

Technical Documentation



group addresses

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1. Introduction and Definitions

Many electricians and planners use historically developed groups graduations. This usually does not meet the requirements that are required for an automatic project creation, as in EiPLAN. Therefore, it is usually not advisable to stick to the traditional. Here the most important considerations that are realized in EiPLAN and care regardless of the size of the task for a secure project creation.

1.1 group addresses

In a KNX system we have 3 types of group addresses:

1. System Groups

Are also referred to as a central groups. They usually contain cross-readings (weather station), value specifications (base setpoint) and switch commands (external light) or messages (strong wind, night, frost protection, fault Heating).

2. Circuit Groups

These control the main functions of a circuit (lamps and sockets off, the blinds, heating manipulated variable).

3. Functional Groups

These are sub-functions of the circuits (dimming, brightness value, feedback). Depending on the actuator more or less functions per channel are required.

1.2 Circuit Types

Circuits, the connection to the consumers in the installation. For each circuit type, there are special actuator types. They classified according to trade. Actuator types have a short mark of 2 letters.

Table 1

circuit type		actuator Type
lighting switchable	SA	Switching actuator - controls a switchable lamp
lighting dimmable	DA	Dimming actuator - controls a dimmable lamp
Drives blinds and roller blinds	JA	Blind actuator - controls the drive of a blind
Heating ventilation air	HA	Heating actuator - controls the heating circuits of a floor heating or Actuator for radiators
Energy measurement switchable	EA	Switching actuator with current or power measurement and counter function
Unswitched circuits	-	No actuator (have no meaning for the KNX system, but serve the documentation)

1.3 Function Sets

For each circuit type, a feature set can be defined. It describes which functions are required for the actuator type. The function sets can be freely configured in EiPLAN. Here you can see our recommended basic setting.

Table 2

circuit type	actuator type	function	code
sensors	x	Programmable	
lighting switchable	SA	switch	F1
		Switching feedback	F4
lighting dimmable	DA	dimming	F2

		switch	F1
		Switching feedback	F4
		brightness	F3
		Feedback brightness	F5
consumer measurable	EA	switch	F1
		Switching feedback	F4
		Current measurement	F23
		hours	F25
		meter reading	F24
Drives (blinds, roller blinds)	JA	Drive	F7
		adjust	F8
		Feedback Top	F27
		Feedback below	F28
		position	F50
		Position feedback	F29
		slat position	F49
		Feedback slat position	F48
Heating Ventilation Air	HA	control variable	F9
		room temperature	F10
		Current setpoint	F11
		Setpoint shift	F30
		comfort mode	F13
		antifreeze	F15
		operating mode	F38
		Cooling variable	F42
Unswitched circuits	-	Circuit number (no function KNX)	
special purpose	x	Programmable	

1.4 actuator designations

Most actors have multiple channels and can control several consumers.

We denote the actuators therefore a short name of actor type and number of channels:

SA8 is a switching actuator with 8 channels.

DA4 is a dimming actuator with 4 channels.

1.5 building structure

The next important question is: where the consumer is in the building.

EiPLAN working with floor plans that represent areas of the building.

In the simplest case, a plan for each floor is available. In large buildings, a plan can also be only the part of a bunk capture (EC North, South EC) or an apartment.

The ETS uses a building structure that allows 3 outline levels to a plan:

>>> House

>>> Section / Apartment

>>> floor

EiPLAN hereby forms his plan name:

House1_Apartment1_First floor.

Within a plan, there are several rooms.

Within a room, there are circuits (consumer, lamps and sockets).

The circuit name is formed by room and consumer:
living room_ceiling lamp.

1.6 Group Address Name

The Group Address Name is the circuit name.
Optionally, the plan name can be prefixed. For Scheme A necessary.
House1_Apartment1_First floor_living room_ceiling lamp.

2. Group Address Scheme

The KNX system uses 16-bit group addresses. So there are 65,536 different group addresses. In order to increase the index to a 3-compartment representation has prevailed.

The upper 5 bits are used as the main group, so there are 32 main groups.

The middle 3 bits as a middle group, so there are 8 middle groups.

And the lower 8 bits as a subgroup of 256 consecutive numbers.

The group address scheme has the task to organize the group addresses makes sense. The following information must be coded uniquely for each circuit:

>>> 1. plan membership

>>> 2. circuit type (activity) and thus actuator type

>>> 3. Circuit number

>>> 4. functions

With regard to large building and the limited number of group addresses this must also be done efficiently. Unused addresses are therefore to be avoided.

So we have the following hierarchy in the building:

Table 3

plans	Circuit Types	circuits	functions
0 Central 1..31 floors	Divided by the necessary KNX device type. (Sensor-Actuator types)	Serial number in this type	Main function and sub-functions according to the type

2.1 EiPLAN Scheme B:

Through the group address scheme, the hierarchy is mapped to the 3 parts of the group address, you can see our recommended EiPLAN Scheme B:

Table 4

main group	Central group	subgroup
0 Central 1..31 plans	0..7 circuit types	0.255 from 0, the first circuit starts with its main function followed by the sub-functions of this circuit. So a circuit is for its features a contiguous block of sub-groups. From s the second circuit follows

The number distance s between the circuits we call increment. It corresponds to the number of functions required and can be set differently for each circuit type.

From the group address plan, actuator type and function of the group is clearly visible.

All functions of a circuit are in consecutive group addresses.

From the feature set gives the number of the functions of a circuit type.

Since 256 subgroups are available, the number of possible circuits calculate:

Table 5

circuit type	functions	Circuits per plan	Circuits per building
sensors	1	256	7936

lighting switchable	2	128	3968
lighting dimmable	5	51	1581
consumer measurable	5	51	1581
drives	8	32	992
heating circuits	8	32	992
Unswitched circuits	1	256	7936
Free for special tasks	x	256 / x	7936 / x

2.2 EiPLAN Scheme A: (not recommended for new projects)

Especially in family houses following scheme has been chosen in the past:

Table 6		
main group	Central group	subgroup
0 Central	0..7 function	0.255 Circuit number
1..6 circuit type		
From 7 free		

However, this classification has some limitations:

>>> A maximum of 8 features each circuit are possible because there are only 8 middle groups

>>> The plan (floor) is not encoded in the group address, it must therefore be included in the group name. In total, only 256 circuits each circuit type are possible. A variety of group addresses remain unused, therefore only applicable for small projects

Table 7			
circuit type	functions	Circuits per building	comment
sensors	1	256	almost
lighting switchable	2	256	almost
lighting dimmable	5	256	almost
consumer measurable	5	256	almost
drives	8	256	does not appear in EFH
heating circuits	8	256	does not appear in EFH
Unswitched circuits	1	256	almost
Free for special tasks	8	4352	plentiful

End of document.