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ELAUSYS
EVO-KNX

KNX Interface
for Paradox alarm system

User Manual

Document history			
Version.	**Date**	**Author**	**Comment**
1.00	14-AUG-2017	NDE	First issue

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1. INTRODUCTION

The KNX interface module EVO-KNX is a KNX gateway for the Paradox EVO alarm systems. It enables bidirectional communication with the alarm system using the RS232 communication module (PRT3) from Paradox.

It allows integrators to take advantage of a fully integrated alarm system including KNX scenarios, automatic lighting using the motion detectors, arming or monitoring the system using a KNX visualization.

Main features:

- KNX Interface for Paradox EVO alarm systems
- Up to **30 PGM status**
- Up to **96 zone status**
- Control up to **16 virtual inputs**
- Control up to **4 areas** (arm/partial/disarm)
- 9 status per area (alarm, entry, exit, fire,…)
- Recall of KNX **scenes** for each status
- Battery and AC Failure monitoring
- Galvanic insulation from the KNX bus

By default, zone status is configured for zone 1 to 96 of the alarm system. A general parameter allows to change for zone 97 to 192. Having then the possibility to use two gateways in the same installation to cover the 192 zones of the alarm system.

In the same way, areas are configured for areas 1 to 4 of the alarm system but a parameter allows to change the area number to cover the areas 5 to 8 if required.

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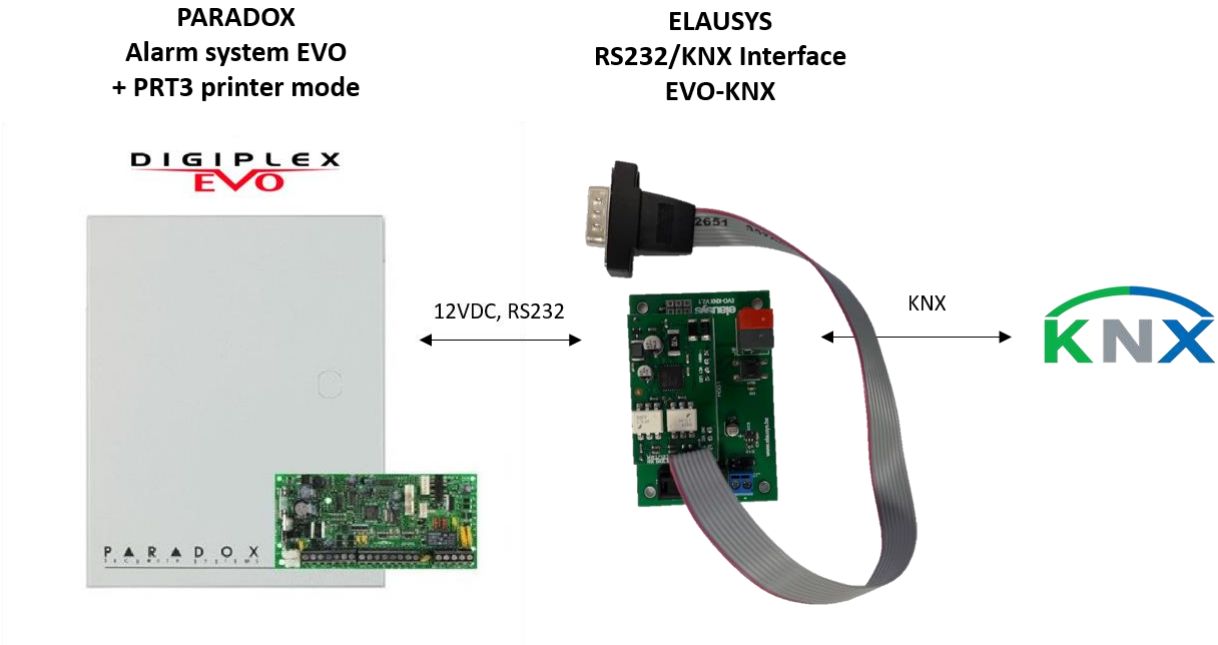
2. OVERVIEW

2.1 USAGE & LIMITATION

This interface is intended to be used with a PARADOX EVO or DGP series alarm system. The system must be equipped with a PRT3 module for RS232 communication.



2.1 SOFTWARE

The KNX Interface is configured using the ETS tool, the free ETS Demo version can be downloaded from the website of KNX Association. The free version allows to configure up to 5 KNX modules in a project, the KNX gateway is only one module.

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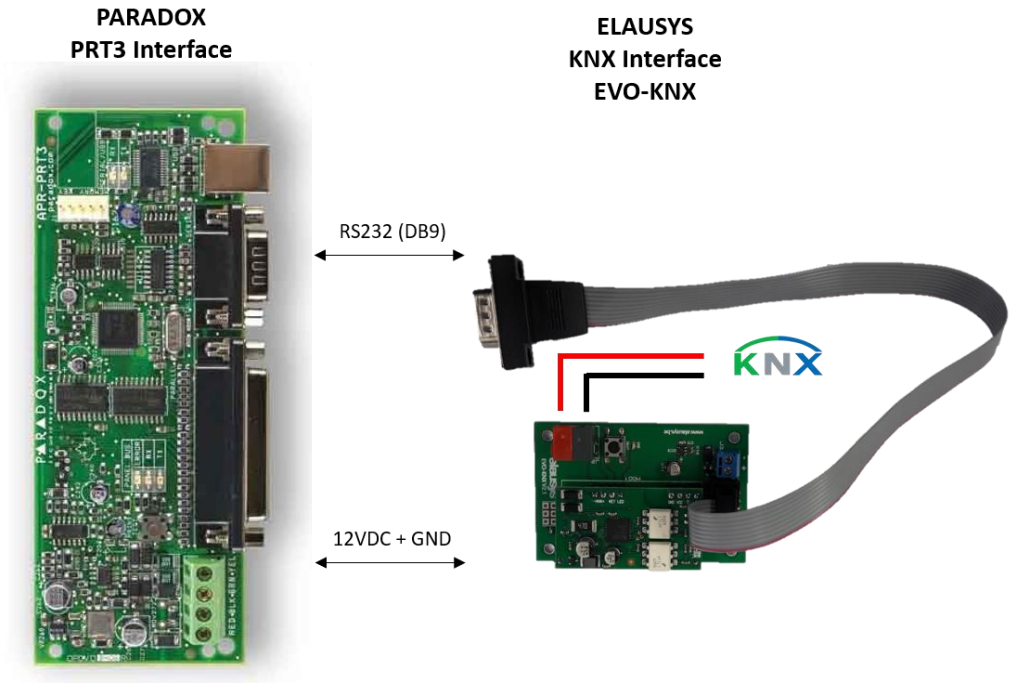
2.2 CONNECTION DIAGRAM

Elausys EVO-KNX module requires an external 12VDC power supply which can be provided by the AUX power supply of the alarm system.

The RS232 connection between the PRT3 and the EVO-KNX interface is made using the DB9 connector provided with this module. No additional component or wiring is required.



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3. PARAMETERS

The KNX interface parameters are defined in the “parameters” tab of the device, in the ETS project.

3.1 GENERAL SETTINGS

The following parameters are defined in the General section of the device parameters:

PARAMETER	VALUES	DESCRIPTION
Paradox user code	Text field (format 123456)	When using control commands from KNX, a valid user code of up to 6 digits is required. This applies to virtual inputs and area control (arm, disarm,…)
User code lenght	4..6	Number of digits for the paradox user code
Number of PGM	▪ **15 (default)** ▪ 30	Number of PGM status to monitor from the KNX interface.
Number of zones	▪ **16 (default)** ▪ 32 ▪ 48 ▪ 64 ▪ 72 ▪ 96	Number of zones status to monitor from the KNX interface.
Zones offset	▪ **0 (default)** ▪ 96	An offset of 0 will use zones 1 to 96 from the alarm system whereas an offset of 96 will use zones 97 to 192
Number of areas	▪ **1 (default)** ▪ 2 ▪ 3 ▪ 4	Number of areas to control/monitor from the KNX interface

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3.2 PGM

Depending the general parameter “Number of PGM”, 15 or 30 PGM are listed in the group objects.

The status of each PGM from the Paradox alarm system can be monitored by a Group object. The PGM is configured in the Paradox system to send status based on specific events.

There are no specific parameters for PGM.

3.3 ZONE

Depending the general parameter “Number of zones”, up to 96 zones are listed in the group objects.

The status of each zone from the Paradox alarm system can be monitored by a Group object.

The general parameter “Zones offset” allow to use zones 1 to 96 from the alarm system or zones 97 to 192.

3.1 VIRTUAL INPUT

16 virtual inputs are listed in the group objects.

Each virtual input can be controlled by a KNX Group object. The virtual input is configured in the Paradox system in order to trigger specific events.

A valid user code must be provided in the general parameters to allow the control of virtual inputs.

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3.2 AREA

Depending the general parameter “Number of areas”, up to 4 areas are listed in the group objects.

Each area can be controlled by using the 5 group objects: Arm, stay arm, force arm, instant arm or disarm. Several statuses are available and have a dedicated group object.

For each area, a tab is made visible to configure the area parameters.

Areas are configured for areas 1 to 4 of the alarm system but by changing the parameter “Area mapping” it is also possible to cover the areas 5 to 8.

A scene can be assigned to each status. This scene number will be recalled each time the zone status is active (ON).

Leave the scene number to 0 to disable the scene control.

STATE	SCENE
Disarmed	0..64
Entry	0..64
Exit	0..64
Armed	0..64
Stay armed	0..64
Fire alarm	0..64
Audible alarm	0..64
Strobe alarm	0..64

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4. COMMUNICATION OBJECTS

4.1 GENERAL

General communication objects of the device.

GO	NAME	DESCRIPTION
1	AC Failure	Active when the main power supply of the alarm system is down.
2	Battery Failure	Active when the battery is low
3	Call scene	The scene number configured for each area status are sent to KNX whenever the area status is activated

4.2 PGM

Each PGM has 1 Group Objects (GO) for the status to KNX.

GO	NAME	DESCRIPTION
1	PGMx Status	PGM status

This chapter details what GO are available for each PGM. The same GO applies to all other PGM (x = 1 to 30).

4.3 ZONE

Each ZONE has 1 Group Objects (GO) for the status to KNX.

GO	NAME	DESCRIPTION
1	Zone x Status	Zone status

This chapter details what GO are available for each ZONE. The same GO applies to all other ZONE (x = 1 to 96).

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4.4 VIRTUAL INPUT

Each VIRTUAL INPUT has 1 Group Objects (GO) to be controlled from KNX.

GO	NAME	DESCRIPTION
1	Virtual Input x	Virtual input control (open / OK)

This chapter details what GO are available for each Virtual Input. The same GO applies to all other Virtual Input (x = 1 to 16).

4.5 AREA

Each area has 14 Group Objects (GO), 5 for area control and 9 for the area status to KNX.

GO	NAME	DESCRIPTION
1	Area x - Arm	Arm the Area
2	Area x – Force arm	Force arm the Area
3	Area x – Stay arm	Stay arm the Area
4	Area x – Instant arm	Instant arm the Area
5	Area x – Disarm	Disarm the Area
6	Area x – State disarmed	Area x status
7	Area x – Entry delay	Area x status
8	Area x – Exit delay	Area x status
9	Area x – State armed	Area x status
10	Area x – State stay armed	Area x status
11	Area x – Fire alarm	Area x status
12	Area x – Audible alarm	Area x status
13	Area x – Strobe alarm	Area x status
14	Area x – Alarm in zone number	Area x status

This chapter details what GO are available for each AREA. The same GO applies to all other areas (x = 1 to 4).

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4.6 GROUP OBJECT LIST

GO	Name	Function	Size	Flags	Type ID	Type Name	Range	Description
2	PGM1 Status	On/Off	1 bit	C R - T -	1.001	DPT_Switch	0..1	PGM – On/Off status
3	PGM2 Status	On/Off	1 bit	C R - T -	1.001	DPT_Switch	0..1	PGM – On/Off status
…	*Same for PGM3 to PGM29*							
31	PGM30 Status	On/Off	1 bit	C R - T -	1.001	DPT_Switch	0..1	PGM – On/Off status
32	Zone 1 Status	On/Off	1 bit	C R - T -	1.001	DPT_Switch	0..1	Zone – On/Off status
33	Zone 2 Status	On/Off	1 bit	C R - T -	1.001	DPT_Switch	0..1	Zone – On/Off status
…	*Same for Zone 3 to 95*							
127	Zone 96 Status	On/Off	1 bit	C R - T -	1.001	DPT_Switch	0..1	Zone – On/Off status
128	AC Failure	On/Off	1 bit	C R - T -	1.001	DPT_Switch	0..1	On/Off status
129	Battery Failure	On/Off	1 bit	C R - T -	1.001	DPT_Switch	0..1	On/Off status
136	Virtual input 1	Open/Close	1 bit	C - W - -	1.001	DPT_Switch	0..1	Open/close input
137	Virtual input 2	Open/Close	1 bit	C - W - -	1.001	DPT_Switch	0..1	Open/close input
…	*Same for input 3 to 15*							

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GO	Name	Function	Size	Flags	Type ID	Type Name	Range	Description
151	Virtual input 16	Open/Close	1 bit	C - W - -	1.001	DPT_Switch	0..1	Open/close input
152	Area 1 - Arm	On	1 bit	C - W - -	1.017	DPT_Trigger	0..1	Arm Area
153	Area 1 – Force Arm	On	1 bit	C - W - -	1.017	DPT_Trigger	0..1	Force Arm Area
154	Area 1 – Stay Arm	On	1 bit	C - W - -	1.017	DPT_Trigger	0..1	Stay Arm Area
155	Area 1 – Instant Arm	On	1 bit	C - W - -	1.017	DPT_Trigger	0..1	Instant Arm Area
156	Area 1 – Disarm	On	1 bit	C - W - -	1.017	DPT_Trigger	0..1	Disarm Area
157	Area 1 – state disarmed	On/Off	1 bit	C - - T -	1.001	DPT_Switch	0..1	Area state disarmed
158	Area 1 – entry delay	On/Off	1 bit	C - - T -	1.001	DPT_Switch	0..1	Area entry delay status
159	Area 1 – exit delay	On/Off	1 bit	C - - T -	1.001	DPT_Switch	0..1	Area exit delay status
160	Area 1 – state armed	On/Off	1 bit	C - - T -	1.001	DPT_Switch	0..1	Area state armed status
161	Area 1 – state stay armed	On/Off	1 bit	C - - T -	1.001	DPT_Switch	0..1	Area state stay armed status
162	Area 1 – Fire alarm	On/Off	1 bit	C - - T -	1.001	DPT_Switch	0..1	Area fire alarm
163	Area 1 – audible alarm	On/Off	1 bit	C - - T -	1.001	DPT_Switch	0..1	Area audible alarm
164	Area 1 – stobe alarm	On/Off	1 bit	C - - T -	1.001	DPT_Switch	0..1	Area strobe alarm
165	Area 1 – zone in alarm	Zone number	1 Byte	C - - T -	5.004	Unsigned value	1..192	Zone number in alarm
…	*Same for AREA 2 to 4*							
208	Call scene	-	1 Byte	C - - T -	18.001	DPT_SceneControl	1..64	Scene control

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5. CONFIGURATION

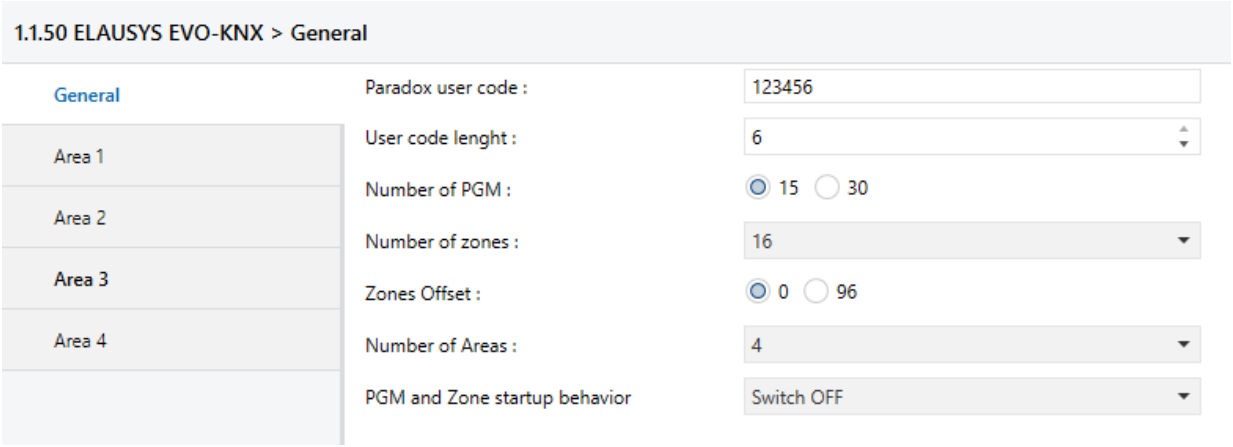
5.1 PHYSICAL DEVICE

ELAUSYS devices are configured using the ETS tool. You should first download and install the free version of ETS tool before you continue.

The EVO-KNX Interface must be assigned a physical address on the KNX network. Assign a free address to the module, in our example we choose 1.1.50.

5.2 PARAMETERS

Once a KNX physical address is set, open the parameter tab to configure the interface.
The parameters are grouped into sections: A general section and a section for each Area configured.
There are no specific parameters for PGMs.



In the general section, enter a valid user code from the Paradox system to enable virtual input and area control.

Select the requested number of PGM (15 or 30). Note that the Paradox system is limited to 30 PGMs.
Then select the number of Areas to be controlled or monitored (up to 4).

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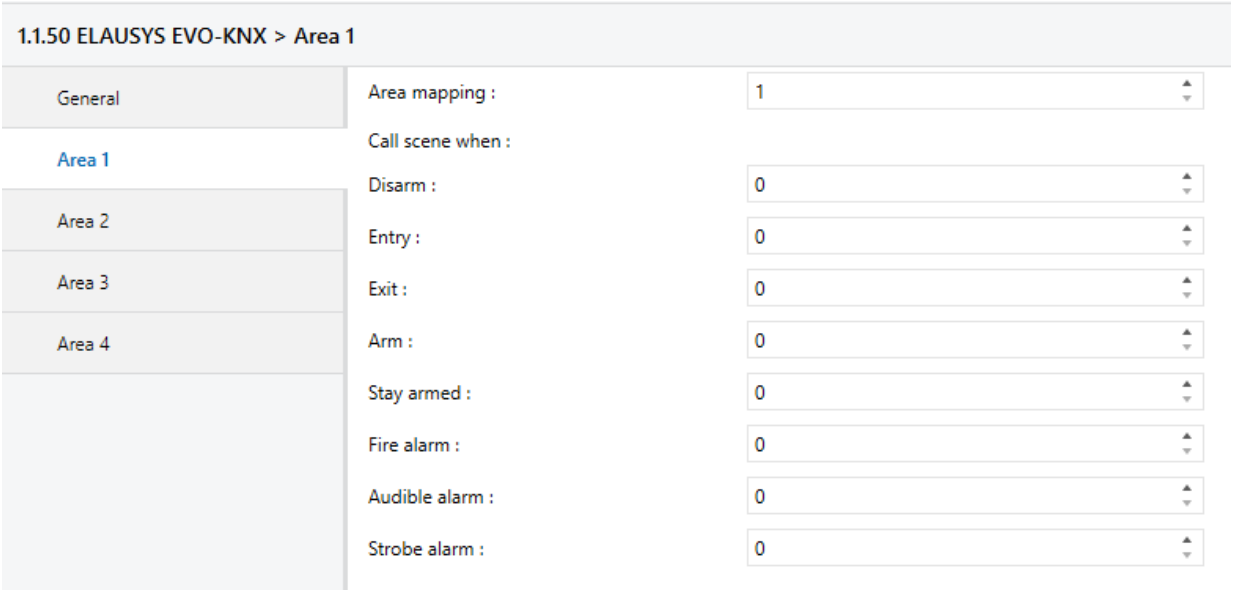
For each Area selected, a tab is available in the left side menu to configure the scene control.

Open the first Area parameters by selecting the section “Area 1”.

By default Area 1 is mapped to area 1 of the alarm system, by changing this value to 5 for example, Area 1 of the KNX interface would be linked to area 5 in the alarm system.

For each status of the Area, set the scene number to be called. Leaving the scene number to 0 will disable it.



Then repeat the same process for each Area in your project.

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5.3 GROUP OBJECTS

A group address (GA) must be assigned to each group object (GO) needed by the application.
Open the Group Objects tab of the device and assign a GA to the object scene, PGM, zones, virtual inputs and areas as needed.

Number	Name	Object Function	Description	Group Addres	Length	C	R	W	T	U	Data Type	Priority
2	PGM1 status	On/Off	PG	1/0/1	1 bit	C	R	-	T	-	switch	Low
3	PGM2 status	On/Off	PG	1/0/2	1 bit	C	R	-	T	-	switch	Low
4	PGM3 status	On/Off	PG	1/0/3	1 bit	C	R	-	T	-	switch	Low
5	PGM4 status	On/Off	PG	1/0/4	1 bit	C	R	-	T	-	switch	Low
6	PGM5 status	On/Off			1 bit	C	R	-	T	-	switch	Low
7	PGM6 status	On/Off			1 bit	C	R	-	T	-	switch	Low
8	PGM7 status	On/Off			1 bit	C	R	-	T	-	switch	Low
9	PGM8 status	On/Off			1 bit	C	R	-	T	-	switch	Low
10	PGM9 status	On/Off			1 bit	C	R	-	T	-	switch	Low
11	PGM10 status	On/Off			1 bit	C	R	-	T	-	switch	Low
12	PGM11 status	On/Off			1 bit	C	R	-	T	-	switch	Low
13	PGM12 status	On/Off			1 bit	C	R	-	T	-	switch	Low
14	PGM13 status	On/Off			1 bit	C	R	-	T	-	switch	Low
15	PGM14 status	On/Off			1 bit	C	R	-	T	-	switch	Low
16	PGM15 status	On/Off			1 bit	C	R	-	T	-	switch	Low
17	PGM16 status	On/Off			1 bit	C	R	-	T	-	switch	Low

Example for Area 1:

Number	Name	Object Function	Description	Group Addres	Length	C	R	W	T	U	Data Type	Priority
152	Area 1 - Arm	On	Arm	2/1/1	1 bit	C	-	W	-	-	trigger	Low
153	Area 1 - Force arm	On	Force arm	2/1/6	1 bit	C	-	W	-	-	trigger	Low
154	Area 1 - Stay arm	On	Partial Arm	2/1/2	1 bit	C	-	W	-	-	trigger	Low
155	Area 1 - Instant arm	On	Instant arm	2/1/7	1 bit	C	-	W	-	-	trigger	Low
156	Area 1 - Disarm	On	Disarm	2/1/3	1 bit	C	-	W	-	-	trigger	Low
157	Area 1 - Disarmed	On	State disarmed	2/1/13	1 bit	C	-	-	T	-	switch	Low
158	Area 1 - Entry delay	On	Entry	2/1/9	1 bit	C	-	-	T	-	switch	Low
159	Area 1 - Exit delay	On	Exit	2/1/10	1 bit	C	-	-	T	-	switch	Low
160	Area 1 - Armed	On	State armed	2/1/12	1 bit	C	-	-	T	-	switch	Low
161	Area 1 - Stay armed	On	State armed partially	2/1/11	1 bit	C	-	-	T	-	switch	Low
162	Area 1 - Fire alarm	On	Fire	2/1/5	1 bit	C	-	-	T	-	switch	Low
163	Area 1 - Audible alarm	On	Audible alarm	2/1/14	1 bit	C	-	-	T	-	switch	Low
164	Area 1 - Strobe alarm	On	Stobe alarm	2/1/4	1 bit	C	-	-	T	-	switch	Low
165	Area 1 - Alarm in zone number	Zone	Area 1 - AlarmeZoneNu...	0/0/1	1 byte	C	-	-	T	-	8-bit unsigned value	Low

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Virtual inputs :

Number	Name	Object Function	Description	Group Addres	Length	C	R	W	T	U	Data Type	Priority
136	Virtual Input 1	Open/Closed	Virtual Input 1	3/0/1	1 bit	C	-	W	-	-	switch	Low
137	Virtual Input 2	Open/Closed	Virtual Input 2	3/0/2	1 bit	C	-	W	-	-	switch	Low
138	Virtual Input 3	Open/Closed	Virtual Input 3	3/0/3	1 bit	C	-	W	-	-	switch	Low
139	Virtual Input 4	Open/Closed			1 bit	C	-	W	-	-	switch	Low
140	Virtual Input 5	Open/Closed			1 bit	C	-	W	-	-	switch	Low
141	Virtual Input 6	Open/Closed			1 bit	C	-	W	-	-	switch	Low
142	Virtual Input 7	Open/Closed			1 bit	C	-	W	-	-	switch	Low
143	Virtual Input 8	Open/Closed			1 bit	C	-	W	-	-	switch	Low
144	Virtual Input 9	Open/Closed			1 bit	C	-	W	-	-	switch	Low
145	Virtual Input 10	Open/Closed			1 bit	C	-	W	-	-	switch	Low
146	Virtual Input 11	Open/Closed			1 bit	C	-	W	-	-	switch	Low
147	Virtual Input 12	Open/Closed			1 bit	C	-	W	-	-	switch	Low
148	Virtual Input 13	Open/Closed			1 bit	C	-	W	-	-	switch	Low
149	Virtual Input 14	Open/Closed			1 bit	C	-	W	-	-	switch	Low
150	Virtual Input 15	Open/Closed			1 bit	C	-	W	-	-	switch	Low
151	Virtual Input 16	Open/Closed	Virtual Input 16	3/0/16	1 bit	C	-	W	-	-	switch	Low

Zone status :

Number	Name	Object Function	Description	Group Addres	Length	C	R	W	T	U	Data Type	Priority
32	Zone 1 Status	On/Off	Zone status	4/0/1	1 bit	C	R	-	T	-	switch	Low
33	Zone 2 Status	On/Off	Zone status	4/0/2	1 bit	C	R	-	T	-	switch	Low
34	Zone 3 Status	On/Off	Zone status	4/0/3	1 bit	C	R	-	T	-	switch	Low
35	Zone 4 Status	On/Off			1 bit	C	R	-	T	-	switch	Low
36	Zone 5 Status	On/Off			1 bit	C	R	-	T	-	switch	Low
37	Zone 6 Status	On/Off			1 bit	C	R	-	T	-	switch	Low
38	Zone 7 Status	On/Off			1 bit	C	R	-	T	-	switch	Low
39	Zone 8 Status	On/Off			1 bit	C	R	-	T	-	switch	Low
40	Zone 9 Status	On/Off			1 bit	C	R	-	T	-	switch	Low
41	Zone 10 Status	On/Off			1 bit	C	R	-	T	-	switch	Low
42	Zone 11 Status	On/Off			1 bit	C	R	-	T	-	switch	Low
43	Zone 12 Status	On/Off			1 bit	C	R	-	T	-	switch	Low
44	Zone 13 Status	On/Off			1 bit	C	R	-	T	-	switch	Low
45	Zone 14 Status	On/Off			1 bit	C	R	-	T	-	switch	Low
46	Zone 15 Status	On/Off			1 bit	C	R	-	T	-	switch	Low
47	Zone 16 Status	On/Off			1 bit	C	R	-	T	-	switch	Low

When GO and parameters are all configured, download the KNX Interface application to the device. The first download requires to press the programming button on the device to set the device in KNX programming mode then perform a full download.

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6. DATASHEET

TECHNICAL DATA	VALUE
Power supply	External 12VDC
Power consumption typ.	< 6 mA
Power consumption KNX bus typ.	< 4 mA @ 29VDC
Operating temperature	5 to + 45°C
Enclosure	None
Dimensions (W x D x H)	66 x 44 x 25mm
Mounting	4 screw holes for direct mounting in the Paradox control panel
KNX terminal	Pluggable micro terminal, Red/Black, 4 pole PUSH WIRE for solid conductor wire 0.6-0.8 mm²
12VDC input Terminal	Screw terminal 12VDC / GND
RS232 terminal	DB9 connector
Configurable output (PGM)	30
Configurable Virtual inputs	16
Configurable zone status	96
Configurable Areas	4
KNX bus voltage	29 VDC

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