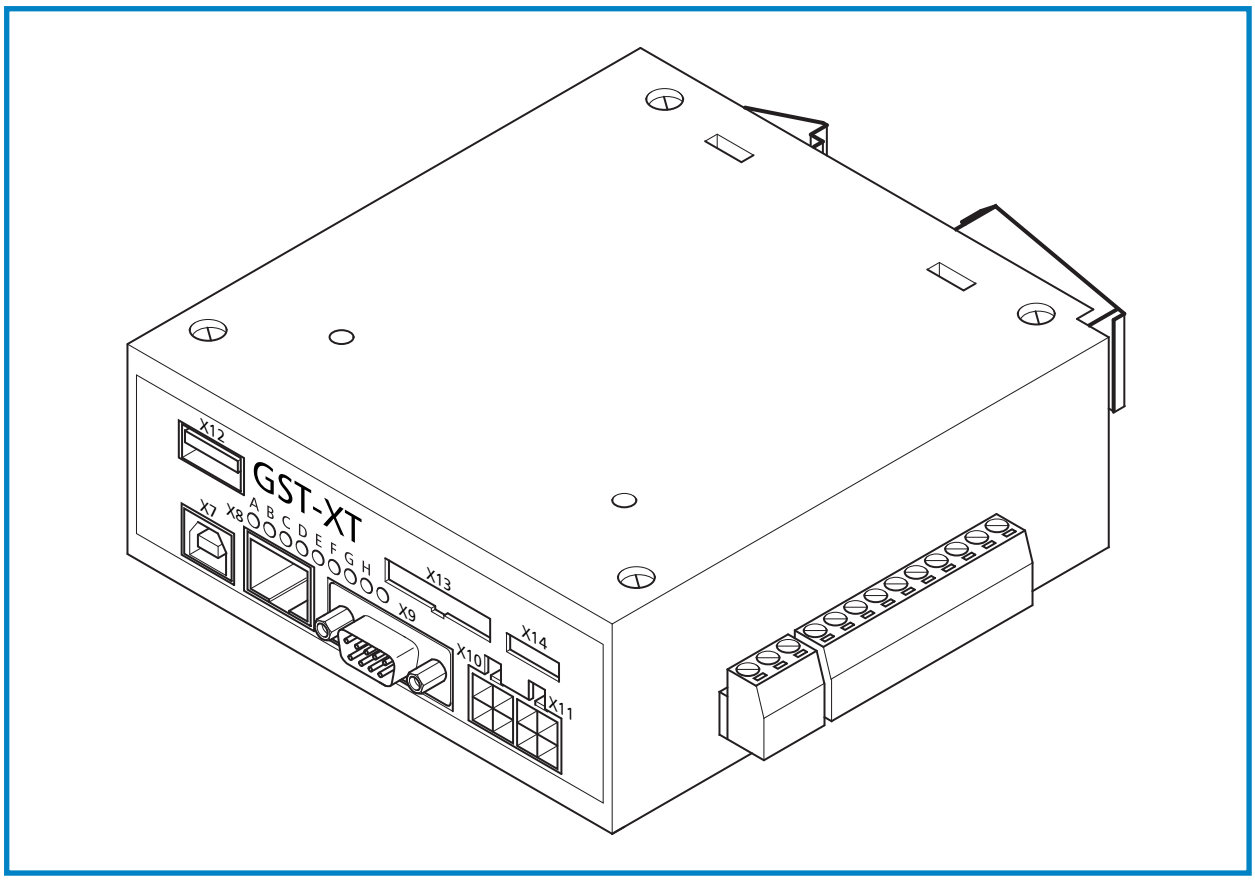
NEW LIFT
NEUE ELEKTRONISCHE WEGE

GST-XT

Group controller

MANUAL



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Inhalt

1 About this manual

The GST-XT manual is a comprehensive reference work for experienced lift service experts.

Objectives of this manual:

› describe characteristics and functions of the GST-XT
› describe the technical data of the GST-XT
› describe the GST-XT menu and all parameters
› describe commissioning of the GST-XT-Controller
› simplify troubleshooting
› describe the programmable inputs/outputs

Described in the following are the characteristics of the group circuit board.

The GST-XT group circuit board can be used for all controllers of the FST product family. References to the documentation or similar materials for controller types FST(-1), FST-2, FST-2s and FST-2XT are therefore generically referenced with "FST". Further information, such as documentation, wiring diagrams, etc., is to be used according to the respective FST-Controller.

1.1 Abbreviations, characters and symbols used

GST-XT
group circuit board; the GST-XT is located in a separate housing that is snapped onto the TS35 DIN rail in the control cabinet.

✶ **Delivery condition**
Settings that are supplied as standard are marked with an asterisk ✶.

Electrostatic charging

› Keep the electronic assembly in its original packaging until installation.
› Before opening the original packaging, a static discharge must be performed. To do this, touch a grounded piece of metal.
› During work on electronic assemblies, periodically perform this discharge procedure.

Information notice

This symbol is located in front of relevant information

1.2 Terminology

The term GST-XT refers to the group circuit board of the FST control system.

1.3 Further information

The following documents, among others, are available for the FST-Controller and its components.

› FST-Controller description
› FST installation & commissioning
› FST manual
› ADM manual
› EAZ-256 manual
› EAZ-LCD and EAZ-VFD manual
› EAZ-TFT manual

These and other current manuals can be found in the download area of our website under Service at http://www.newlift.de/en/service/download/

1.4 How to contact us

If, after referring to this manual, you still require assistance, our service line is there for you:

Tel +49 89 – 898 66 – 110
Mail service@newlift.de

Mon. - Thurs.: 8:00 a.m. – 12:00 p.m. and 1:00 p.m. – 5:00 p.m.
Fr: 8:00 a.m. – 3:00 p.m.

1.5 General safety regulations

The GST-XT must only be operated in perfect working condition in a proper manner, safely and in compliance with the FST Installation and Commissioning manual, the valid accident prevention regulations and the guidelines of the local power company.

This manual is a supplement to the FST manual and the FST Installation and Commissioning manual whose safety guidelines must always be observed.

1.5.1 Applicable standards and guidelines

The GST-XT-Controller satisfies:

› the safety guidelines for the construction and installation of passenger and goods passenger lifts (DIN EN 81 Part 1 and 2).
› the conditions for the erection of high voltage installations with nominal voltages up to 1 kV (DIN VDE 0100).
› the contact protection measures in the machine room (VDE 0106).
› the data sheet on safety measures for the installation, maintenance and commissioning of lift systems (ZH 1/312).

1.5.2 Electromagnetic compatibility (EMC)

An accredited inspection authority has inspected the GST-XT-Controller in accordance with the standards, thresholds and severity levels named in EN 12015/1995 and EN 12016/1995.

The GST-XT-Controller is:

› immune to electrostatic discharge (EN 61000-4-2/1995)
› immune to electrostatic fields (EN 61000-4-3/1997)
› immune to fast transient disturbances (EN 61000-4-4/1995)

The electromagnetic disturbance field strengths created by the GST-XT-Controller do not exceed the permissible thresholds (EN 55011/1997).

1.5.3 Handling electronic assemblies

› Keep the electronic assembly in its original packaging until installation.
› Before opening the original packaging, a static discharge must be performed. To do this, touch a grounded piece of metal.
› During work on electronic assemblies, periodically perform this discharge procedure.
› All bus inputs and outputs that are not in use must be equipped with a terminator.

2 Functions of the GST-XT

2.1 Hardware

The GST-XT group circuit board is a traffic control computer for FST-Controllers manufactured by NEW *LIFT*. It enables the interconnection of individual FST-Controllers into a group. The GST-XT group circuit board is suitable for the use of controller models FST(-1), FST-2, FST-2XT and FST-2s. When converting older group controllers of the FST product family, the current software of the FST-Controllers is mandatory.

The GST-XT group circuit board is located in a separate housing in one of the control cabinets of the group members. Installation takes place on a TS35 rail. A separate 24VDC voltage supply (switching power supply) supplies the GST-XT independent of the FST group members and is, thus, separate from their voltage supply. For processing the group control algorithms, the GST-XT has a 32-bit processor as well as a Neuron processor, which is responsible for the LON activities.

The GST-XT is equipped with a serial interface that offers all lifts of the group a central modem or fax connection possibility. The RS232 serial interface of the GST-XT enables the connection of a PC to the lift group for monitoring and remote control by means of the ELEVISION lift monitoring software as well as the connection of a fax modem or a protocol adapter module (PAM) for evacuation controllers.

Depending on the number of BUS members of the shaft bus, it may be necessary to use a power repeater. This galvanically isolates the BUS modules from the GST-XT or FST and amplifies the supply voltage as well as the data signals.

The integrated SD card interface enables recordings, which are useful for traffic analysis. Should it be necessary to update the GST-XT software, a USB connection is available for convenient updates by means of a USB stick (optional).

2.2 LON technology

All electronic assemblies of the FST are based on local operating network technology, abbreviated LON-technology. This open network technology is used, in particular, in building automation.

Communication is via a serial bus, the so-called LON bus. The processor assembly of the FST main circuit board coordinates all data traffic of the lift system from the control cabinet.

The LON bus is looped through from electronic assembly to electronic assembly with pre-assembled, four-core cables. External data exchange is subject to the standardised protocols of the LonMark standard.

2.3 Operating principle of the GST-XT

The GST-XT group circuit board likewise makes optimised use of LON technology, which is implemented in the FST-Controllers. By means of this technology, the GST-XT becomes aware of all activities on the LON bus and, thus, of all measured and actual characteristics of all lift systems participating in group mode. Thanks to its 32-bit computing power, the GST-XT can intelligently process this information and thereby ensure efficient traffic management of all group members.

A mixture of automatic and configurable functions lends the GST-XT a unique level of flexibility, even for the most demanding installations.

The incoming calls for the shaft bus are processed further by the GST-XT and calculated taking into account a number of criteria of the group algorithm. Based on this group algorithm, the GST-XT then distributes the calls to the individual FST-Controllers within the group.

In the unlikely event of a GST-XT failure, an emergency program within each FST-Controller takes over the drive commands. For installations that require a high level of readiness, a multiple-redundant group controller option can be integrated by mounting at least two GST-XT group circuit boards within the group. In the event of a system failure of the primary GST-XT, one of the secondary GST-XT takes over the group controller function.

Stored in the GST-XT memory are copies of the parameter sets of all connected FST-Controllers. In this way, the GST-XT can include information about door times, drive curves, drive calibration data and shaft dimensions of the individual controllers in the group algorithm.

If control parameters are changed in one of the FST menus, this is automatically detected by the GST-XT and a copy of the changed parameter set stored in memory.

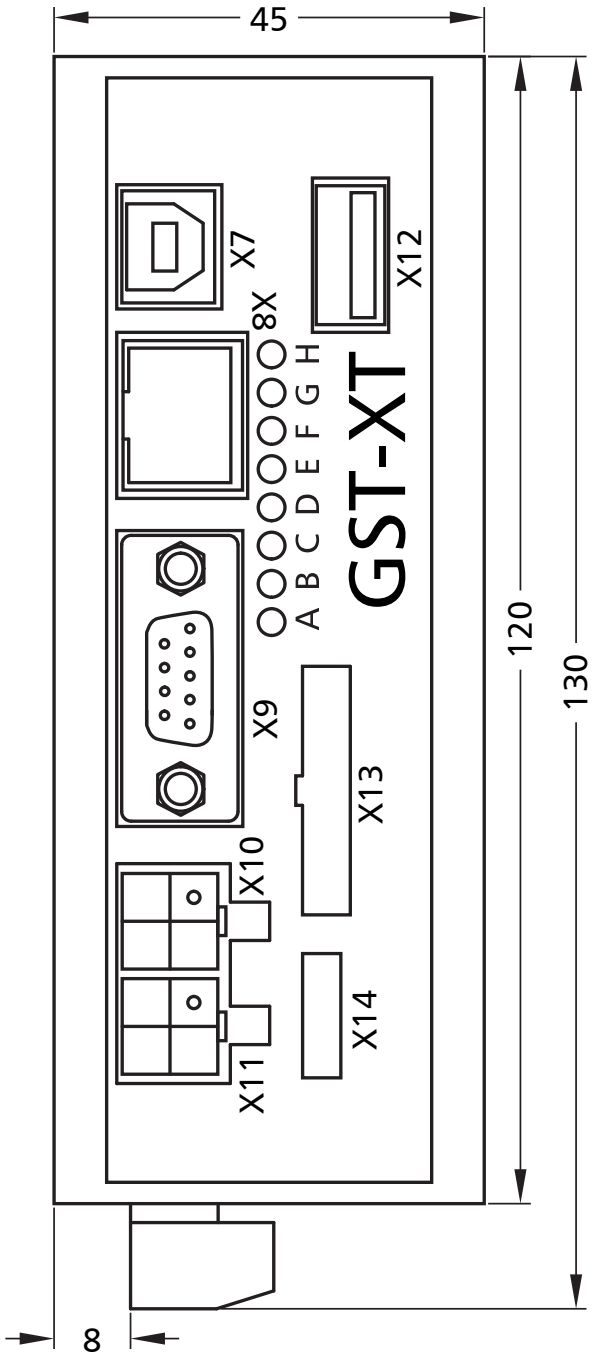
Should it be necessary to change date and time settings on a controller, all controllers of the group accept the new time settings in synch.

3 Technical data

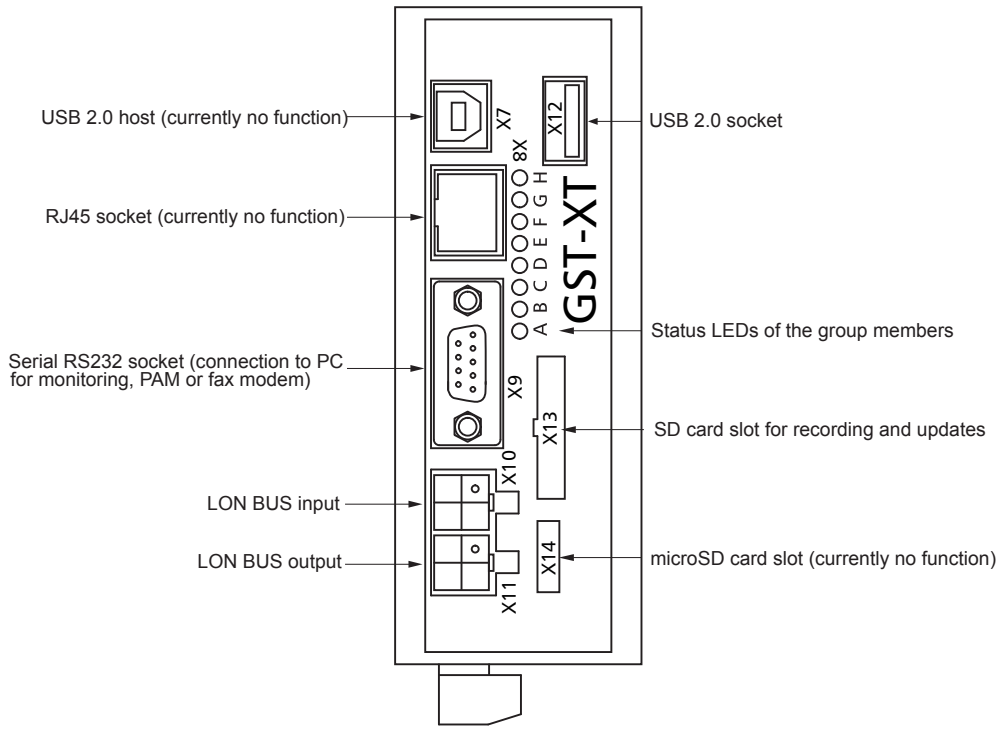
The GST-XT consists of an FST and the GST-XT group circuit board, which is installed in a separate housing.

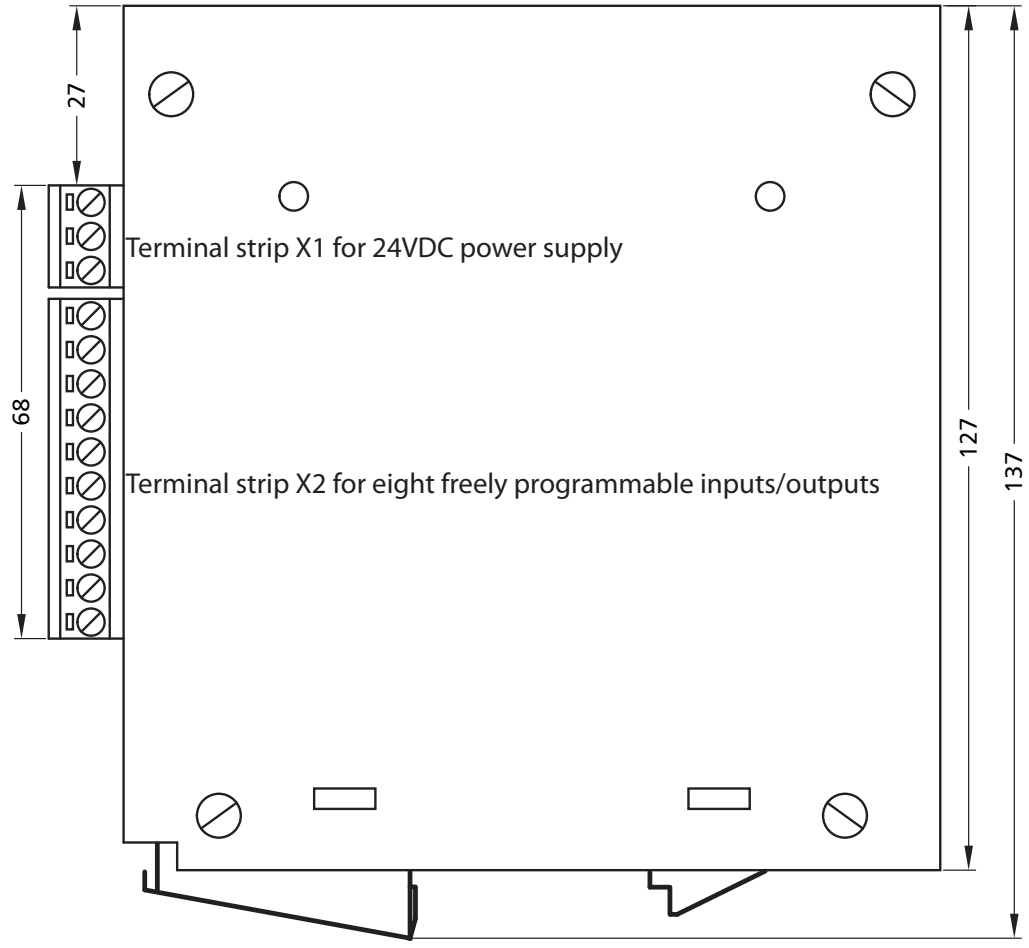
Power for the GST-XT, as well as the shaft bus and its members, is supplied by means of an external 24VDC mains device. As a result, the GST-XT remains switched on even after the FST is switched off. Not until the shaft bus input (F6) is switched off is the GST-XT de-energised.

3.1 Technical details and data



All dimensions in millimetres!





All dimensions in millimetres!

Description	Value
Supply voltage	24 V DC ±10%
Typical power consumption	300 mA
Outputs	Short circuit-proof
Length x height x depth	126 x 118 x 45 mm
Temperature range: Storage & transport / operation	-20 – +70 °C / ±0 – +60 °C
Relative humidity: Storage & transport / operation (non-condensing)	+5 – +95 % / +15 – +85 %
Protection type	IP20

Note! The GST-XT may only be operated in a housing with a minimum protection rating of IP52.

3.2 Terminal strip

Terminal	Function
X1	Power supply
1	+24VDC
2	GND
3	+ HSG
X2	Programmable inputs/outputs
1	+24V
2	Programmable input/output 7
3	Programmable input/output 6
4	Programmable input/output 5
5	Programmable input/output 4
6	Programmable input/output 3
7	Programmable input/output 2
8	Programmable input/output 1
9	Programmable input/output 0
10	GND

4 User interface of the GST-XT

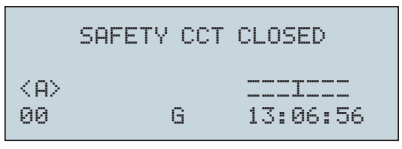
Operation of the GST-XT is realised by means of the FST-Controllers actively participating in group operation via LON-bus connection. Note that only active group members, i.e., FST-Controllers in which the `MAIN MENU/Configuration/Group Settings/Group Member/YES` parameter is set, have access to the GST-XT.

4.1 LEDs

LED	Colour	State	Meaning	Reason / Remedy
A - H	Green	On	Respective FST participates in group mode	
		Flashing ▬ ▬ ▬	FST is detected but does not participate in group mode because it is not configured as a group member	Check parameters under `Configuration / Group Settings / Group Member`
			FST is detected but does not participate in group mode because the landing control on the FST is switched off.	Landing control OFF › manually via keypad › manually via key switch › as a result of active special function
			FST is detected but does not participate in group mode because the FST is automatically and temporarily excluded from group mode due to a special function.	Special function such as the following is active: › fire recall- or evacuation drive › priority drives › transport of dangerous goods or similar
		Briefly flashes ▪ ▪ ▪	Group enable is deactivated	
		Rapid flashing ▬ ▬ ▬ ▬ ▬ ▬	GST-XT is currently loading changed FST configurations into the GST-XT memory	Changed configuration used only for the update and comparison of the GST-XT memory.
		Off	FST is not detected because it is switched off.	Switch on FST and/or check power supply
			FST is not detected because it is not connected.	Check cable connection (group)

4.2 TFT display

The GST-XT generates the following status messages in line D, column in the displays of all FST-Controllers participating in group mode:



Display	Meaning
Empty	Group membership of the FST-2-Controller is not activated (see FST-2 Installation and Commissioning)
`G`	Group mode OK
`g`	FST is not detected by the GST-XT (see „7.3 ... LEDs A ... H do not illuminate constantly“ on page 29
`S`	FST is currently separated from group mode (see „8.4 Function “group division“ on page 35

5 Menu tree

5.1 General

The GST-XT is configured via the FST or the HHT hand-held terminal with the help of the GST-XT menu.

The GST-XT menu is called up via the user interface of the FST under `MAIN MENU/GST MENU`**! This menu item only becomes visible if the following procedure is performed:**

Note that only active group members, i.e., FST-Controllers in which the `MAIN MENU/Configuration/Group Settings/Group Member/YES` parameter is set, have access to the GST-XT menu. After making this setting, the FST must be restarted. This is triggered either by a warm start, i.e., simultaneously pressing the four arrow buttons, or by switching the F4 controller fuse of the respective controller off and back on again.

Software version

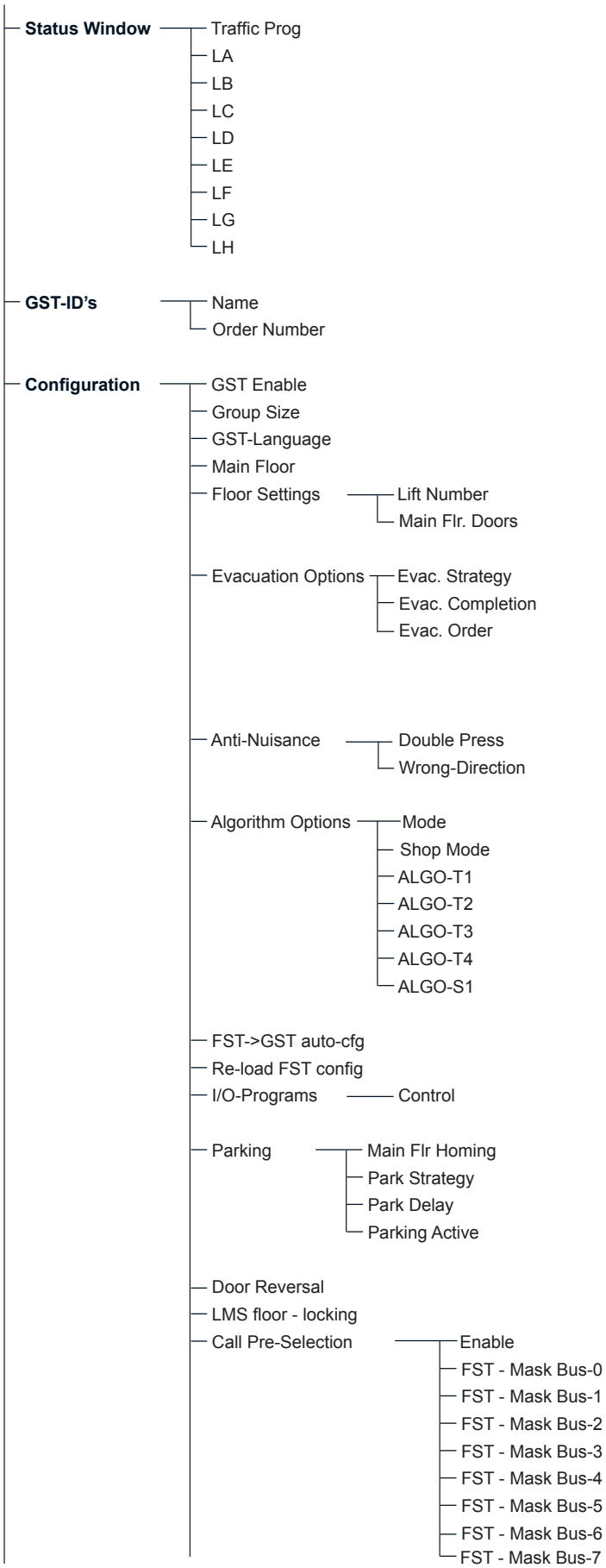
The menu tree corresponds to that of software version GST-XT V2.080.-0016.

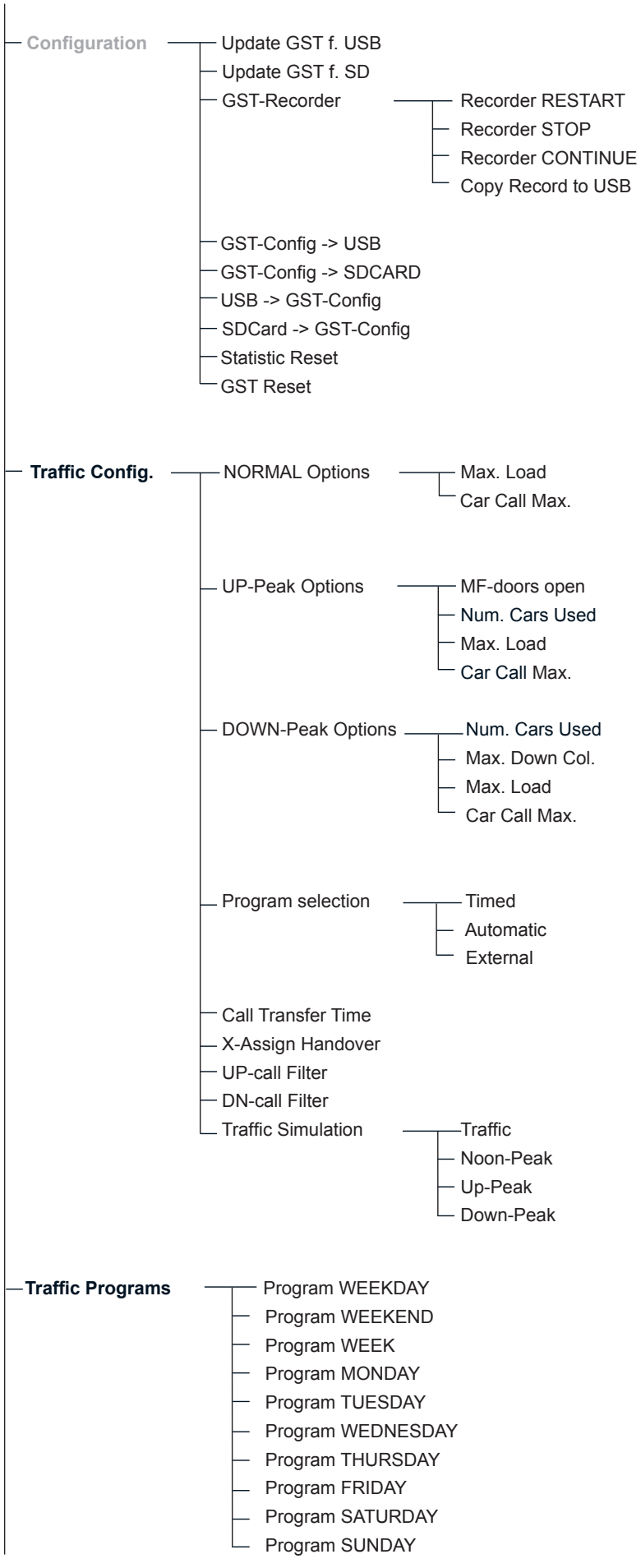
Executions

Following the depiction of the menu tree, all menu items are described together with their functions and setting ranges.

The menu tree is used for quickly finding specific parameters and as a navigation aid within the GST-XT menu. Following the depiction of the menu tree, all parameters are listed and described in table form.

GST-XT MENU


Status Window
Traffic Prog
LA
LB
LC
LD
LE
LF
LG
LH
GST-ID's
Name
Order Number
Configuration
GST Enable
Group Size
GST-Language
Main Floor
Floor Settings
Lift Number
Main Flr. Doors
Evacuation Options
Evac. Strategy
Evac. Completion
Evac. Order
Anti-Nuisance
Double Press
Wrong-Direction
Algorithm Options
Mode
Shop Mode
ALGO-T1
ALGO-T2
ALGO-T3
ALGO-T4
ALGO-S1
FST->GST auto-cfg
Re-load FST config
I/O-Programs
Control
Parking
Main Flr Homing
Park Strategy
Park Delay
Parking Active
Door Reversal
LMS floor - locking
Call Pre-Selection
Enable
FST - Mask Bus-0
FST - Mask Bus-1
FST - Mask Bus-2
FST - Mask Bus-3
FST - Mask Bus-4
FST - Mask Bus-5
FST - Mask Bus-6
FST - Mask Bus-7


Configuration
Update GST f. USB
Update GST f. SD
GST-Recorder
Recorder RESTART
Recorder STOP
Recorder CONTINUE
Copy Record to USB
GST-Config -> USB
GST-Config -> SDCARD
USB -> GST-Config
SDCard -> GST-Config
Statistic Reset
GST Reset
Traffic Config.
NORMAL Options
Max. Load
Car Call Max.
UP-Peak Options
MF-doors open
Num. Cars Used
Max. Load
Car Call Max.
DOWN-Peak Options
Num. Cars Used
Max. Down Col.
Max. Load
Car Call Max.
Program selection
Timed
Automatic
External
Call Transfer Time
X-Assign Handover
UP-call Filter
DN-call Filter
Traffic Simulation
Traffic
Noon-Peak
Up-Peak
Down-Peak
Traffic Programs
Program WEEKDAY
Program WEEKEND
Program WEEK
Program MONDAY
Program TUESDAY
Program WEDNESDAY
Program THURSDAY
Program FRIDAY
Program SATURDAY
Program SUNDAY

5.2 GST-XT MENU – Status Window

Menu item	Description	Setting range
Traffic Programs	Display of the current traffic program Recording Status	Normal UP-Peak DN-Peak Noon-Pk Liftoff
LA...LH	Status display for lifts A ... H: LA = Lift A, LB = Lift B ... Possible status displays: OK = Lift participates in group mode Not member = Lift does not participate in group mode (e.g., due to a fault) X = Lift not present	

5.3 GST-XT MENU – GST-XT ID's

Menu item	Description	Setting range
Name	Project name or installation location of the GST	20 ASCII characters
Order Number	NEW *LIFT* factory number of the GST	20 ASCII characters

5.4 GST-XT MENU – Configuration

Menu item	Description	Setting range
GST Enable	Enable the group controller. Parameter must be set to NO until the final commissioning of the entire FST controller board. Set to YES after all installations of the group have been commissioned.	YES
Group Size	Number of FST-2-Controllers (lifts) that belong to the group	2...8
GST-Language	The GST-XT menu usually has the same language setting as the FST-2. This can, however, be changed via this menu item.	German English
Main Floor	Main access floor of the building (e.g., ground floor). This floor is significant for the processing of the traffic programs. The parameter also has meaning for programming the park drives (see „GST MENU – Traffic Config.“). Attention: Lowest floor = Floor 0!	0 ... top floor
Floor Settings	For use with the UP-Peak Traffic - MF-doors open option, this defines for each lift which door(s) in the main floor will be held open. Use Shift + ▲ or ▼ to select the individual lifts. Possible settings: 0: None 1: Door side A remains open 2: Door side B remains open 3: Door sides A & B remain open	0...3
Evacuation Options - Evac.Strategy	Evacuation strategy in the event of an evacuation call to the GST-XT (e.g., via a programmable input/output). Possible settings: › EVACUATE TOGETHER: all installations are evacuated simultaneously › EVACUATE BY WEIGHT: the car with the most passengers is evacuated first, then the next lighter car › EVACUATE 1 by 1: the installations are evacuated in a defined sequence (see Evak.Reihenfol).	EVACUATE TOGETHER EVACUATE BY WEIGHT EVACUATE 1 by 1

Menu item	Description	Setting range
Evacuation Options – Evac. Completion	Behaviour of the GST-XT following evacuation of all lifts. Possible settings: › 1 SET TO NORMAL MODE: One lift switches to normal operation, the others remain stopped on the evacuation floor › REMAIN EVACUATED: All lifts remain on the evacuation floor until the evacuation signal ends. › 2 SET TO NORMAL MODE: Two lifts switch to normal operation, the others remain stopped on the evacuation floor.	1 SET TO NORMAL MODE, REMAIN EVACUATED
Evacuation Options – Evac.Order	Evacuation sequence for the EVACUATE 1 by 1 evacuation strategy. Use Shift+▲ to select each individual lift. Possible settings: › 0: Lift will NOT be evacuated, or is not in the group. › 1: Lift will be evacuated first. › 2: Lift will be evacuated second. etc..	0 ... 8
Anti-Nuisance-Double Press	Function for preventing simultaneous call assignment in the up and down directions with a two-button collective control. If a landing call is detected in a certain direction, the lift call button in the opposite direction is blocked on the corresponding floor for the set time. The setting 0 deactivates the function.	0 sec
Anti-Nuisance-Wrong-Direc-tion	Function for preventing call execution in the wrong direction of travel. If there are two landing calls on one floor (up and down), both landing calls are deleted if the passenger enters a car call in the opposite direction of travel upon entry into the car.	YES NO
Algorithm Options – Mode	Select the main Group Operating Mode. In most cases the STANDARD option should be selected.	STANDARD GOODS-LIFT X-ASSIGN
Algorithm Options – Shop Mode	› A landing call entered in the current floor will be allocated to all cars currently waiting in this floor, to help passengers with shopping trolleys.	YES NO
Algorithm Options – ALGO-T1	"Penalty time" for lifts without call used when estimating the time in the group algorithm. Time is used for optimising the group algorithm and is intended to prevent unnecessary drives. › Small value: high-use installations, short wait times › Large value: fewer drives, possibly longer wait times	0 sec
Algorithm Options – ALGO-T2	"Bonus time" for lifts with car calls and landing calls on the same floor used when estimating the time in the group algorithm. Time is used for optimising the group algorithm and is intended to prevent unnecessary drives. › Small value: high-use installations, short wait times › Large value: fewer drives, possibly longer wait times	0 sec
Algorithm Options – ALGO-T3	"Penalty time" for lifts in which a call was withdrawn due to better positioned installations used when estimating the time in the group algorithm. Time is used for optimising the group algorithm and is intended to prevent hectic decision changes in the group (hysteresis). › Small value: Dynamic (hectic) call distribution. › Large value: Infrequent decision changes in the group, possibly longer wait times.	15 sec
Algorithm Options – ALGO-T4	NEW *LIFT* internal setting	-- sec

Menu item	Description	Setting range
Algorithm Options - ALGO-S1	Source for calculating the anticipated travel times for processing the pending calls. Possible settings: 0: The calibration results of the corresponding installation are taken into account. Faster or sportier installations are thereby given preference 10 ... 17: The calibration data of lift A (10) or lift B (11) ... or of lift H (17) are taken into account for all other installations. This setting is useful if the calibration results of the installations vary greatly. If this is the case, the value "20" is recommended. A simple path calculation is thereby performed. The travel times are assumed to be proportional to the travel path. This setting ensures absolute equality of all systems and orients the group algorithm towards the pure travel path.	20
FST->GST auto-cfg	Switch on automatic loading of all FST parameter sets in the GST-XT-Controller following parameter changes. This parameter is to be set to YES after successful GST-XT commissioning.	YES NO
Re-load FST config	Load all FST-2 parameter sets in the GST-XT controller board (manually). Only necessary during the initial commissioning.	YES NO
I/O-Programs Control	Programs for the eight programmable inputs/outputs of the FST-2 GST-XT (see "Programmable inputs/outputs"). Use Shift ▲ to select the individual ports.	00000000 ... FFFFFFFF
Parking Main Flr Homing	Activate the park drives in the main stop.	YES NO
Parking Park Strategy	Selection and activation of a parking strategy -AUTOMATIC ZONES -STATISTICAL -NONE	AUTOMATIC ZONES STATISTICAL NONE
Parking Park Delay	Interval time before the park drive starts. Time runs for each FST-2 depending on parameter "Parking Active"	--sec
Parking Parking Active	Selection -ALWAYS --> Parking interval starts as soon as an FST-2 receives no landing call -WAIT NO LAND. CALLS --> Parking interval starts as soon as all FST-2s receive no landing calls	-WAIT NO LAND. CALLS -ALWAYS
Door Reversal	If a landing call is actuated on the respective floor while the doors are closing, the car opens its doors again.	Dependent on the structural characteristics Clearly arranged entrances to the lifts = YES
LMS floor-locking	Enable the “block floors” function with the help of the ELEVISION remote monitoring software.	NO
Call Pre-Selection Enable	Enable the Pre-Selection Call option. This is used with specially prepared ADM Modules, to force the selection of a specific lift(s) for these calls.	YES NO
Call Pre-Selection FST-Mask Bus- 0-7	Defines the lift(s) that should respond to the Pre-Selection calls. Each mask represents the 8 possible FST-ID’s as follows: 01 = FST-A 02 = FST-B 04 = FST-C 08 = FST-D 10 = FST-E 20 = FST-F 40 = FST-G 80 = FST-H For all nus-numbers (0-7) used for standard (Not Pre-Selective) calls, the values should be left as FF (FST-A..FST-H selected). The calls of the buses (0-7) are assigned to all FSTs (FST-A.... FST-H) of the group.	FF

Menu item	Description	Setting range
Update GST-XT f. USB	A sofware update can be loaded onto the GST-XT (X12) via a USB stick.	YES NO
Update GST-XT f. SD Card	Currently no function.	YES NO
GST-Recorder- Recorder RESTART	Start GST recording. Certain internal events are recorded with date and time. This recording is stored on a standard SD-Card (option). The recording will not start if a SD-Card is not inserted.	YES NO
GST-Recorder- Recorder STOP	Stop the GST recording.	YES NO
GST-Recorder- Recorder CONTINUE	Continue the stopped GST recording.	YES NO
GST-Recorder- Copy Record to USB	This menu item copies the GST-XT's recording from a specified day onto the USB stick in the \recording folder.	YES NO
GST-Config -> USB	This menu item stores a copy of the current GST-XT configuration onto the USB stick in the \config folder.	YES NO
GST-Config -> SDCARD	This menu item stores a copy of the current GST-XT configuration onto the SD Card in the \config folder.	YES NO
USB -> GST-Config	This menu item loads the GST-XT configuration from the USB stick into the GST-XT. All the currently configured parameters will be overwritten!	YES NO
SDCard -> GST-Config	SDCard -> GST-Config: This menu item loads the GST-XT configuration from the SD Card into the GST-XT. All the currently configured parameters will be overwritten!	YES NO
Statistic Reset	This menu item resets the internal statistical memory.	YES NO
GST Reset	Restart the GST-XT software (warm start).	YES NO

5.5 GST-XT MENU – Traffic configuration

For all menu items with adjustable numerical values, the value "0" corresponds to deactivation of the respective function.

Menu item	Description	Setting range
NORMAL Options / Max. Load	Full load level of the car in normal operation. If a car is more heavily loaded than this level, it is recognised by the group as "full". No further landing calls are assigned. Only to be used with an analogue LON weight sensor.	90%
NORMAL Options / Car Call Max.	Full load level in normal operation is determined on the basis of the number of pending car calls. If the number of car calls at a car exceeds the number set here, it is recognised by the group as "full". No further landing calls are assigned.	Number of floors
UP-Peak Options / MF-doors open	The default position of the car doors of an installation at the main stop during up-peak is "open".	YES
UP-Peak Options / Express Return	Number of installations that do not accept DOWN calls during Up-peak.	0 ... 8
UP-Peak Options / Max. Load	Full load level of the car during up-peak. If a car is more heavily loaded than this level, it is recognised by the group as "full". No further landing calls are assigned. Only to be used with an analogue LON weight sensor.	100%
UP-Peak Options / Car Call Max.	Full load level during up-peak is ascertained on the basis of the number of pending car calls. If the number of car calls at a car exceeds the number set here, it is recognised by the group as "full". No further landing calls are assigned.	Number of floors
DOWN-Peak Options / Cars taking UP	Number of installations that do not accept up calls during down peak.	0 ... 8
DOWN-Peak Options / Express Return	Number of installations that do not accept up calls during down peak.	0 ... 8
DOWN-Peak Options / Max.Down Col.	Currently no function.	0 ... top floor
DOWN-Peak Options / Max. Load	Full load level of the cars during down peak. If a car is more heavily loaded than this level, it is recognised by the group as "full". No further landing calls are assigned. Only to be used with an analogue LON weight sensor. D	100%
DOWN-Peak Options / Car Call Max.	Full load level during down peak is ascertained on the basis of the number of pending car calls. If the number of car calls at a car exceeds the number set here, it is recognised by the group as "full". No further landing calls are assigned.	Number of floors
Program selection / Timed	Time-dependent preselection of the traffic program (calendar control). Here, each day of the week can be divided into eight time zones during which different traffic programs are active (see Traffic programs).	YES NO
Program selection / Automatic	Enables the automatic detection of a UP-Peak demand, and enables this traffic mode automatically for a short while. THis can be used alongside the Timed and External selection modes.	YES NO
Program selection / External	The traffic program is preselected externally (e.g., via a programmable input/output or via the ELEVISION remote monitoring software).	YES NO
Call Transfer Time	If the anticipated arrival time is delayed by more than the time set here (e.g., due to an excessively long interruption of a light barrier), the assigned landing calls are assigned to the other cars.	10...500 sec
X-Assign Handover	NEW *LIFT* internal	
UP-call Filter	NEW *LIFT* internal	
DN-call Filter	NEW *LIFT* internal	

Menu item	Description	Setting range
`Traffic Simulation/ Traffic`	The GST-XT simulates passenger operation. Here, virtual passengers are generated who make landing calls, board, make car calls and then exit. Used for analysing group operation.	`YES` `NO`
`Traffic Simulation/ Noon-Peak`	Virtual passengers have random destinations. `0`: none `10`: all	`0` `10`
`Traffic Simulation/ Up-Peak`	Virtual passengers have destinations in the up direction. `0`: none `10`: all	`0` `10`
`Traffic Simulation/ Down-Peak`	Virtual passengers have destinations in the down direction. `0`: none `10`: all	`0` `10`

5.6 GST-XT MENU – Traffic programs

Menu item	Description	Setting range
Program WEEKDAY – Program	Traffic program for workdays (applies from Monday to Friday). Eight time zones (Prog[0] ... Prog[7]) with different traffic programs can be assigned for each day. Use Shift+▲ to select the individual time zones (Prog[0] ... Prog[7]). Possible settings: Normal: normal group mode UP-Peak.:up-peak DN-Peak: down peak Noon-Pk: noon-peak (currently no function) LiftOff: shutdown of individual lifts in the group	Normal UP-Peak DN-Peak Noon-Pk Liftoff
Program WEEKDAY – From	Time at which the traffic program set under Prog is activated. This parameter is automatically set equal to the To time of the preceding time zone. For time zone Prog[0], this parameter is preset to 00:00.	00:00 – 23:59
Program WEEKDAY – To	Time at which the traffic program set under Prog is deactivated. Following a change, this parameter is automatically set to the From time of the time zone that follows.	00:00 – 23:59
Program WEEKDAY – Mask	Mask for the lifts to be switched off in the FERNAUS traffic program. The setting is entered in hexadecimal form according to the following bit pattern:	00 ... ff
Program WEEKDAY – Prog, From, To, Mask?	Traffic program for the weekend (applies for Saturday and Sunday). The setting is performed as described under "Program WEEKEND -".	
Program WEEK / Prog, From, To	Traffic program for the entire week (applies from Monday to Sunday). The setting is performed as described under "Program WEEKEND -".	
Program MONDAY / Prog, From, To	Traffic program for Mondays. The setting is performed as described under "Program WEEKEND -".	
Program TUESDAY/ Prog, From, To	Traffic program for Tuesdays. The setting is performed as described under "Program WOCHENEND -".	
Program WEDNESDAY / Prog, From, To	Traffic program for Wednesdays. The setting is performed as described under "Program WEEKEND -".	
Program THURSDAY / Prog, From, To	Traffic program for Thursdays. The setting is performed as described under "Program WEEKEND -".	
Program FRIDAY / Prog, From, To	Traffic program for Fridays. The setting is performed as described under "Program WEEKEND -".	
Program SATURDAY / Prog, From, To	Traffic program for Saturdays. The setting is performed as described under "Program WEEKEND -".	
Program SUNDAY / Prog, From, To	Traffic program for Sundays. The setting is performed as described under "Program WEEKEND -".	

6 GST-XT commissioning

6.1 General

On delivery, the GST-XT-Controller is preconfigured to your specific requirements. Commissioning the GST-XT-Controller therefore only involves setting (checking) a few parameters and performing a few simple tests to check the group function. The GST-XT-Controller is not commissioned until after all FST-2-Controllers participating in group mode have been commissioned. The following requirements must be met for all lifts participating in group mode prior to commissioning of the GST-XT-Controller:

› Fully commissioned shaft positioning (calibration drive successfully completed)
› All landing call modules are connected to the appropriate control cabinets as per the bus plan
› Enabled and functional landing control
› Establish LON BUS cable connection between GST-XT and FST. See bus diagram.
› All shaft buses are functional, any necessary power repeaters (shaft or controller) are connected to LON BUS according to bus diagram and to the supply voltage (see wiring diagram) and are ready for operation.
› Released and functional car doors (test menu)

All parameters mentioned in the following can be found in the FST and GST-XT menu. The GST-XT menu is available on all FST-Controllers that participate in group mode.

6.2 Commissioning steps

The GST-XT-Controller is commissioned in the following steps

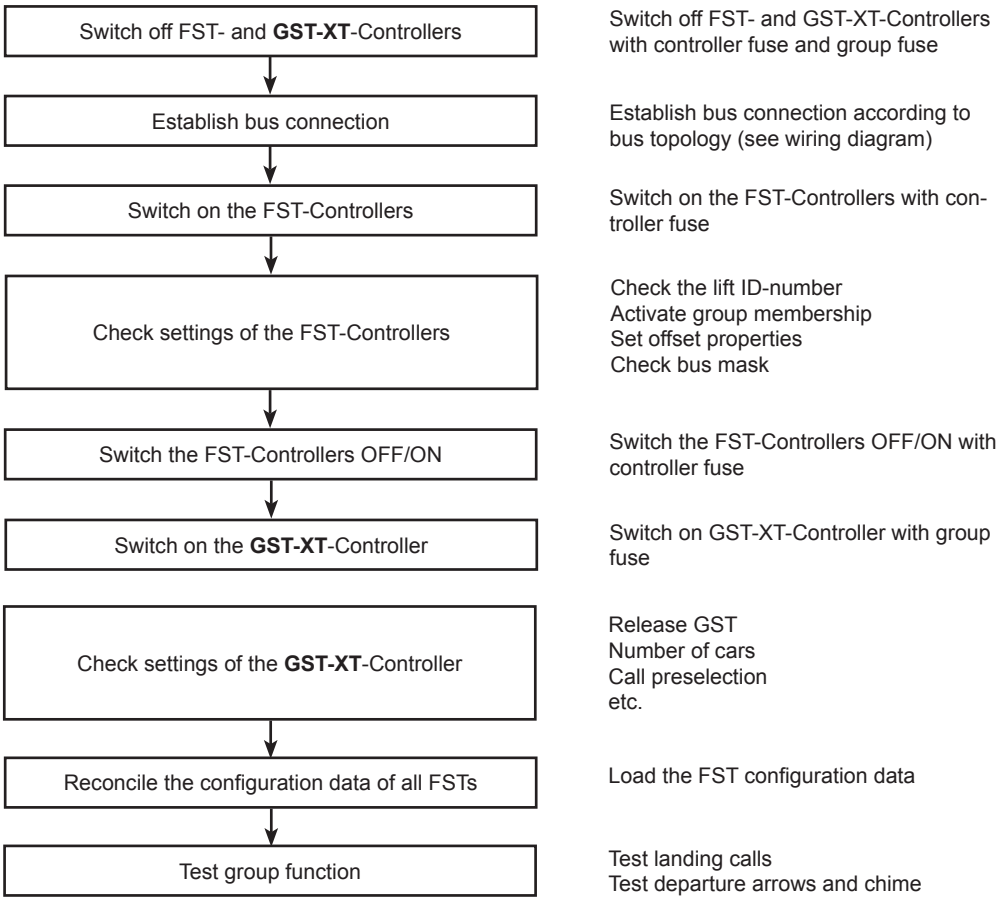


Fig.6.1: GST-XT commissioning steps

6.2.1 Switch off FST- and GST-XT-Controllers

Switch off all FST-Controllers with controller fuse F4 and GST-XT group controller with F6.

The designations of the controller and group fuses may differ from the previous controller, FST(-1). If necessary, check this using the wiring diagrams.

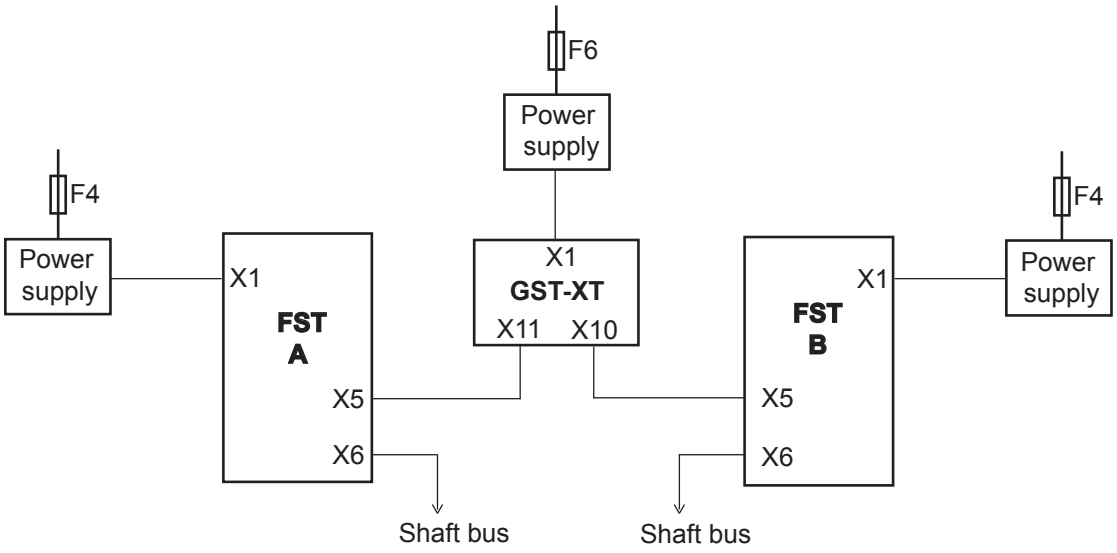


Fig.6.2: GST-XT

The bus connection plugs of the FST-Controllers may differ from the previous controller, FST(-1)! If necessary, use the wiring diagrams to check this.

6.2.2 Establishing bus connections

To ensure communication of the FST-Controllers participating in group mode with the GST-XT-Controller, the connection cables between the individual FST control cabinets must be plugged-in according to the bus diagram.

Plugging-in bus cables

- ► Have the wiring diagrams of each of the FST-Controllers participating in group mode at hand and open the bus diagram (last page before the legend: "Bus topology")
- ► Establish the cross connections between the FST control cabinets specified in the bus plan using the bus cables intended for this purpose
- ► Be certain to plug in terminators - designation "T" - according to bus diagram

Now switch on the FST-Controllers with controller fuse. Wait until the boot process of the FST-Controllers has concluded and then continue with Chapter 6.2.3.

6.2.3 Checking basic settings in the FST-Controllers

The basic settings of all FST-Controllers participating in group mode are checked in the FST under:

›--FST INFORMATION--
›MAIN MENU / Configuration / Group Settings
›MAIN MENU / Calls / Call Floor

Checking the lift ID-numbers

- ► Simultaneously press Enter + Shift ; `--FST INFORMATION--` appears on the first line
- ► Use the ▼ button to scroll until the `LiftID:` appears
- ► Note the ID number: `ABCDEFGH`
- ► Press Enter to exit the FST information menu
- ► Under `MAIN MENU / Configuration / Group Settings / Lift ID-Number`, compare the ID number set here with the ID number noted previously
- ► Both IDs must match
- ► Repeat the procedure for all FST-Controllers participating in group mode.

Only change the IDs in consultation with the NEW *LIFT* service line!

All FST-Controllers participating in group mode must have a unique lift ID-number (FST A (No.0) ... FST H (No.7)).

The lift ID-number must correspond to the jumper settings (see wiring diagram) of bus modules FSM and FPM as well as the configuration of the landing call modules. If not observed, function of the FST-Controllers cannot be guaranteed! Lift ID-numbers that are assigned twice lead to massive malfunctions of the GST-XT- and FST-Controllers!

Activate all FSTs as group members

Select under `MAIN MENU / Configuration / Group Settings / Group Member`

- ► Set with ▲/▼ `YES` and confirm with Enter

Setting offset properties

The group offset is the offset between the shafts of the FST-Controllers participating in group mode.

If the bottom floor of all FST-Controllers is the same physical floor of the building, the group offset = 0 (normal case). If this is not the case, the group offset of the FST-Controller that travels to the bottom floor is to be set to 0; for the other FST-Controllers, the value is to be set so that it corresponds to the floor offset of the shafts.

Error-free function of the GST-XT controller board is ensured only if the group offset is set correctly.

In the event of uncertainties regarding the group offset, contact the NEW *LIFT* service line!

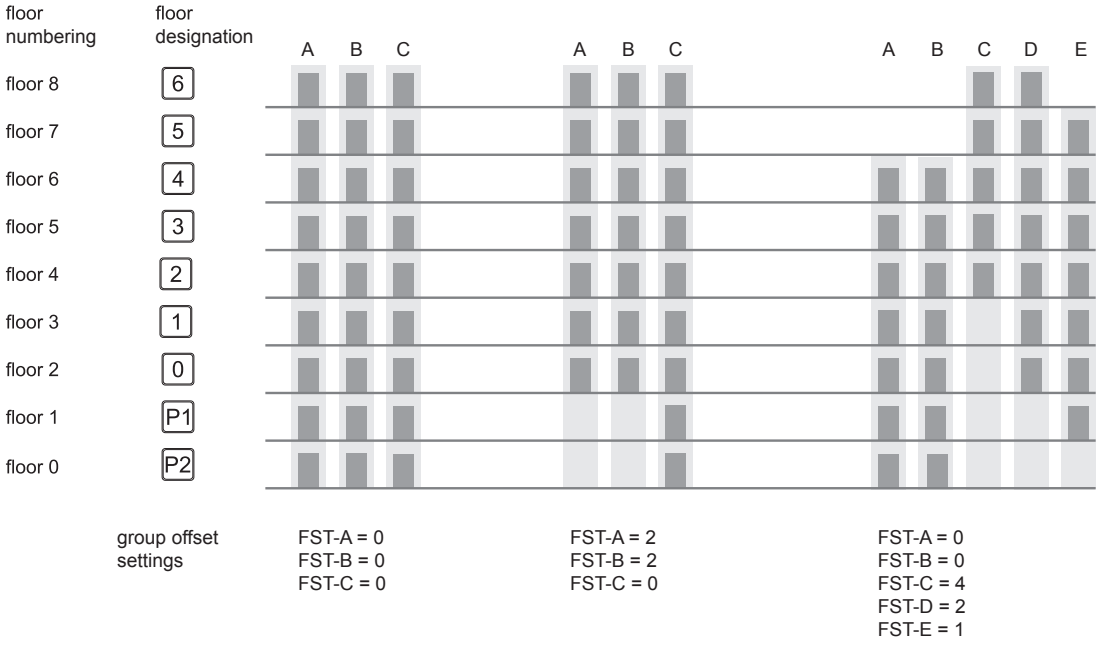


Fig. 6.3: Group offset

Setting offset properties

► MAIN MENU / Configuration / Group Settings / Group Floor Offset.
► Use ▲ to set the group offset and confirm with Enter.
► Repeat the procedure for all FST-2-Controllers participating in group mode.

If one of the FST-Controllers has a group offset > 0, specify for this FST-Controller whether or not the set value is to affect control of the floor position indicator and departure arrow. This occurs separately for the position indicators in the car (flr offset-car) and on the floors (flr offset-landing).

Offset properties for position indicators car & landing

► Select MAIN MENU / Configuration / Group Settings / Flr Offset-Car or Flr Offset-Landing.
► Use ▲/▼ to set YES or NO and confirm with Enter.
► Repeat the procedure for all FST-Controllers whose group offset is > 0.

How the group offset affects control of the floor position indicators and departure arrows is now set.

Correct function of the floor position indicators and departure arrows is only ensured if parameters Flr Offset-Car/ Landing are set correctly.

In the event of uncertainties, contact the NEW *LIFT* service line.

Checking bus masks

The FST menu of each FST-Controller has two bus masks that define to which bus lines of the landing control this FST-Controller responds (ADM-Bus Mask-1 and ADM-Bus Mask-2). Bus-Mask 1 defines to which landing lines the FST-Controller responds in normal group mode. Bus-Mask 2 defines to which bus lines the FST-Controller responds if individual lifts were separated from the group (e.g. by a programmable input/output).

The Bus-Mask 1/2 parameters are 8-bit registers with the following structure:

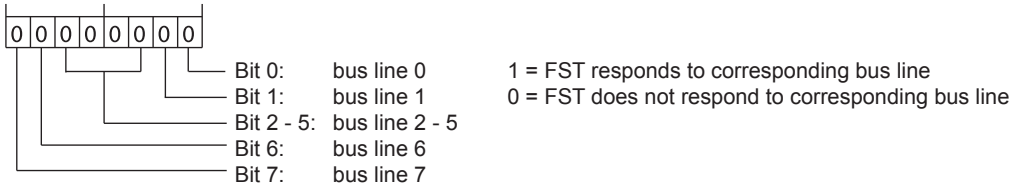


Fig. 6.4: Structure of the Bus-Mask 1 / 2 parameters

Adjust standard setting bus masks

► Select MAIN MENU / Configuration / Group Settings / ADM-Bus Mask-1.
► Select the individual figures with ◄ ► and adjust both figures to FF with ▲/▼ and confirm with Enter.
► Repeat the procedure for all FST-Controllers.

Normally, the value FF is set for both bus masks, i.e. calls from all bus lines can be sent to all participating FST-Controllers.

Only in special cases or if lifts are dynamically separated from the group is a setting other than FF necessary.

Proper function of the GST-XT controller boards is ensured only if the bus masks are properly set.

In the event of uncertainties, contact the NEW *LIFT* service line.

Checking the call configuration

The calls of the floors must be in agreement with all other FSTs!

► Use `MAIN MENU / Calls / Call Floor` to check the calls of all floors

► To do this, press and hold down the Shift button and also press ▲ or ▼ to select the individual calls for the floors `Call Floor [XX]`.

► Now check the set call of all floors and compare them with all FSTs

► If necessary, adjust the call configuration with Enter under `Configuration:` .

Concluding the check of the basic settings of the FSTs for group mode

► Now press the ◄ button several times to exit the submenu or main menu of the FST.

► If parameters were changed, the `Save changed values?` message appears, prompting for confirmation.

Use the ► `>YES<` button if a change was knowingly made. Confirm selection by

pressing the Enter button. The standard display then appears as shown in, e.g., Chapter 4.2.

► Now use the controller fuse to switch the FST-Controllers OFF and back ON again. Wait until the boot process for the FST-Controllers has been completed and then continue with Chapter 6.2.4.

6.2.4 Checking basic settings in the GST-XT-Controller

The basic settings of the GST-XT (via FST) are checked under:

› `MAIN MENU / GST MENU / Configuration`

Enabling the group controller

► Select `MAIN MENU / GST MENU / Configuration / GST Enable.`

► Confirm selection with Enter.

► Select `YES` with ▲ and confirm with Enter

Setting the group size

► Select `MAIN MENU / GST MENU / Configuration / Group Size.`

► Confirm selection with Enter.

► Use ▲/▼ to set the number of lifts participating in group mode and confirm with Enter.

6.2.5 Check the status of the systems

Communication between the FST-Controllers and the GST-XT controller boards is functioning properly if:

› LEDs A ... H of the respective FST-Controllers constantly illuminate

› A "`G`" appears in line D, column 10 of the display of all FST-Controllers

› The FST-Controllers participating in group mode run in normal mode

Checking the status

The status of the FST-Controllers participating in group mode is shown in the GST-XT menu.

► Select `MAIN MENU / GST MENU / Window.`

► Confirm selection with Enter.

► Use ▼ to display the status of all systems.

6.2.6 Loading FST configuration data in the GST-XT

Initialisation of the FST configuration data (Config File) in the GST-XT-Controller is used for the initial reading-in of the control parameters of all connected FST-Controllers, particularly the assignment tables for landing calls and shaft doors.

Loading FST parameters

► Select `MAIN MENU / GST MENU / Configuration / Re-load FST confi9`

► Select YES with ▶ and confirm with Enter.

The parameter sets of all connected FST-Controllers are transferred to the GST-XT controller board via the LON bus. This procedure takes several seconds. Completion of the procedure is indicated by flashing of the corresponding LEDs A ... H and display of the `Transfer: FST- X/X` (X/X = FST ABCDEFG) message in the FST display.

Automatically loading FST parameters

Following successful group function test, complete by confirming the parameters, i.e., according to Chapter 6.2.7:

► `MAIN MENU / GST MENU / Configuration / FST->GST auto-cf9`

► Select YES with ▶ and confirm with Enter.

The parameter sets of all connected FST-Controllers are now automatically transferred to the GST-XT controller board via the LON bus. This procedure is indicated in the same way as "Loading FST parameters" via the LEDs of the GST-XT and in the FST display.

Completing the check of the GST-XT basic settings

► Now press the ◀ button several times to exit the submenu or main menu of the FST.
► If parameters were changed, the `Save changed values?` message appears, prompting for confirmation.
► Use the ▶ `>YES<` button if a change was knowingly made. Confirm selection by pressing the Enter button. The standard display then appears as shown in, e.g., Chapter 4.2.

6.2.7 Testing group function

The function of the GST-XT-Controller is tested by actuating the landing call and observing the call acknowledgement and the departure arrows and floor position indicators. This procedure must be repeated step-by-step on all floors and access sides.

Testing landing calls

► Actuate landing calls in both directions and observe the call acknowledgement.

The call acknowledgements of all landing calls (all bus lines) illuminate in both directions of travel.

One of the group lifts arrives on the floor and extinguishes all call acknowledgements in one direction of travel (all bus lines).

► Use a car call to send the lift that arrived in the direction of travel that was extinguished to a different floor (ideally, one as far away as possible).

A second lift arrives at the floor and extinguishes the still-illuminated call acknowledgements (all bus lines).

► Repeat the procedure on all floors.

Test departure arrows and chime

► Actuate landing calls in both directions and observe the departure arrows.

One of the group lifts arrives at the floor and activates its departure arrow in the current direction of travel.

The arrival gong sounds.

After the car call priority time elapses, both departure arrows are activated.

► Use a car call to send the lift to a different floor (ideally, one as far away as possible) and again actuate the landing calls.
► Repeat the procedure until the departure arrows and gongs of all group lifts have been activated once.
► Repeat the procedure on all floors.

Completing the group function test of the FST-Controllers and GST-XT

► See Chapter 6.2.6 "**Automatically loading FST parameters**"

The GST-XT-Controller is now commissioned.

7 What to do, if...

7.1 General

This chapter provides descriptions of problems that may occur during commissioning or during operation of the GST-XT and how to rectify them. Descriptions are given on what to do if:

› the GST-XT menu does not appear
› LEDs A ... H do not illuminate constantly
› no "G" appears in line D, column 9 of the display of an FST-Controller
› the status of an FST-Controller is not displayed as normal
› the GST-XT controller board cannot be initialised
› the GST-XT cannot be switched off
› the landing calls are not or are not all acknowledged
› multiple lifts always respond to the same landing call
› the departure arrows do not function properly
› the waiting times are too long
› a lift other than that which is best positioned responds to a landing call
› neither landing button responds
› the doors do not reverse in response to a landing call
› cars sometimes travel past floors with set landing calls without stopping

7.2 ...the GST-XT menu does not appear

Possible cause	Remedy
No LEDs A-H illuminate or flash	► Switch on fuse F6, the green LED on the power supply must illuminate; check plug X1 on GST-XT; G80 at X1:1 and X1:2, measure voltage.
There is no bus connection between GST-XT and FST-2	► In one of the FSTs, set `Main Menu/Configuration/Group Settings/Group Member/Yes`. Save values; switch FST and GST-XT OFF/ON. Check BUS connection of the GST-XT to the FSTs Start LON module search: in one of the FSTs, set `Main Menu/Configuration/LON Configuration/Search LON Modules/YES`. ►Contact the NEW *LIFT* hotline.
GST-XT reset required	►Switch GST-XT controller board off and back on again (switch GST-XT OFF/ON with F6).

7.3 ... LEDs A ... H do not illuminate constantly

Possible cause	Remedy
Group size is set incorrectly	►Set group size (`GST-XT MENU/Configuration/Group Size`).
GST-XT is not switched on	►Switch on GST-XT (see 6.2).
GST-XT is not enabled, LEDs A ... H flash rapidly	►Enable GST-XT (see "Checking basic settings on GST-XT"). Not all FST-Controllers participating in group mode are set to "`Group Member = YES`". ►Group membership of the FST-Controllers (A-H) is assigned twice. Check all FST designations with search and replace; lift ID-number: must be different for all FSTs.

Possible cause	Remedy
Not all FST-Controllers participating in group mode are in normal mode	►Enable the landing control of the FST-Controllers with the  - button. ►Enable car doors in the test menu under (TEST MENU – Doors-UNLOCK). ►Switch off auxiliary mode control or inspection control ►Switch on car light. ►Ensure that line B of the FST display is empty (see FST manual), i.e., that, .e.g., no priority drives, fire mode, etc., are active.
Not all FST-Controllers participating in group mode have a bus connection to the FST group controller	►Establish bus connections between the FST-Controllers according to installation wiring diagram.

7.4 ... no "G" appears in line D, column 9 of the display of an FST-Controller

See "... LEDs A ... H do not illuminate constantly".

7.5 ... the status of an FST-Controller is not displayed as "normal"

See "... LEDs A ... H do not illuminate constantly".

7.6 ... the GST-XT controller board cannot be initialised

Possible cause	Remedy
Not all FST-Controllers participating in group mode have a bus connection to the FST group controller	►Establish bus connections between the FST-Controllers according to installation wiring diagram.
The GST-XT cannot be switched off	►Check wiring of controller fuse F6, of power supply G2 and of the power repeaters (if present) ►Check bus cables according to bus diagram ►Disconnect all bus cables on the GST-XT X10 /X11 ►Check principle of the power supply (see "Switching on the GST-XT-Controller")

7.7 ... the GST-XT-Controller cannot be switched off

Possible cause	Remedy
The power repeater(s) is(are) not connected according to wiring diagram	►Check wiring of controller fuse F6, of power supply G2 and of the power repeaters (if present). ►Check principle of the power supply (see "Switching on the GST-XT-Controller").
At an FST-Controller, a bridge is wired between power supply and shaft bus supply	►Disconnect all bus cables at the GST-XT X10/X11 ►Check whether a power supply is incorrectly connected to terminal strip X4 of an FST-2. Check principle of the power supply (see "Switching on the GST-XT-Controller") ►Contact the NEW *LIFT* hotline.

7.8 ... the landing calls are not or are not all acknowledged

Possible cause	Remedy
GST-XT or shaft buses have no power supply	►Switch on GST-XT (see "Switching on the GST-XT controller board"). ►Check wiring of controller fuse F6, power supply G2 and of the power repeaters (if present). ►Check principle of the power supply (see "Switching on the GST-XT-Controller").
GST-XT is not enabled	►Enable GST-XT (see "Checking basic settings on GST-XT"); GST-XT is not correctly initialised. ►Initialise GST-XT (see "Initialising the GST-XT controller board").
The call tables of the FST-Controllers are set incorrectly	►Check the call tables of all FST-XT-Controllers under `MAIN MENU – Calls – Call Floor` and correct if necessary. It must be ensured that the call configuration, the door function and the door assignment are set according to the requirements of the shaft on each floor. `Config = UP–collect` must be set for the bottom floor; `Config = DOWN–collect` must be set for the top floor! After correcting the call tables, the GST-XT must be reinitialised (see "Initialising the GST-XT").
Not all landing call modules have a bus connection to the FST group controller	►Plug in all bus cables according to bus diagram and inspect. ►Perform a bus scan for the FST circuit board under `MAIN MENU – Config – LON Configuration – Search LON Modules = YES`. Afterwards, all modules with bus connection to the GST-XT-Controller are displayed under `MAIN MENU – Configuration – LON Configuration – Show LON Modules` (see FST manual).
Not all FST-2-Controllers participating in group mode have a bus connection to the GST-XT-Controller	►Establish bus connections between the FST-Controllers according to bus diagram. ►Then reinitialise the GST-XT controller board (see "Initialising the GST-XT controller board").
Bus mask 1 is set incorrectly	►Parameter "`Bus mask 1`" must be set according to the shaft requirements (see "Checking bus masks")

7.9 ... multiple lifts always respond to the same landing call

Possible cause	Remedy
GST-XT controller board is not switched on	►Switch on GST-XT controller board (see "Switching on the GST-XT controller board")
GST-XT controller board is not enabled	►Enable GST-XT controller board (see "Checking basic settings on GST-XT controller board")
Group size is set incorrectly	►Set group size (see "Checking basic settings on GST-XT controller board")

7.10 ... the departure arrows do not function properly

Possible cause	Remedy
The offset settings are incorrect	►Set offset properties according to the requirements of the shaft (see "Setting offset properties").
The setting of the departure arrows in the FST-Controllers is incorrect	►Set parameter `Configuration - Departure Arrows = YES` in the FST-Controllers that are participating in group mode. ►Check parameter `Configuration - Departure Arrows Max` in the FST-Controllers that are participating in group mode.
The arrows and/or floors are displayed incorrectly	►Check wiring of the external arrows or position indicator. ►For the LON position indicator, check "jumper" settings according to controller membership. ►Under `Configuration - EAZ Configuration - LON-EAZ Configuration`, change an arbitrary bit of the 8-bit register, save change, then reverse the change and save.

7.11 ... the waiting times are too long

Possible cause	Remedy
Not all FST-Controllers participating in group mode are in normal mode	►Check to ensure that none of the FST-Controllers are faulty (red error LED must not illuminate constantly). ►Check error list of the FST-Controllers to ensure that no recurring errors that delay drives are stored. ►Enable the landing control of the FST-Controllers with the  button. ►Enable car doors in the Test menu under (`TEST MENU - Doors-UNLOCK`). ►Switch off auxiliary mode control or inspection control ►Switch on car light. ►Ensure that line B of the FST display is empty (see FST manual).
Group controller is not correctly initialised	►Reinitialise the GST-XT controller board (see "GST-XT controller board").
Door times are too long	►Check the door behaviour of all FST-Controllers (including after light barrier interruptions) and check the door parameters. The correct setting of parameters `Min. wait landing / car`, `Limit switches` and `Opening time` is important (see FST manual).
Car call priority time is too long	►Check parameter `Config - Car Call Priority` in the FST-Controllers that are participating in group mode. The set value should only be slightly larger than the value set under `Doors - Doors Selective - Min. Wait Land / Car`.
Settings of the group algorithm must be optimised	►Reduce under `GST-Menu - Configuration - Algorithm Options- ALGO-T1 ... T4` (installations are used more heavily, see "`Algorithm Options`"). ►Change under `GST-Menu - Configuration - Algorithm Options - ALGO-T1` (modifying travel time calculation, see "`Algorithm Options`").

7.12 ... a lift other than that which is best positioned responds to a landing call

Possible cause	Remedy
GST-XT controller board is not correctly initialised	►Initialise GST-XT controller board (see "Initialising the GST-XT controller board")
Settings of the group algorithm must be optimised	►Change under `GST-Menu - Configuration - Algorithm Options - ALGO-T1` (modifying travel time calculation, see "`Algorithm Options`")

7.13 ... neither landing button responds

Possible cause	Remedy
"Double Press" anti-nuisance function is activated	► Make the following setting in the menu: `GST-Menu - Configuration - Anti-Nuisance - Double Press = 0`.

7.14 ... cars sometimes travel past floors with set landing calls without stopping

Possible cause	Remedy
The full load settings are incorrect	►Increase max. load under GST-XT-Menu - `Traffic Config. - NORMAL Options - Max.Load` (setting 0 deactivates the full load function). ►Increase max. car calls under GST-XT-Menu - `Traffic Config. - NORMAL Options - Car Call Max.` (setting 0 deactivates the full load function).

8 Programmable inputs/outputs

The GST-XT-Controller has eight programmable inputs/outputs, which are located on plug X2. They are used for the order-related definition of group-wide functions.

8.1 General

Characteristics of a programmable input/output:

› Assigned function
› Signal direction (input or output)
› Active level (+24 V or GND)

Function

Each input/output can be assigned a function via the GST-XT menu directly on-site.

Signal direction

The signal direction of the inputs/outputs is subdivided into input and output functions.

Level

The active level of the function can be defined with + 24V (normally closed function) or GND (normally open function).

Input functions

The input function is triggered as soon as the state at the input/output changes from the inactive level to the active level (normally open function: from +24V to GND, normally closed function: from GND to +24V).

Output functions

As soon as the condition of the output function is fulfilled, the state at the input/output switches from the inactive level to the active level (normally open function: from +24V to GND, normally closed function: from GND to +24V).

8.2 Programming

The inputs/outputs are programmed in the GST-XT menu via a hexadecimally encoded value that results from the sum of a defined function code and individual option codes.

The setting is made under `GST-Menu - Configuration - I/O-Programs` in the so-called "raw register".

8.3 Setting the raw register

Each of the eight programmable inputs/outputs has a raw register. The raw register is an eight-digit hexadecimal value by means of which the corresponding terminal can be assigned a function from the function table. Furthermore, the active level, the signal direction and the function parameters are set in the raw register.

RAW register

Terminal	RAW-Register
GST-XT: X2.9	I\O Port [0]
GST-XT: X2.8	I\O Port [1]
GST-XT: X2.7	I\O Port [2]
GST-XT: X2.6	I\O Port [3]
GST-XT: X2.5	I\O Port [4]
GST-XT: X2.4	I\O Port [5]
GST-XT: X2.3	I\O Port [6]
GST-XT: X2.2	I\O Port [7]

The individual digits of the RAW register have the following functions:

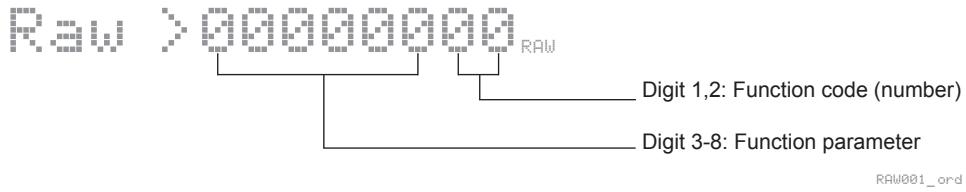


Fig.8.1 Function of the individual digits of the RAW register

Function table

The function table contains all functions that can be assigned to a raw register. The "Param." column specifies whether or not the corresponding function has function parameters. If there are function parameters, these are explained in a separate description. The "Raw" column shows two possibilities for the last two digits of the RAW register. The one at the left corresponds to the "active low" level (normally open), the one at the right corresponds to the "active high" level (normally closed). The setting is to be made according to the hardware wiring of the terminal.

Number	Function	Param.	Signal direction	Raw
1	Group splitting	Yes	Input	...0A/...0B
2	Evacuation	Yes	Input	...12/...13
3	Fire mode	No	Input	...1A/...1B
4	Preselection of the traffic program	Yes	Input	...22/...23
16	Signal	Yes	Output	...84/...85
28	Remote shutdown	Yes	Input	...E2/...E3
29	Activate project program (internal use)	Yes	Input	...EA/...EB
30	Special function (internal use)	Yes	Input	...F2/...F3
31	Floor locking	Yes	Input	...FA/...FB

8.4 Function "group division"

The function "group division" enables the dynamic splitting of individual lifts from the GST-XT group function; these lifts then function as single lifts with their own landing control. Thus, a group of four can become a group of three plus one single lift as soon as a switch is thrown.

Required for this function are multiple shaft buses that can be assigned to the individual lifts via parameter "bus mask 2" (see FST manual).

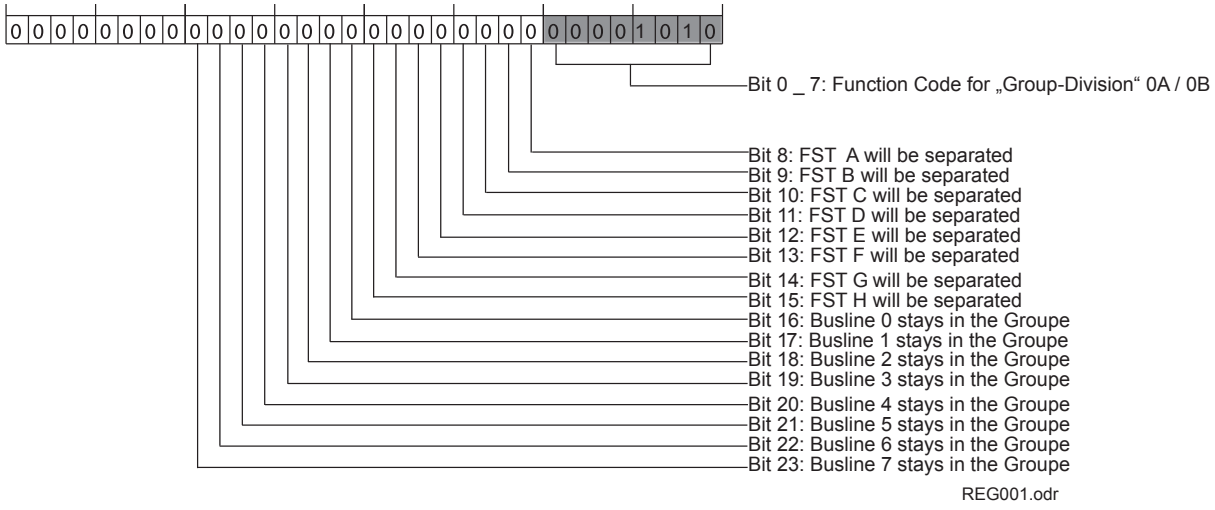


Fig. 8.2 Function of the individual bits of the RAW register

Example

Function	Raw register
FST-2 B is split, shaft bus 0 remains in the group, normally open function	0001020A
FST-2 A & B are split, shaft bus 1 remains in the group, normally closed function	0002030B

8.5 Function "evacuation"

The function "evacuation" enables the triggering of an evacuation drive via the terminal of a programmable input/output.

All lifts of the group are sent to an adjustable evacuation floor at an adjustable speed. The sequence in which the lifts are evacuated can be set under `Configuration - Evacuation Options.`

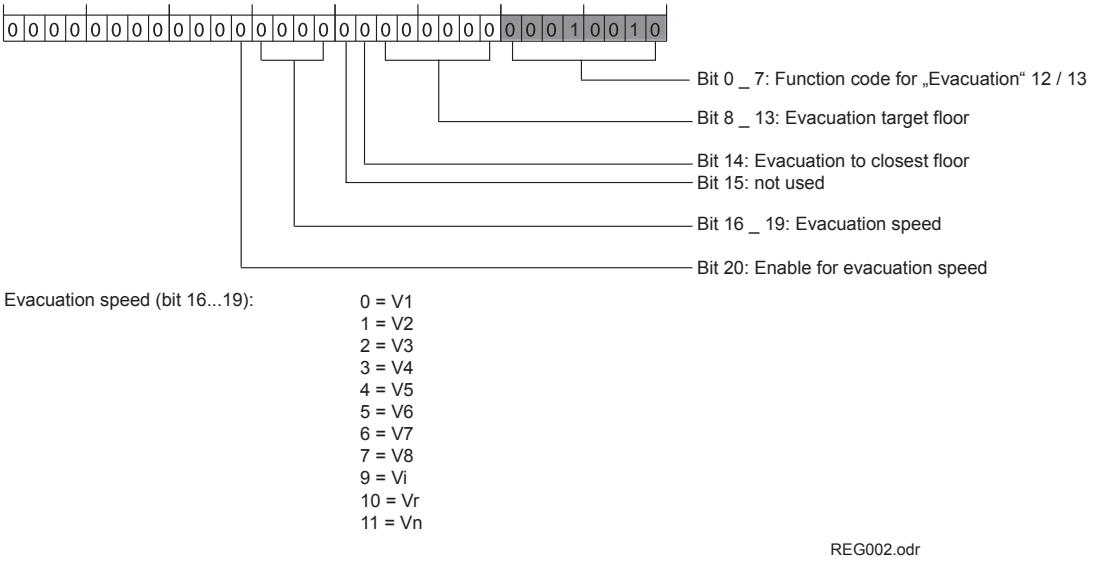


Fig. 8.3 Function of the individual bits of the RAW register

Examples

Function	Raw register
Evacuation floor 0, evacuation speed = automatic, normally open function	00000012
Closest evacuation floor, evacuation speed = automatic, normally closed function	00004013
Closest evacuation floor, evacuation speed = V1, normally open function	00304012

8.6 Function "fire signal"

The function "fire signal" enables the triggering of an evacuation drive using the terminal of a programmable input/output. All lifts of the group perform the fireman drive simultaneously.

The fire signal function does not have any parameters. The fireman floor of the individual lifts (destination of the fireman drive) is specified with the Fire Main Floor parameter in the FST menu (see FST manual).

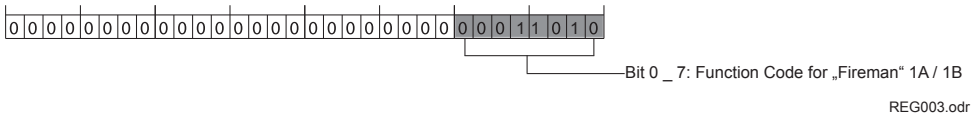


Fig. 8.4 Function of the individual bits of the RAW register

Examples

Function	Raw register
Floor = fire main floor (FST), normally open function	0000001A
Floor = fire main floor (FST), normally closed function	0000001B

8.7 Function "preselection of the traffic program"

The function "preselection of the traffic program" enables the selection of the current traffic program of the group controller.

The following traffic programs are available:

› Normal mode
› Up-peak (up)
› Down-peak (down)
› Noon-peak (currently no function)
› Remote shutdown (shutdown of certain installations)

See "GST-XT MENU - Traffic Config." on page 17.

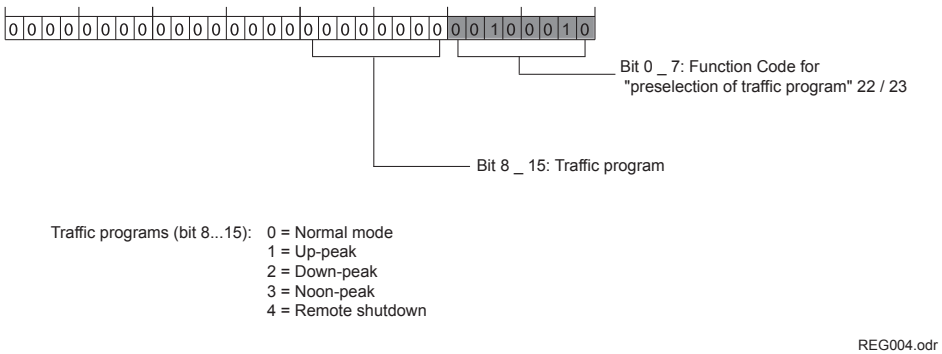


Fig. 8.5 Function of the individual bits of the RAW register

Examples

Function	Raw register
Normal operation, normally open function	00000022
Up-peak, normally closed function	00000123
Down-peak, normally open function	00000222
Noon-peak, normally closed function	00000323
Remote shutdown, normally open function	00000422

8.8 Function "signal"

The function "signal" enables the output of an "AND" link of various group-internal signals at a terminal of a programmable input/output.

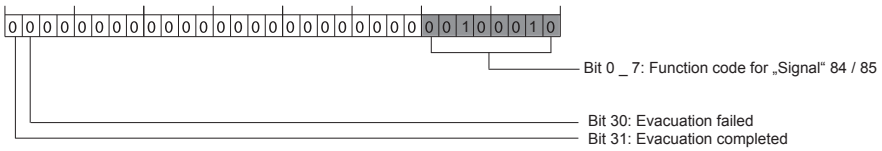


Fig. 8.6 Function of the individual bits of the RAW register

Examples

Function	Raw register
Evacuation concluded, normally open function	80000084
Evacuation failed, normally closed function	40000085

8.9 Function "remote shutdown"

The function "remote shutdown" enables the shutdown of individual lifts of the group using the terminal of a programmable input/output.

Function parameters can be used to specify which lifts are switched off and whether or not the lifts that are switched off respond to special drives via the landing control ("Prio Landing").

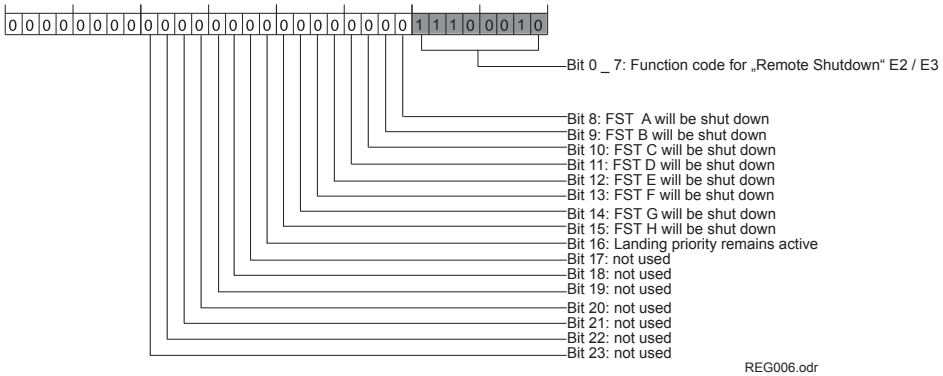


Fig. 8.7 Function of the individual bits of the RAW register

Examples

Function	Raw register
Normal operation, normally open function	00000022
Up-peak, normally closed function	00000123
Down-peak, normally open function	00000222
Noon-peak, normally closed function	00000323
Remote shutdown, normally open function	00000422

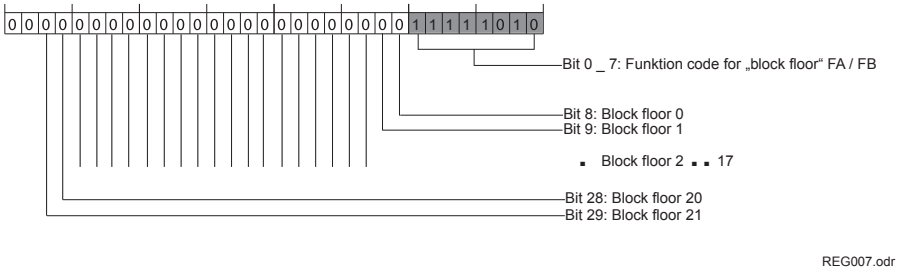
Example

Function	Raw register
Switch off FST A, normally open function	000001E2
Switch off FST B&C, landing priority remains active, normally closed function	000106E3
Switch off all FSTs, normally open function	0000FFE2

8.10 Function "block floors"

The function "block floors" enables the dynamic blocking of floors using the terminal of a programmable input/output. Due to the structure of the RAW register, floor blocking is currently only possible for floors 0 ... 21 without selectivity of the door sides.

Blocked floors can only be accessed via the internal control.



All floors activated with "1" are blocked for landing calls. Currently, only floors 0 - 21 can be blocked. Blocking for door A is performed with bit 30, blocking for door B is performed with bit 31.

Fig. 8.8 Function of the individual bits of the RAW register

Example

Function	Raw register
Block floor 0, normally open function	000001FA
Block floors 0 and 1, normally closed function	000003FB
Block floors 0 ... 7, normally open function	0000FFFA
Block floors 0 ... 21, normally closed function	3FFFFFFB

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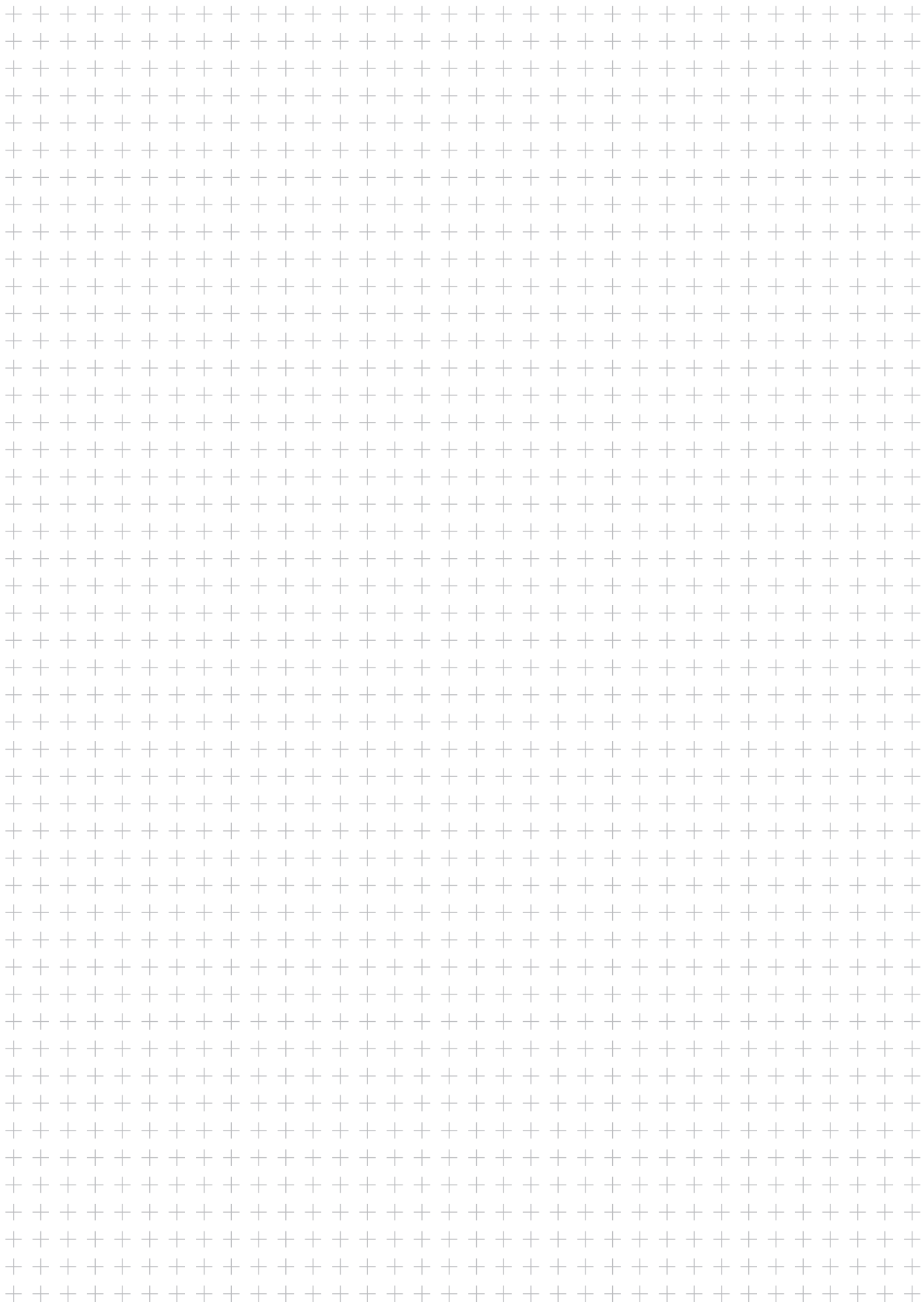

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