– Switch ON duration: time base	130 ms / … / **1.0 s** / … / 1.2 h
– Switch ON duration: factor	**10**

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