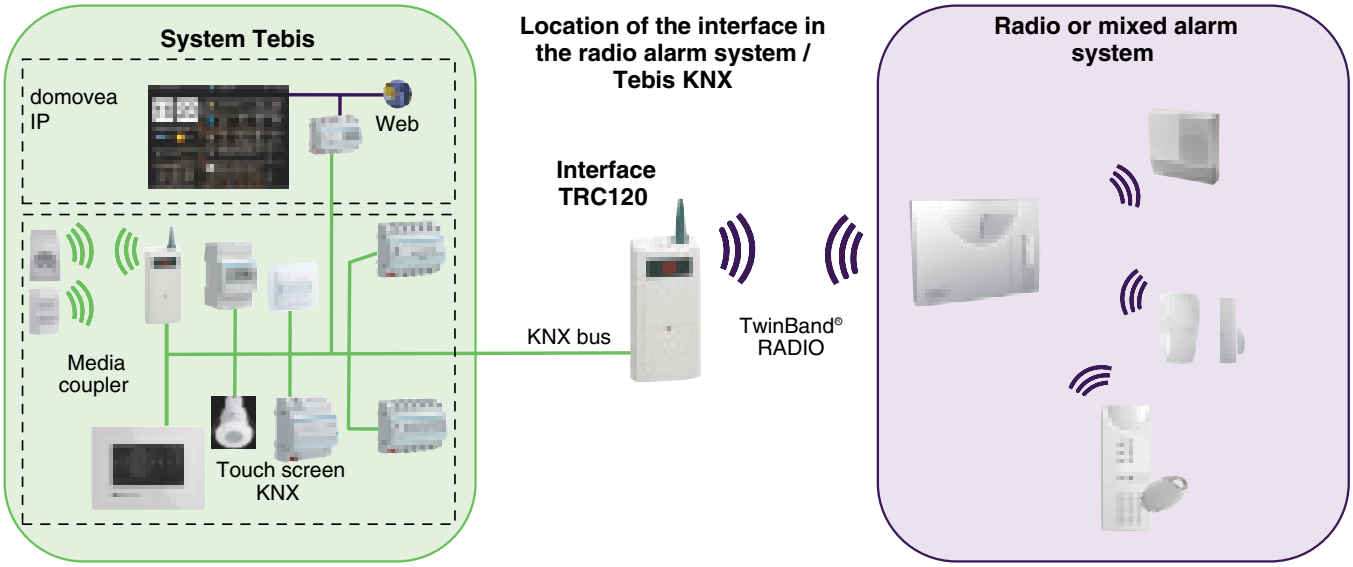
Tebis application software

LS alarm interface / TP KNX

Electrical / Mechanical characteristics: see product user manual

	Product reference	Product designation	Application software ref.
	TRC120C	LS alarm interface / TP KNX	STRC120



Summary

1. Description of the TRC120 interface

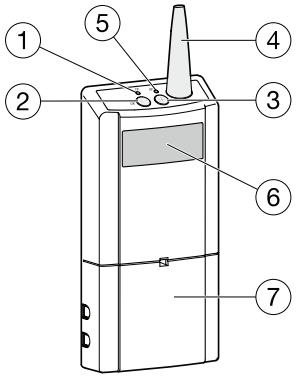
The TRC120 interface is used to enable an intrusion alarm system from the LS range (radio or mixed central unit) to communicate with the KNX world. On the alarm side, the interface communicates with the alarm central unit by radio and by TP bus on the KNX side.

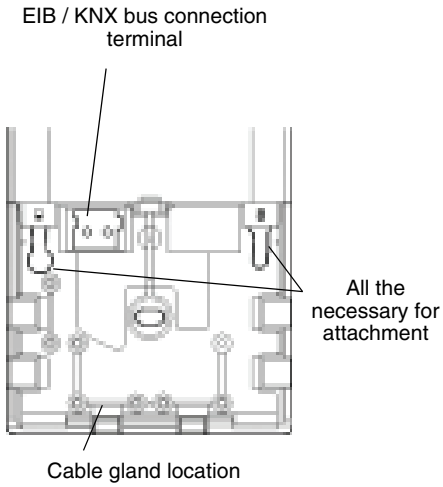
It acts as an input/output product which includes:

- 8 KNX outputs, these are KNX commands received by interface which are then transmitted to the alarm central unit,
- 16 KNX inputs, this is alarm system status information sent from the central unit, to which KNX controls can be associated.

1.1 Description

① **traffic TP KNX** LED (twisted part), signalling indicator **red**
② Programming pushbutton **OK** ⊖
③ Programming pushbutton ⊕
④ Antenna
⑤ **traffic RF** LED radio alarm TwinBand® (radio frequency), signalling indicator **green**
⑥ 2 x 8 segment display
⑦ Hatch





How can we distinguish between the inputs and outputs on the TRC120 ?
To distinguish the 16 inputs from the 8 outputs on the TRC120, the product display indicates the numbers respectively in the following way:

- 1 to 16 for the inputs
- 1° to 8° for the outputs

1.2 Reminder: Alarm system glossary

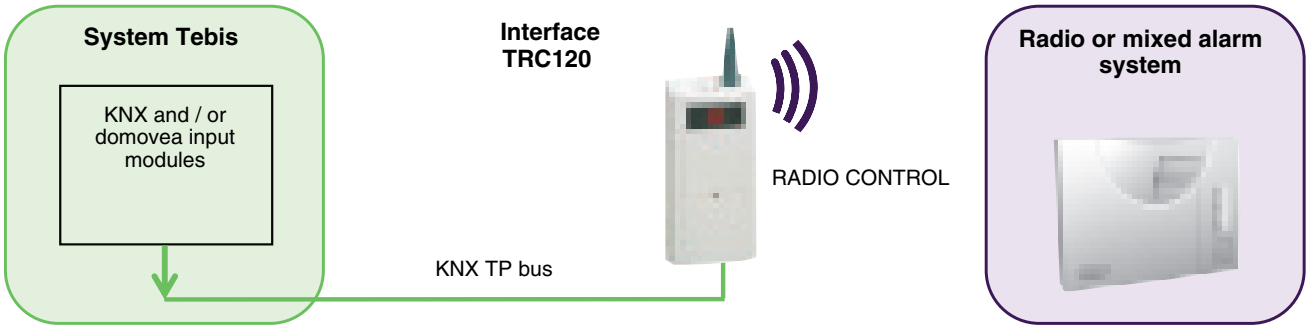
Radio alarm controls or events	Central unit
Group X On / Off	• Switching on or off of group X • Each control acts on the group concerned without modifying the status of the other groups
Partially on 1	Start-up of group 1 only, the other groups switch off
Fully on	Start-up of all the groups
Fully off	All the groups are switched off
Exit open	Management of the status of exits remaining open
Anomaly	• Storage of voltage, self protection, cut telephone line, radio connection anomaly • Re-emission of system anomaly by the central unit whatever the status of the system

System reactions			
Type of alarm	**Central unit**	**Siren alarm bell**	**Telephone transmission**
Low pre-alarm (Progression of the intrusion level 1)	• 5 s audible beeps • Storage in the event log	Low level	NO
Loud pre-alarm (Progression of the intrusion level 2)	• 15 s alarm bell • Storage in the event log	Low level or maximum power	NO
Intrusion or intrusion confirmed (*)	• Maximum power alarm bell • Storage and vocal indication	Maximum power	YES
Warning (Individual protection)	• Maximum power alarm bell • Storage and vocal indication	Maximum power	YES
Silent warning (Individual protection, Panic)	• No alarm bell • Storage and vocal indication	NO	YES
Fire alarm	• Maximum power alarm bell for 5 min (Specific modulation) • Storage and vocal indication	Specific modulation	YES
Technical alarm (Frost, Mains, Flooding, Freeze fault)	• No alarm bell • Storage of the alarm • Voice indication of the detection	NO	YES

(*) Intrusion confirmed = (Pre-alamr + Intrusion) or 2 consecutive intrusions
For a detailed explaination of the operation of the alarm system, please consult the manual for the alarm central unit.

2. Operation: from the KNX bus to the radio alarm via the TRC120

In the direction Bus to alarm system, the interface can receive KNX controls to re-emit them by radio to the intrusion alarm central unit.

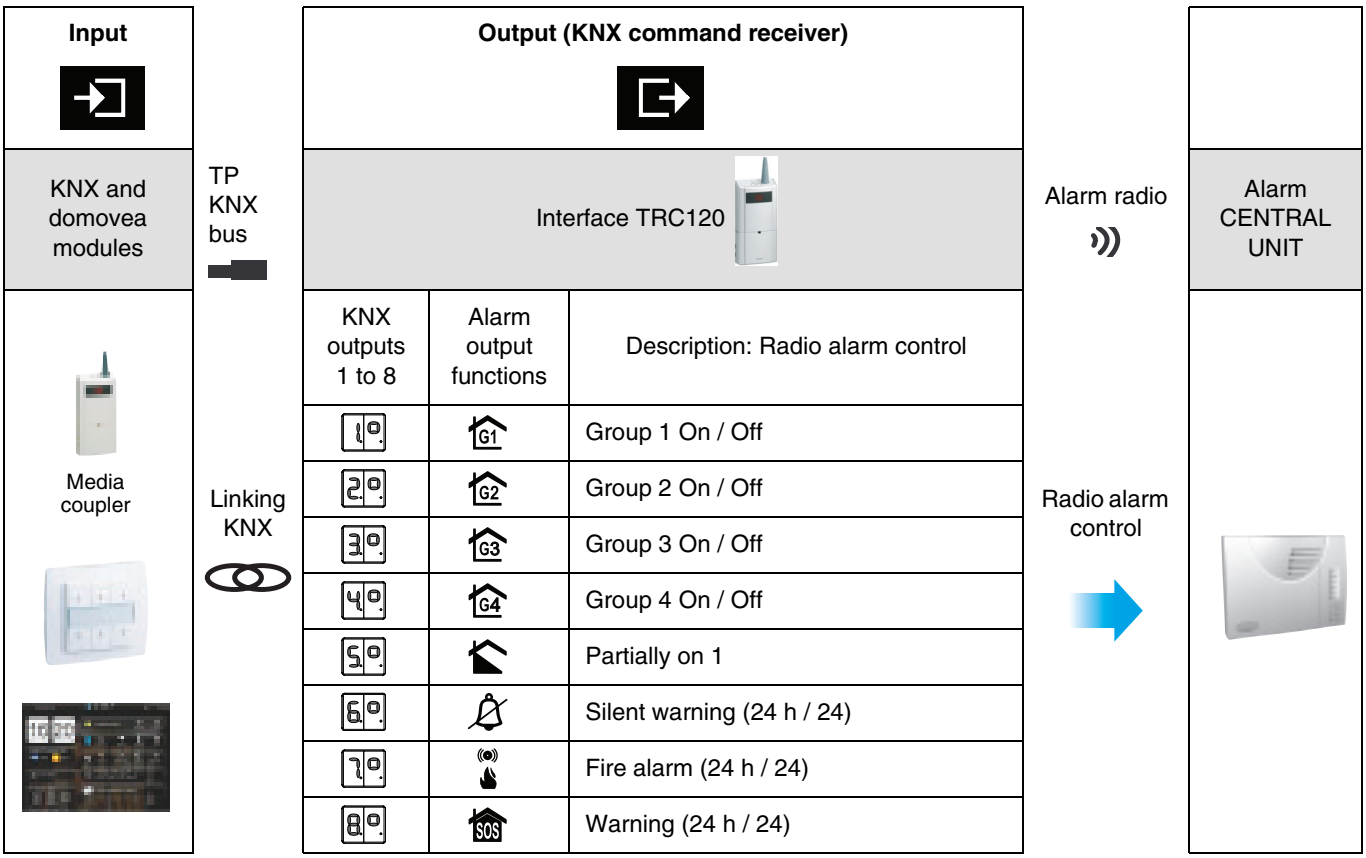


2.1 List of Receiver objects

Number	Name	Object Function	Length	C	R	W	T	U	Data Type
0	Arming / disarming group 1	ON / OFF	1 bit	C	R	W	-	U	on/off
3	Arming / disarming group 1	Scene	1 Byte	C	R	W	-	U	
4	Arming / disarming group 1	Status indication	1 bit	C	R	-	T	U	on/off
5	Arming / disarming group 2	ON / OFF	1 bit	C	R	W	-	U	on/off
8	Arming / disarming group 2	Scene	1 Byte	C	R	W	-	U	
9	Arming / disarming group 2	Status indication	1 bit	C	R	-	T	U	on/off
10	Arming / disarming group 3	ON / OFF	1 bit	C	R	W	-	U	on/off
13	Arming / disarming group 3	Scene	1 Byte	C	R	W	-	U	
14	Arming / disarming group 3	Status indication	1 bit	C	R	-	T	U	on/off
15	Arming / disarming group 4	ON / OFF	1 bit	C	R	W	-	U	on/off
18	Arming / disarming group 4	Scene	1 Byte	C	R	W	-	U	
19	Arming / disarming group 4	Status indication	1 bit	C	R	-	T	U	on/off
20	partial arming	ON / OFF	1 bit	C	R	W	-	U	on/off
23	partial arming	Scene	1 Byte	C	R	W	-	U	
25	Silent alert	ON / OFF	1 bit	C	R	W	-	U	on/off
28	Silent alert	Scene	1 Byte	C	R	W	-	U	
30	Fire alarm	ON / OFF	1 bit	C	R	W	-	U	on/off
33	Fire alarm	Scene	1 Byte	C	R	W	-	U	
35	Alert	ON / OFF	1 bit	C	R	W	-	U	on/off
38	Alert	Scene	1 Byte	C	R	W	-	U	

The following controls can be emitted by a KNX emitter to the alarm system via the TRC120 interface:

- On / Off group 1 to 4
- Partially on
- Silent warning
- Fire alarm
- Warning



The objects listed above behave like KNX command receivers (Outputs KNX). A **Receiver ON / OFF** and / or **Scene** Object can be associated with each of these 8 controls.
The group 1 to 4 on / off controls also have a **Status indication** emitter object. This indicates the real status of the group on the bus even if switching on or off is performed by an emitter from the alarm system. This indication is emitted immediately, without waiting for the alarm system input or output time delay to elapse.
Delayed emission of the on / off by the TRC120 is available on the **Group 1 to 4 on off status emitters** or **On status** or **Total shut-down** objects.

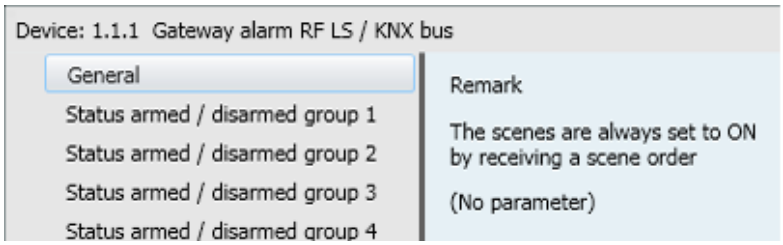
On and fully off
To obtain the Fully on and Fully off controls (On or Off of all the central unit groups) the secure emitter (**On** or **Off** or **On / Off** function) must be connected to the 4 entitled On / Off group 1 to 4.
With domovea, the default controls Fully on and Fully off are proposed which automatically associate the active groups of the central unit (2, 3 or 4 groups). Please consult the TRC120 manual for the configuration of the number of active groups.

RECOMMENDATION
Switching off the alarm central unit from any device must be performed in a secure manner with an access code, password or key.
Products are installed and used under the sole responsibility of the installer and end customer.
The manufacturer may in no way be held responsible in the event of damage linked to fraudulant or malicious use of the product.

2.2 Parameters, Scene function and reset

Parameters:
There are no parameters for the **Receiver** objects above.

Scene function:

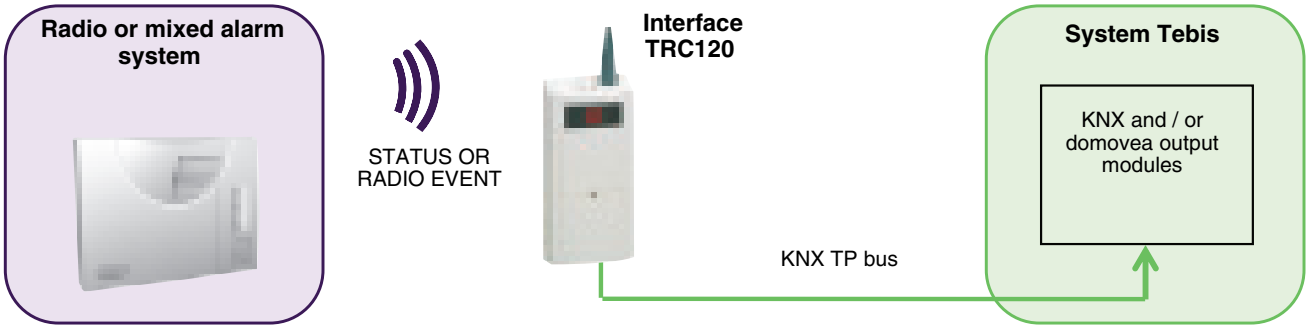


When receiving commands, all the **Scène** objects are always set to ON. This parameter cannot be modified in ETS. The purpose of this restriction is to avoid an alarm indication being stopped or the total shutdown of the alarm sysetm by a scene type control. In the direction KNX to the alarm system, the Scene function will only allow the activation of the alarm groups or the reporting of an alarm or a warning.

Reset:
If the **Silent warning, Fire alarm and Warning** controls are emitted from aKNX emitter, a reset mechanism must be provided for the emitter so that the following indications are taken into account.

3. Operation: from the radio alarm to the KNX bus via the TRC120

In the direction alarm system to KNX bus, the interface can receive up to 16 statuses or alarm events transmitted by the alarm central unit. It is possible to associate KNX controls with these events to trigger a reaction on domovea or in the KNX installation: lighting, blinds or shutters, heating controls...
The interface plays the role alarm event receiver and behaves as an input product (command emmitter) on the KNX side.



3.1 List of Emitter objects

The **KNX** objects corresponding to the 16 items of status information (from "Group 1 On / Off status" to "Technical alarm status") and the associated parameters are always identical.
For each of these items of information, the associated object will be selected in the "Parameters" view from one of the following 6 functions: ON / OFF, Shutters / blinds, Heating, Priority, Scene or Timer.

Number	Name	Object Function	Length	C	R	W	T	U	Data Type
41	Status armed / disarmed group 1	ON / OFF	1 bit	C	R	-	T	U	on/off
47	Status armed / disarmed group 2	ON / OFF	1 bit	C	R	-	T	U	on/off
53	Status armed / disarmed group 3	ON / OFF	1 bit	C	R	-	T	U	on/off
59	Status armed / disarmed group 4	ON / OFF	1 bit	C	R	-	T	U	on/off
65	Status global armed	ON / OFF	1 bit	C	R	-	T	U	on/off
71	Status global disarmed	ON / OFF	1 bit	C	R	-	T	U	on/off
77	Status protected entrance	ON / OFF	1 bit	C	R	-	T	U	on/off
83	Status anomaly	ON / OFF	1 bit	C	R	-	T	U	on/off
89	Status discrete prealarm	ON / OFF	1 bit	C	R	-	T	U	on/off
95	Status full prealarm	ON / OFF	1 bit	C	R	-	T	U	on/off
101	Status intrusion	ON / OFF	1 bit	C	R	-	T	U	on/off
107	Status intrusion confirmed	ON / OFF	1 bit	C	R	-	T	U	on/off
113	Status alert	ON / OFF	1 bit	C	R	-	T	U	on/off
119	Status silent alert	ON / OFF	1 bit	C	R	-	T	U	on/off
125	Status fire alarm	ON / OFF	1 bit	C	R	-	T	U	on/off
131	Status technical alarm	ON / OFF	1 bit	C	R	-	T	U	on/off

Processing of the various items of information from the central unit

- **Return of the system to On and Off status***:
  - The alarm system is returned to on status at the end of the central unit output time delay,
  - The alarm system is returned to off status at the end of the central unit input time delay,
  - With domovea, it is possible to interrogate the system to find out the current status of groups 1 to 4.
- **Exit open**: When the system is switched **on**, the status of the exits is stored (deleted when the alarm system is next switched off).
- **Anomaly**: When the system is switched **on** or **off**, the anomalies are stored (deleted when the alarm system is next switched on).
- **Low pre-alarm / Loud pre-alarm / Intrusion / Intrusion confirmed / Warning / Silent warning / Fire alarm / Technical alarm**: On switching **off**, the alarms are stored (delected when the alarm system is next switched on).

* The "on and off" statuses of the central unit can also be reported immediately if no input and / or output time delay is programmed on the central unit.

3.2 Description of the parameters

In the Configuration screen, it is the choice of function which will determine the type of object available (See the example below with the **Group 1 On / off status** object).

Parameters		Corresponding object	
Function	**Value on reception of alarm event**	**Name**	**Function**
Not used	Default value: Not used		
ON / OFF	OFF / -, ON / -, OFF / ON, ON / OFF	Group 1 On / Off status	ON / OFF
Shutters / blinds	Up, Down, Up / Down, Down / Up	Group 1 On / Off status	Up / Down
Heating	Comfort / Night set-point, Comfort, Night set-point, Frost protection / Auto, Frost protection, Auto, Standby, Comfort / Standby	Group 1 On / Off status	Set point selection
Priority	Priority ON / Down / Comfort, Priority OFF / Up / Frost protection	Group 1 On / Off status	Priority
Scene	Scene 1 to 32	Group 1 On / Off status	Scene
Timer	No duration parameters (to be adjusted on the output)	Group 1 On / Off status	Timer

Setting parameters

Function ON / OFF

This function is used to switch the lighting circuit or any other load ON or OFF.
The control is sent by the **ON / OFF** object must be defined in the parameters.

- ON / -: Emission of the ON control upon reception of the event transmitted by the alarm central unit to the TRC120 (E.g. start-up of group 1,
- OFF / -: Emission of the OFF control upon reception of the corresponding event, no action when the event disappears,
- OFF / ON: Emission of the OFF control upon reception of the event, ON emmission when the corresponding event disappears,
- ON / OFF: Emission of the ON control upon reception of the event, emission of OFF when the corresponding event disappears.

Shutter / blinds functions

This function controls shutters and blinds. The command to be sent by the **Up / Down** object must be defined in the parameters.

- Up: Emission of the Up control upon reception of the event, no action when the event disappears,
- Down: Emission of the Down command upon reception of the event, no action when the event disappears,
- Up / Down: Emission of the Up control upon reception of the event, emission of the Down control when the corresponding event disappears,
- Down / Up: Emission of the Down control upon reception of the event, emission of the Up control when the corresponding event disappears.

Heating function

This function is used select a heating setpoint. The setpoint to be sent by the **Setpoint selection** object must be defined in the parameters.

- Comfort / Night set-point: Emission of the Comfort object upon reception of the event, emission of Reduced when the corresponding event disappears,
- Comfort: Emission of the Comfort setpoint upon reception of the corresponding event, no action when the event disappears,
- Night set-point: Emission of the Reduced setpoint upon reception of the corresponding event, no action when the event

disappears,

- Frost protection / Auto: Emission of the Frost protection setpoint upon reception of the event, emission of Auto when the corresponding event disappears,
- Frost protection: Emission of the Frost protection setpoint upon reception of the corresponding event, no action when the event disappears,
- Auto: Emission of the Auto setpoint upon reception of the corresponding event, no action when the event disappears,
- Standby: Emission of the Economy setpoint upon reception of the corresponding event, no action when the event disappears,
- Comfort / Standby: Emission of the Comfort setpoint upon reception of the event, emission of Economy when the corresponding event disappears,

Priority function

This function sends priority-start or priority-stop commands. No other command is taken into account if a priority is active. Only end of priority or alarm commands will be taken into consideration.
The priority action depends on the type of appplication controlled: lighting, rolling shutters, heating. The priority control to be sent by the **Priority** object must be defined in the parameters.

- Priority ON / Down / Comfort: Emission of Priority On - Down - Comfort upon reception of the corresponding event, cancelling of this priority when the event disappears,
- Priority OFF / Up / Frost protection: Emission of priority OFF - Up - Frost protection upon reception of the corresponding event, cancellation of this priority when the event disappears.

Timer function

This function operates like a staircase light function. The commands are sent by object **Timer**. The timer duration is set on the output module.

- Timer: Emission of the timer control upon reception of the corresponding event, no action when the event disappears.

Scene function: Scene N° 1 to 32

The Scene function sends group controls to different kinds of outputs to create ambiences or scenarios (Panic switch, television, etc.). The value of the **Scene** object is defined by the choice of the scene number.

- Scene N° x: Emission of the scene N° x upon reception of the corresonding event, no action when the event disappears.

3.3 Storage of the scene by the TRC120

Configuration of the scenes can only be done after downloading the links between the TRC120 **Scene emitter** object and the outputs controlled by the scene. The procedure which follows is used to teach the outputs concerned by the scene the statuses to be restored as soon as the corresponding scene is activated by the TRC120.

- Use the local controls to place the outputs concerned in the desired status (lighting on, lighting off, up, down, etc.),
- Enter the scene configuration menu by pressing and holding the "**+**" key of the TRC120 until "**Sc**" is displayed,
- Short successive presses on the "**+**" and "**-**" keys are used to search for and select the input number which activates the scene in question,
- Pressing and holding the **OK** key for (5 s) leads to the scene being stored. The gateway confirms storage by causing "**Sc**" to flash on its display for a few seconds.

4. Learning and Configuration

4.1 Physical addressing

Procedure for physical addressing of the TRC120:

- Enter the physical addressing mode: Give a short press simultaneously on the ⊖ and ⊕ keys ➜ "**Ad**" is displayed on the TRC120. The product remains in programming mode until the physical address has been transmitted by ETS,
- Exit the physical addressing mode manually: Give a short press simultaneously on the ⊖ and ⊕ keys.

4.2 Configuration

On the KNX side, the TRC120 interface is a TP product remotely supplied by the KNX bus. Addressing, configuration and creation of links between the various KNX products is performed in accordance with the KNX standard.

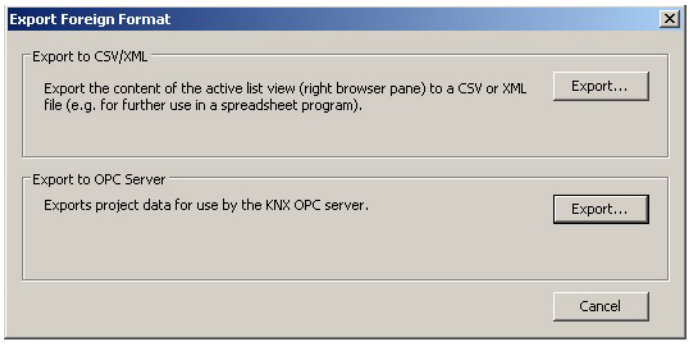
To allow dialogue between the alarm central unit and the TRC120 interface, the TRC120 must be learnt by the central unit (consult the TRC120 installation guide). ETS configuration of the TRC120 can be carried out before or after this learning.

4.3 Domovea

The TRC120 interface allows the integration of the alarm functions in domovea (domovea version 2.5 or >). An ETS export procedure followed by an import in domovea will allow domovea to recover all the group addresses required for its configuration. Before performing the export, check that all the addresses required are correctly linked to a TRC120 **Emitter** or **Receiver** object.

Export of the ETS group addresses

- Export procedure from ETS 3
  - Open the project including the TRC120 and then select: File menu / Save as CSV / XML
  - Select Export to the OPC server export



  - Name the file: Name of the project**.esf** and save
- Export procedure from ETS 4
  - Open the project including the TRC120 and then select Menu: Extras / Export OPC
  - Select Export to the OPC server export
  - Name the file: Name of the project**.esf** and save

Recovery of the group addresses in domovea

- Launch the domovea configurator then go to the menu: device
- Click on: See the KNX data / Configured by ETS / import
- Select the name of the project**.esf** file to be imported and click on open

The group addresses with names can now be linked to domovea devices by simple drag and drop.

Configuration of switching the central unit Fully On and Fully Off by domovea

Domovea automatically proposes the Fully on and Fully off control. To do this, domovea uses the addresses of the individual on and off controls for each group and emits them in bursts to obtain fully on and fully off in accordance with the number of active groups declared on the central unit.
It is therefore necessary to have an on / off group address for each of the groups taken individually.

5. Factory reset

This function enables the device to be returned to its initial configuration (configuration when it came out of the factory). After a device reset, the device can be re-used in a new installation.

- Factory reset on the product
  Simultaneously press for more than 5 s on the ⊖ and ⊕ keys until "**FA**" is appears on the display
- Factory reset by ETS
  Factory reset corresponds to the function
  - Unload in ETS 3
  - Unload the application and address in ETS 4

Factory reset causes the the product configuration to be completely deleted:

- Deletion of the physical address and links made
- Deletion of the address of the alarm central unit

After a TRC120 factory reset, the TRC120 needs to be recognised again by the alarm central unit (learning procedure).

6. Behaviour if the bus is cut off

The TRC120 interface does not operate while the bus is cut off. When the power returns to the bus, the interface requests a system status from the alarm central unit. After receiving this data, the TRC120 checks the statuses and re-emits on the bus those which have changed in comparison to the values saved before the outage (no parameters specifying behaviour when the bus is cut off and restored).

7. Main characteristics

Product	TRC120
Max. number of group addresses	254
Max. number of links	255
Parameters	32
Objects	84