

# MDT solution proposal

## Central setpoint shift with the Glass Central Operation Unit Smart or Central Operation Unit Smart 86.

### Possible applications:

Usually, temperature setpoints are rarely adjusted. The setpoint adjustment often steals functions on the push buttons in the rooms that could be used otherwise. This is where the central setpoint adjustment with the *Glass Central Operation Unit Smart* comes in handy. Additional functions such as changing the operating mode can be performed at the same time. This solution proposal shows all the necessary settings.

### Info:

These functions can also be realised with the *Central Operation Unit Smart 86*. Only the *Glass Central Operation Unit Smart* is mentioned in the example.

### Used devices:

#### MDT Glass Central Operation Unit Smart (Central Operation Unit Smart 86)

BE-GBZx.01/ BE-BZS86.01

#### MDT Heating Actuator

AKH-0400.03/ AKH-0600.03/ AKH-0800.03

## Content

Simple troubleshooting by means of diagnosis object: .....	2
Settings on Heating Actuator: .....	3
Settings on Glass Central Operation Unit Smart: .....	5
Linking of group addresses: .....	7
Option: Central operating mode selection .....	8
Settings on Heating Actuator: .....	8
Settings on Glass Central Operation Unit Smart: .....	11
Linking the group addresses: .....	12

## Simple troubleshooting by means of diagnosis object:

The diagnosis object can be activated channel by channel and provides valuable information in the event of an error.

1.1.10 AKH-0800.03 Heating Actuator 8-fold, 4SU MDRC, 24/230VAC > Channel A: Living room > Output

General settings	Valve type	<input checked="" type="radio"/> normally closed <input type="radio"/> normally opened
Channel selection	PWM cycle time	10 min
- Channel A: Living room	Minimum limitation of control value	0%
Basic setting	Maximum limitation of control value	100%
Controller	Limitation via object	not active
<b>Output</b>	Control value when falling below the minimum limitation	<input checked="" type="radio"/> 0% = 0%, otherwise use minimum set value <input type="radio"/> 0% = minimum set value
+ Channel B: Bedroom	Send control value cyclically	5 min
+ Channel C: Child 1	Object valve status	<input checked="" type="radio"/> valve status (1=open, 0=closed) <input type="radio"/> 1, if control value > 0%
+ Channel D: Child 2	Consider channel in Heating/Cooling requirement and maximum control value	<input type="radio"/> not active <input checked="" type="radio"/> active
+ Channel E: Kitchen	Forced position	<input checked="" type="radio"/> not active <input type="radio"/> active
+ Channel F: Bathroom	Additional sensor for flow temperature	<input checked="" type="radio"/> not active <input type="radio"/> active
+ Channel G:	Emergency mode	<input type="radio"/> not active <input checked="" type="radio"/> active
+ Channel H:	Emergency mode on failure of temperature value after...	30 Minuten
+ Scenes	Control value for emergency mode	50%
	Lock object for control value Heating	not active
	Send diagnosis text	send on change

This activates a new object for the corresponding channel.

```

■ 28 Channel A: Living room Diagnosis status Diagnosis living room 0/0/4 14 bytes C R - T - Character String (ISO 8859-1)
    
```

Here is an example of the output after a restart of the AKH-0800.03. The channel is in winter mode, set to heating, comfort mode and the control value is 0.

1.1.11	BE-GT2Tx.01...	0/0/1	current temperature	9.001 temperature (°C)	0D 28   26.4 °C
1.1.10	AKH-0800.03...	0/0/3	current setpoint	9.001 temperature (°C)	0C 1A   21 °C
1.1.10	AKH-0800.03...	0/0/4	diagnostics	16.001 Character String (ISO...	57 69 20 48 20 48 6F 6D 66 6F 72 74 20 30   Wi H Komfort 0

The explanation of the possible diagnostic outputs can be found as plain text at chapter 4.1.8.1 in the technical manual of AKH-0x00.03.

## Settings on Heating Actuator:

First activate the desired channels in the channel selection:

1.1.10 AKH-0800.03 Heating Actuator 8-fold, 4SU MDRC, 24/230VAC > Channel selection		
General settings	Channel A	active
<b>Channel selection</b>	Channel B	active
+ Channel A:	Channel C	active
+ Channel B:	Channel D	active
+ Channel C:	Channel E	active
+ Channel D:	Channel F	active
+ Channel E:	Channel G	not active
	Channel H	not active

Basic setting:

Controller type -> integrated controller

1.1.10 AKH-0800.03 Heating Actuator 8-fold, 4SU MDRC, 24/230VAC > Channel A: Living room > Basic setting		
General settings	Description of channel/objects	Living room
Channel selection	Additional text	
- Channel A: Living room	<b>Controller type</b>	integrated controller
<b>Basic setting</b>	Independent system	<input checked="" type="radio"/> not active <input type="radio"/> active
Controller	Operating mode	Heating
Output	Control value	<input checked="" type="radio"/> continuous PI control <input type="radio"/> 2-step control (switching)
+ Channel B: Bedroom	Heating system	Underfloor Heating (4K / 150min)
	Additional stage	<input checked="" type="radio"/> not active <input type="radio"/> active

**Controller:**

We recommend the use of independent setpoints. The setpoint shift is set to 1 bit, the step range is 0.5 K per keystroke and the maximum setpoint shift is 5 K.

1.1.10 AKH-0800.03 Heating Actuator 8-fold, 4SU MDRC, 24/230VAC > Channel A: Living room > Controller

General settings	Priority	<input checked="" type="radio"/> Frost(Heat) protection/Comfort/Night/Standby <input type="radio"/> Frost(Heat) protection/Night/Comfort/Standby
Channel selection	Setpoints for Standby/Night	<input checked="" type="radio"/> independent setpoints <input type="radio"/> dependent on "(Basic) Comfort setpoint"
- Channel A: Living room	(Basic) Comfort setpoint	21 °C
Basic setting	Setpoint Standby	19 °C
<b>Controller</b>	Setpoint Night	18 °C
Output	Setting of setpoint "Frost protection"	<input checked="" type="radio"/> global <input type="radio"/> individual
+ Channel B: Bedroom	Separate objects for setpoints Comfort/Standby/Night/Frost protection	not active
+ Channel C: Child 1	Maximum setpoint shift	5 K
+ Channel D: Child 2	Setpoint shift via 1Bit/1Byte object	1 bit
+ Channel E: Kitchen	Step width	0,5 K

**Group addresses:**

The following picture shows the group addresses necessary for the setpoint shift:

Num	Name	Object Function	Description	Group / Length	C	R	W	T	U	Data Type
1	Channel A: Living room	Receive temperature value	Temperature value living room	0/0/1 2 bytes	C	-	W	T	U	temperature (°C)
2	Channel A: Living room	Preset setpoint		2 bytes	C	-	W	-	-	temperature (°C)
8	Channel A: Living room	Send current setpoint	Current setpoint living room	0/0/3 2 bytes	C	R	-	T	-	temperature (°C)
9	Channel A: Living room	Manual setpoint shift (2byte)		2 bytes	C	-	W	-	-	temperature difference (K)
10	Channel A: Living room	Manual setpoint shift (1=+ / 0=-)	Setpoint shift living room	0/0/2 1 bit	C	-	W	-	-	step
12	Channel A: Living room	Control value Heating: Send status		1 byte	C	R	-	T	-	percentage (0..100%)
15	Channel A: Living room	Send valve status: 1=open, 0=closed		1 bit	C	R	-	T	-	state
17	Channel A: Living room	Mode selection		1 byte	C	-	W	-	-	HVAC mode
19	Channel A: Living room	Switch Comfort operating mode		1 bit	C	-	W	-	-	switch
20	Channel A: Living room	Switch Night operating mode		1 bit	C	-	W	-	-	switch
21	Channel A: Living room	Switch Frost protection operating mode		1 bit	C	-	W	-	-	switch
22	Channel A: Living room	DPT_HVAC Mode: Send controller status		1 byte	C	R	-	T	-	HVAC mode
28	Channel A: Living room	Diagnosis status	Diagnosis living room	0/0/4 14 bytes	C	R	-	T	-	Character String (ISO 8859-1)
35	Channel A: Living room	Fault in case of mains failure / short cir...		1 bit	C	R	-	T	-	alarm

## Settings on Glass Central Operation Unit Smart:


**Important:**

The *Glass Central Operation Unit Smart* has its own temperature controller. In our example, we do **not use** this controller. The regulation takes place directly in the heating actuator and we only shift the setpoints in it.

Each setpoint shift requires its own function. For 6 rooms, we activate 6 functions.

1.1.12 BE-GBZx.01 Glass Central Operation Unit Smart > Menu and time switch functions > Selection		
General settings	Function 1	<input type="radio"/> not active <input checked="" type="radio"/> active
Time and astro settings	Function 2	<input type="radio"/> not active <input checked="" type="radio"/> active
Display setting	Function 3	<input type="radio"/> not active <input checked="" type="radio"/> active
Info display and standby display	Function 4	<input type="radio"/> not active <input checked="" type="radio"/> active
Functional levels	Function 5	<input type="radio"/> not active <input checked="" type="radio"/> active
PIN-Code	Function 6	<input type="radio"/> not active <input checked="" type="radio"/> active
Logic	Function 7	<input checked="" type="radio"/> not active <input type="radio"/> active
+ Temperature/Ventilation	Function 8	<input checked="" type="radio"/> not active <input type="radio"/> active
+ Direct buttons	Function 9	<input checked="" type="radio"/> not active <input type="radio"/> active
- Menu and time switch functions	Function 10	<input checked="" type="radio"/> not active <input type="radio"/> active
	Function 11	<input checked="" type="radio"/> not active <input type="radio"/> active
	Function 12	<input checked="" type="radio"/> not active <input type="radio"/> active
Basic settings	Function 13	<input checked="" type="radio"/> not active <input type="radio"/> active
<b>Selection of functions</b>	Function 14	<input checked="" type="radio"/> not active <input type="radio"/> active
+ F1: Function 1	Function 15	<input checked="" type="radio"/> not active <input type="radio"/> active

For example, we set function 1 "Living room".

1.1.12 BE-GBZx.01 Glass Central Operation Unit Smart > Menu and time switch functions > F1: Living room Setpoint	
General settings	Description of objects <b>1</b> Living room Setpoint
Time and astro settings	Manual operation <input type="radio"/> not active <input checked="" type="radio"/> active
Display setting	Time switch <input type="radio"/> not active <input checked="" type="radio"/> active
Info display and standby display	Two-button function <b>2</b> temperature shift
Functional levels	Temperature shift 1Bit temperature shift
PIN-Code	Use internal temperature <b>3</b> <input checked="" type="radio"/> not active <input type="radio"/> active
Logic	With left push button move down and with right push button move up
	Repeated sending at pressed key <input checked="" type="radio"/> not active <input type="radio"/> active
+ Temperature/Ventilation	Function name over text input
+ Direct buttons	Text <b>4</b> Living room
- Menu and time switch functions	Colour of symbol red
Basic settings	 Symbol 6
Selection of functions	Labeling of actual temperature Act
+ F1: Living room Setpoint	Labeling of the setpoint temperature Set
+ F2: Bedroom setpoint	Function level / Category temperature

- (1)** The description of objects helps to link the group addresses.
- (2)** As two-button function, we select temperature shift via 1 bit.
- (3)** We can use the internal temperature value if the *Glass Central Operation Unit Smart* is installed in the room to be controlled. If the temperature value is provided by an external temperature sensor, we set this parameter to "not active".
- (4)** This text appears on the display.

## Linking of group addresses:

All necessary group addresses for the setpoint shift in the room "Living room" are linked as shown below. All other rooms follow this example.

### Glass Central Operation Unit Smart:

1.1.12 BE-GBZx.01 Glass Central Operation Unit Smart										
0	F1: Living room Setpoint	Setpoint shift	Setpoint shift living room	0/0/2	1 bit	C	-	-	T	- step
1	F1: Living room Setpoint	State actual temperature	Temperature value living room	0/0/1	2 bytes	C	-	W	T	U temperature (°C)
2	F1: Living room Setpoint	State current setpoint	Current setpoint living room	0/0/3	2 bytes	C	-	W	T	U temperature (°C)

### Heating Actuator:

1.1.10 AKH-0800.03 Heating Actuator 8-fold, 4SU MDRC, 24/230VAC										
1	Channel A: Living room	Receive temperature value	Temperature value living room	0/0/1	2 bytes	C	-	W	T	U temperature (°C)
2	Channel A: Living room	Preset setpoint			2 bytes	C	-	W	-	- temperature (°C)
8	Channel A: Living room	Send current setpoint	Current setpoint living room	0/0/3	2 bytes	C	R	-	T	- temperature (°C)
9	Channel A: Living room	Manual setpoint shift (2byte)			2 bytes	C	-	W	-	- temperature difference (K)
10	Channel A: Living room	Manual setpoint shift (1=+ / 0=-)	Setpoint shift living room	0/0/2	1 bit	C	-	W	-	- step

## Option: Central operating mode selection

A simple way to switch operating modes centrally is to use scenes. If the *Glass Central Operating Unit Smart* is installed in the entrance area, the function can be conveniently implemented with a *present* or *absent* scene, for example. The [direct buttons] of the *Glass Central Operating Unit Smart* can be used for this purpose.

### Settings on Heating Actuator:

First activate scene A and B.

1.1.10 AKH-0800.03 Heating Actuator 8-fold, 4SU MDRC, 24/230VAC > Scenes > Activate scenes

General settings	Scene A	<input type="radio"/> not active	<input checked="" type="radio"/> active
Channel selection	Scene B	<input type="radio"/> not active	<input checked="" type="radio"/> active
+ Channel A: Living room	Scene C	<input checked="" type="radio"/> not active	<input type="radio"/> active
+ Channel B: Bedroom	Scene D	<input checked="" type="radio"/> not active	<input type="radio"/> active
+ Channel C: Child 1	Scene E	<input checked="" type="radio"/> not active	<input type="radio"/> active
+ Channel D: Child 2	Scene F	<input checked="" type="radio"/> not active	<input type="radio"/> active
+ Channel E: Kitchen	Scene G	<input checked="" type="radio"/> not active	<input type="radio"/> active
+ Channel F: Bathroom	Scene H	<input checked="" type="radio"/> not active	<input type="radio"/> active
- Scenes	Scene I	<input checked="" type="radio"/> not active	<input type="radio"/> active
Activate scenes	Scene J	<input checked="" type="radio"/> not active	<input type="radio"/> active
Scene A	Scene K	<input checked="" type="radio"/> not active	<input type="radio"/> active
Scene B	Scene L	<input checked="" type="radio"/> not active	<input type="radio"/> active
	Scene M	<input checked="" type="radio"/> not active	<input type="radio"/> active
	Scene N	<input checked="" type="radio"/> not active	<input type="radio"/> active



**Scene A** set all channels to the operating mode "Comfort" and listen to the KNX scene number 1. The KNX scene number 1 is our scene for "Present".

**Note:** Select the scene number according to your project. If you do not yet work with scenes, you can adopt scene number 1 for your project.

1.1.10 AKH-0800.03 Heating Actuator 8-fold, 4SU MDRC, 24/230VAC > Scenes > Scene A

General settings	Scene number	1
Channel selection	Operating mode	Comfort
+ Channel A: Living room	Scene valid for channel A	<input type="radio"/> not active <input checked="" type="radio"/> active
+ Channel B: Bedroom	Scene valid for channel B	<input type="radio"/> not active <input checked="" type="radio"/> active
+ Channel C: Child 1	Scene valid for channel C	<input type="radio"/> not active <input checked="" type="radio"/> active
+ Channel D: Child 2	Scene valid for channel D	<input type="radio"/> not active <input checked="" type="radio"/> active
+ Channel E: Kitchen	Scene valid for channel E	<input type="radio"/> not active <input checked="" type="radio"/> active
+ Channel F: Bathroom	Scene valid for channel F	<input type="radio"/> not active <input checked="" type="radio"/> active
- Scenes	Scene valid for channel G	<input checked="" type="radio"/> not active <input type="radio"/> active
Activate scenes	Scene valid for channel H	<input checked="" type="radio"/> not active <input type="radio"/> active
	Scene A	
	Scene B	

- (1) KNX scene number 1 and the desired operating mode "Comfort".
- (2) Activate all channels here that are to be switched over when the scene is called up. In our case, all set channels of the heating actuator. (A-F)

**Scene B** is to set all channels to the operating mode "Standby" and listen to the KNX scene number 2. The KNX scene number 2 is our scene for "absent".

**Note:** Select the scene number according to your project. If you do not yet work with scenes, you can adopt scene number 2 for your project.

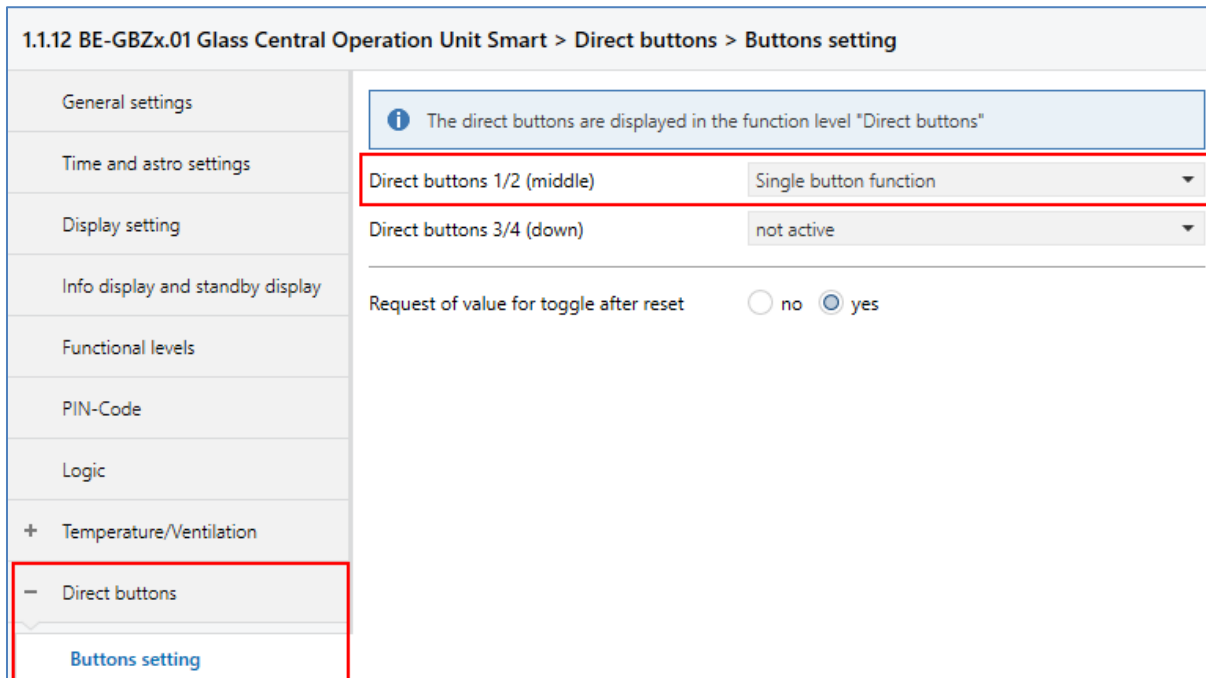
1.1.10 AKH-0800.03 Heating Actuator 8-fold, 4SU MDRC, 24/230VAC > Scenes > Scene B

General settings	Scene number	2
Channel selection	Operating mode	Standby
+ Channel A: Living room	Scene valid for channel A	<input type="radio"/> not active <input checked="" type="radio"/> active
+ Channel B: Bedroom	Scene valid for channel B	<input type="radio"/> not active <input checked="" type="radio"/> active
+ Channel C: Child 1	Scene valid for channel C	<input type="radio"/> not active <input checked="" type="radio"/> active
+ Channel D: Child 2	Scene valid for channel D	<input type="radio"/> not active <input checked="" type="radio"/> active
+ Channel E: Kitchen	Scene valid for channel E	<input type="radio"/> not active <input checked="" type="radio"/> active
+ Channel F: Bathroom	Scene valid for channel F	<input type="radio"/> not active <input checked="" type="radio"/> active
- Scenes	Scene valid for channel G	<input checked="" type="radio"/> not active <input type="radio"/> active
Activate scenes	Scene valid for channel H	<input checked="" type="radio"/> not active <input type="radio"/> active
Scene A		
Scene B		

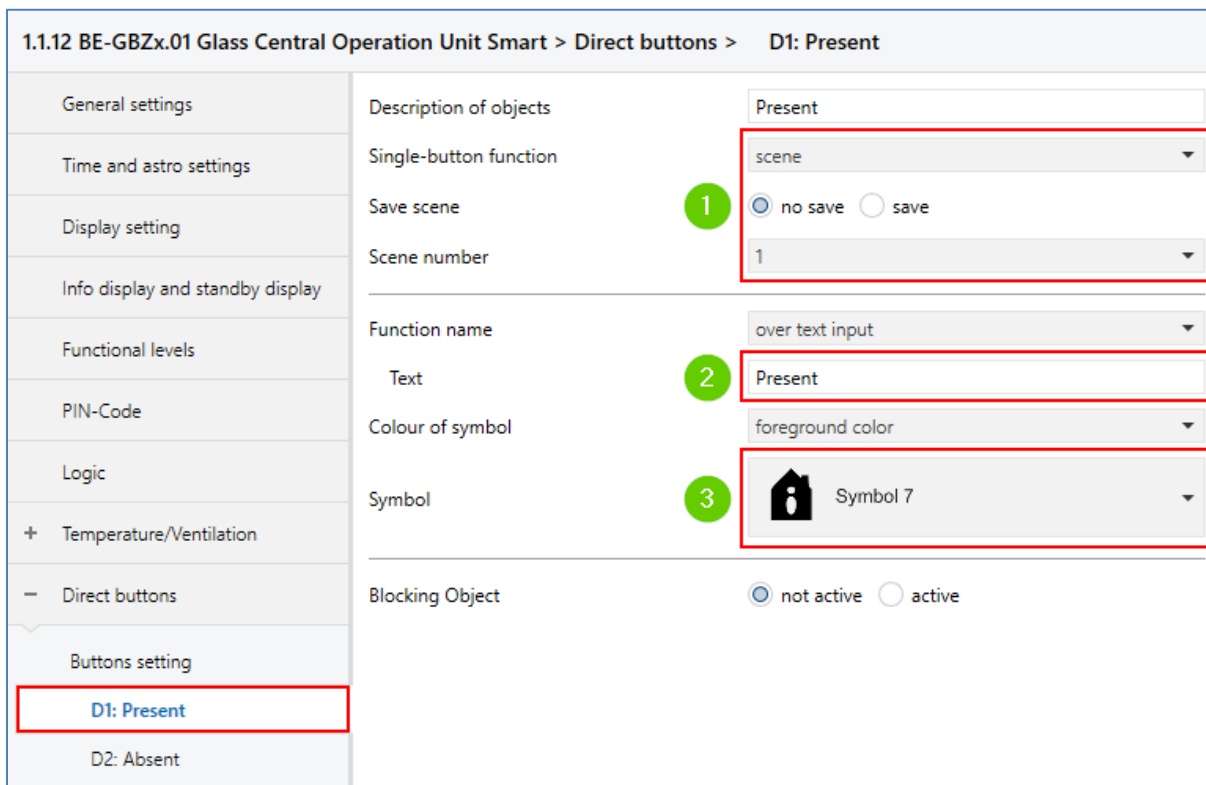
- (3) KNX scene number 2 and the desired operating mode "Standby".
- (4) Activate all channels here that are to be switched over when the scene is called up. In our case, all set channels of the heating actuator. (A-F)

### Settings on Glass Central Operation Unit Smart:

First activate "Single-button function" for "Direct button 1/2", for example.




Direct button 1 triggers KNX scene number 1 (1). The function name is accordingly "Present" (2). Select the right symbol for the scene (3).



Direct button 2 triggers KNX scene number 2 (1). The function name is accordingly "Absent" (2). Select the right symbol for the scene (3).

1.1.12 BE-GBZx.01 Glass Central Operation Unit Smart > Direct buttons > D2: Absent

General settings	Description of objects	Absent
Time and astro settings	Single-button function	scene
Display setting	Save scene	<input checked="" type="radio"/> no save <input type="radio"/> save
Info display and standby dis...	Scene number	2
Functional levels	Function name	over text input
PIN-Code	Text	Absent
Logic	Colour of symbol	foreground color
+ Temperature/Ventilation	Symbol	 Symbol 8
- Direct buttons	Blocking Object	<input checked="" type="radio"/> not active <input type="radio"/> active
Buttons setting		
D1: Present		
<b>D2: Absent</b>		

### Linking the group addresses:

Now the scene objects in both devices are linked together.

#### Heating Actuator:

332	Scene	Activate	Scene	1/1/1	1 byte	C	-	W	-	-	scene number
-----	-------	----------	-------	-------	--------	---	---	---	---	---	--------------

#### Glass Central Operation Unit Smart:

102	D1: Present	Scene	Scene	1/1/1	1 byte	C	-	-	T	-	scene number
107	D2: Absent	Scene	Scene	1/1/1	1 byte	C	-	-	T	-	scene number