Technical Handbook/Service manual

Revisions

Revision	Date	Note
	21/06/2006	Preliminary version.
A	05/03/2010	New default settings Input B
B	21/10/2010	Correction of typing errors in Rev. A
C	18/08/2017	Update

The information contained in this publication in relation to applications is intended to be used as a suggestion. It is the installation engineer's duty to ensure that applications comply with set requirements. The information contained in this publication may be updated without advance notice.

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1 Gustav

Gustav is a RFID beacon, sending a specific position-ID to the surrounding by a magnetic field. The coverage area is very distinct making it possible to distinguish between different beacons. Different spots inside the building can therefore have a position-ID assigned to it, and passing radio trigger like CareTech Elvis equipped with RFID logic can pick up the locations and forward them to the system when necessary.

The main applications:

- Position indication[1] – A series of Gustav units is placed at different locations inside a building. Each with unique position-ID (001-899), transferring it to the surroundings with a coverage area that is not overlapping any others. Elvis is passing trough the building and receives the positions. It is now up to the radio trigger to forward the information to the system and this will be done when an alarm is triggered by the user. Giving the personnel the location of the last spot that the care taker has passed.

- Passage detection[2] – Gustav is mounted in a passage (normally a door). The position-ID of Gustav is set between 900 and 999 which indicate a non allowed passage. Gustav can be set to send the position constantly or first when it is activated by an input or by a magnetic switch. When Elvis receives the position is it up to the alarm trigger to forward the information to the system or the carephone. This feature can be set enabled or disabled in the alarm trigger making it possible for the personnel to carry alarm triggers without generating false alarms.

Gustav's features:

- 2 programmable inputs for activation of RFID-beacon.
- 1 programmable magnetic switch for activation of RFID-beacon.
- 1 programmable switch for temporary deactivation.
- RS-485 interface for programming
- Range up to 1.8m
- Wide power supply voltage range, 10.5 – 27 VDC.

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[1] Position indication requires System 5000 with Omni as a master.
[2] The position-ID is only available when using Omni as a master. 950i/carephone will only receive a door alarm (type 28) without position data.
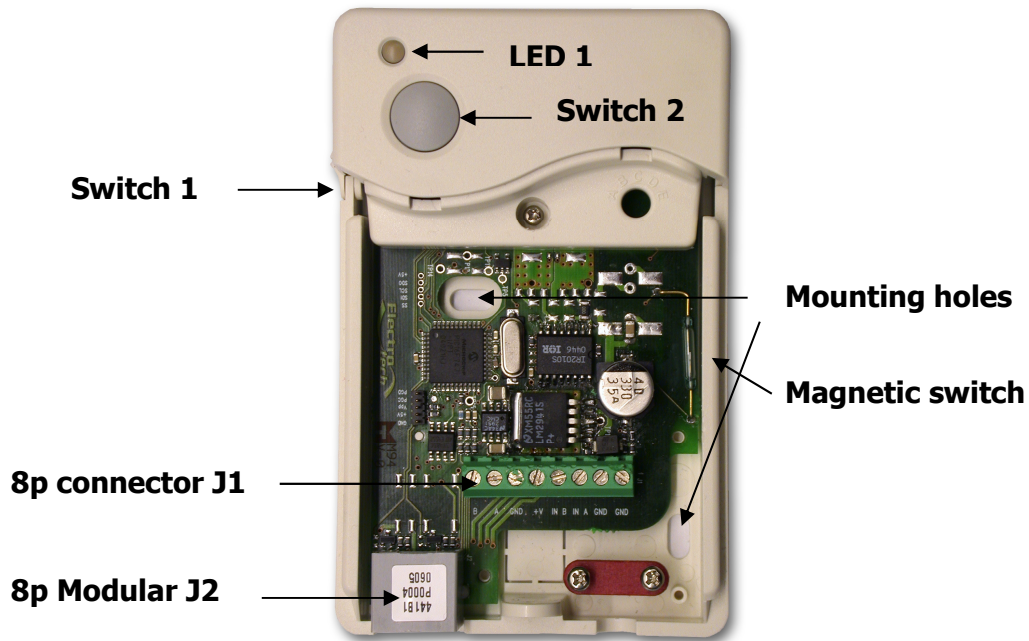
1.1 System overview

A complete system typically consists of both passage detection and positioning indication. The orange markers are Gustav beacons configured to be always active. With position ID set between 001 and 899. The units can be wall or roof mounted and there is no need for activation/deactivation by the personnel. The main doors (blue markers) are guarded by beacons with ID set between 900 and 999. These units are not active unless the door is opened. Temporary deactivation can be made by the personnel.
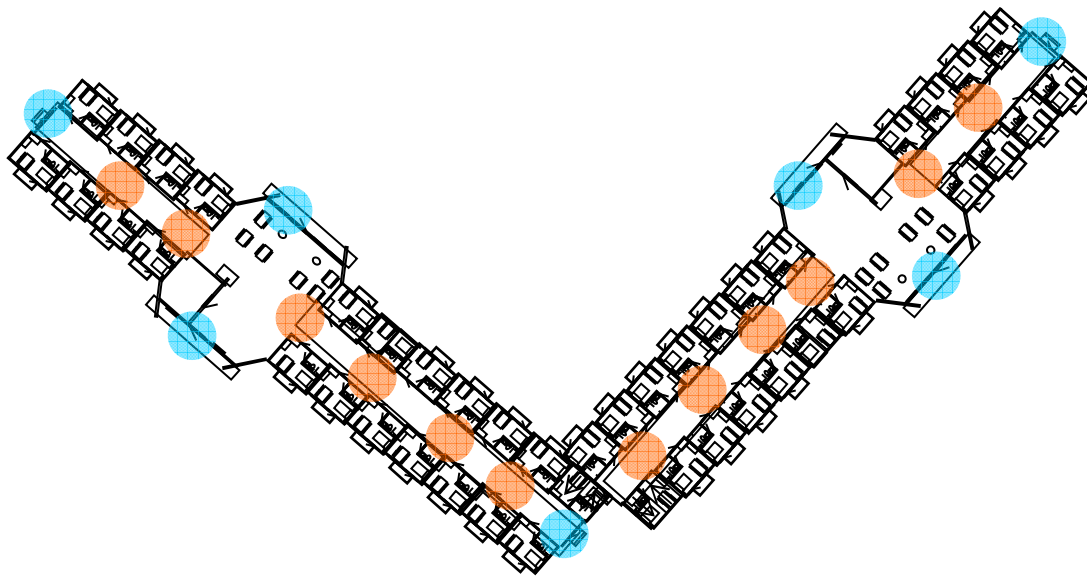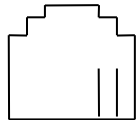

🟠　　Always active – Positioning indication

🔵　　Activated by main doors - Passage detection

An alarm is reset in the system using 950i panel, or by assigning the alarm type reset to one of the buttons of Elvis. The button assignments and how to change them is described in the technical handbook for Elvis.

1.2   Gustav unit overview

LED 1	Constant Green – Power is connected Twinkling Red – RFID beacon is active
Switch 1	0 – OFF 1 – ON
Switch 2	Temporary deactivation of beacon. Deactivation time can be set by programming parameter 1005
J1	1. RS485B 2. RS485A 3. GND 4. V+ 5. Input B 6. Input A 7. GND 8. GND
J2	1. RS485A 2. RS485B 3. InputA 4. InputB 5. Not connected 6. Not connected 7. V+ 8. GND
Magnetic switch	For activation of RFID beacon

2 Configuration

Gustav has a list of parameters that can be set by the programming unit 8200. The default programming ID (position2) is 999. Please remember to change position2 if the unit is connected to the system bus since it might interfere with other units during programming. The patch-cable must contain RS485A, RS485B and GND. Gustav must have an external power supply attached to connector J1 during the programming procedure.

External +12VDC power supply to J1.
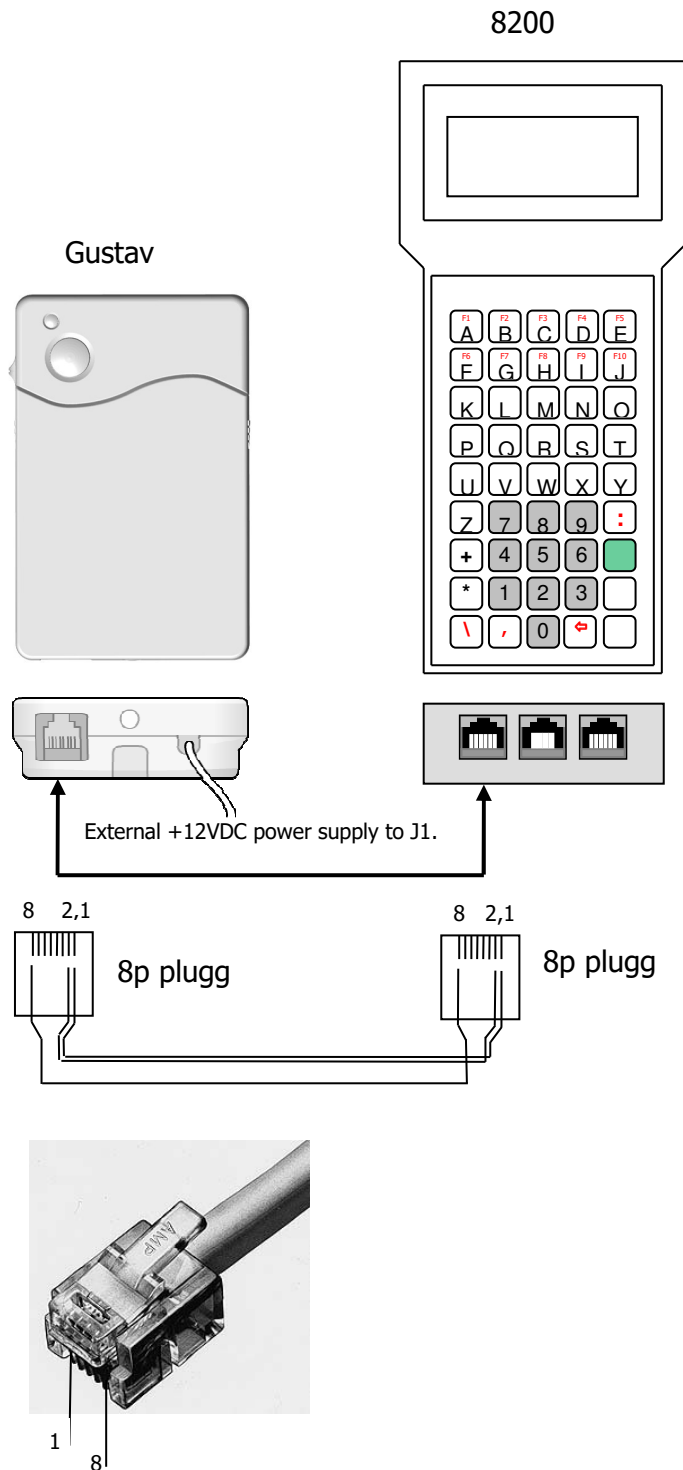
2.1 List of parameters

Command	Parameter	Description
0001	Device ID	Only readable
0002	Program Version	Only readable
0005	Position2	For programming use only from system 5000
1001	Position-ID	Please read chapter 2.1.1
1002	Magnetic Switch Status	
1003	Input A Status	Please read chapter 2.1.3
1004	Input B Status	Please read chapter 2.1.3
1005	Switch 2 Time	Deactivation time in seconds. 0-255 (30 = Default)
1007	Input A Time	Please read chapter 2.1.3
1008	Input B Time	Please read chapter 2.1.3
1010	Output Power	Output power of the RFID-beacon 0-18 (10 = Default), 0=max, 18=min.

2.1.1 Position-ID

This parameter sets the Position-ID of the unit. The input is six character wide (000000-FFFFFF), but the last three is ignored by the system.

Allowed ID's for position indication: 001-899
Allowed ID's for passage detection: 900-999

Example: Setting the ID to 433
Parameter input: 433000

2.1.2 Magnetic Switch Status

The Magnetic Switch Status can be set to either 1 or 0.

Parameter 1002 – Mag. Switch Status	Description
0 (Default)	Beacon is not controlled by the Magnet.
1	Beacon is active when the magnet is removed from the magnetic switch (the door is opened).

2.1.3 Input A and B

Input A is used for switching Gustav ON/OFF.
In default this function is not activated.
Switching the unit ON/OFF is done with switch 1.

Parameter 1003 – Input A Status	Description
0 (Default)	Beacon is not controlled by Input A
1	Beacon is active when Input A is open.
2	Beacon is active when Input A is connected to GND.

Input B is used for temporary deactivation of the RFID-signal from Gustav.
In default the RFID-signal is activated and will be temporary deactivated
when the input is connected to GND. (Deactivation time, see Parameter
1008)

Parameter 1004 – Input B Status	Description
0	RFID-signal is not controlled by Input B
1	RFID-signal not active when Input B is open
2 (Default)	RFID-signal not active when Input B is connected to GND.

Parameter 1007 – Input A Time	Description
0-255 (0 = Default)	Activation time in seconds for Gustav after being activated by input A

Parameter 1008 – Input B Time	Description
0-255 (30 = Default)	Deactivation time in seconds for the RFID-signal.

3 Installation

The coverage area of the magnetic field exposed by Gustav is dependent of the environment. The main reducing factor is the conductivity of the material of the wall. Our measurements have shown that good coverage can be achieved in normal cases, but it must always be verified during every installation.

To easily determine the coverage area of the Gustav, please do the folloing:
1. Set the position-ID of Gustav between 900 and 999. (Remember to change it back later)
2. The green LED on Elvis will now twinkle every time a message is picked up from Gustav.

The most significant factor for the coverage area is the placement of Gustav. It can also be slightly reduced by changing parameter "1010" between 0-18 (default value is 10). The installation guidelines differ between the two applications position indication and passage detection.

3.1 General installation guidelines

There are several things that must be taken into consideration before and under the installation.
1. The coverage area from one Gustav should not overlap any other units. The only way of determine this is by testing with the alarm trigger Elvis. If the building has several floors, it's a must to make sure that the alarm trigger can not detect a Gustav unit on another floor.

2. Gustav must be reachable for all personal if Switch 2 is used for temporally deactivation. An external switch can also be connected to input A or B, and deactivate Gustav while any of the inputs are connected to ground.

3. Elvis is designed for low power operation and is set in sleep-mode until the user triggers an alarm or a RFID-message is received. The battery life time for Elvis will therefore depend of where the beacons are located. It is therefore not recommended to install a beacon near a place where the end-user mostly uses to be, for example near the bed.

3.2 Installation examples

3.1.1 Passage detection

Gustav is normally mounted near a door and is deactivated until the door is opened; Triggered by the magnetic switch. The magnet should be mounted on the door close to the Gustav unit mounted on the frame. The distance between them should be less than 10mm to make sure that the magnetic field is detected by Gustav. The unit can be mounted beside or above the door.
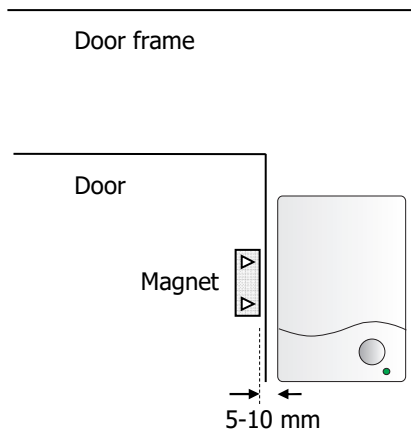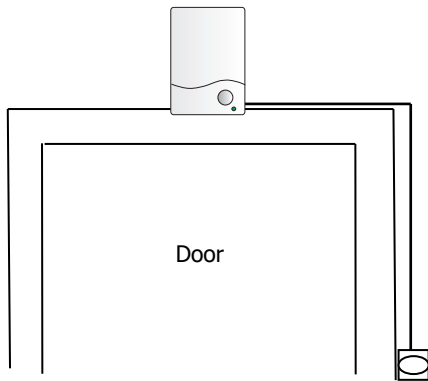
Parameter	Value
1001	937000 (ID = 937)
1002	1 (Activates by magnetic sw.)
1003	0 (Input A Disabled)
1004	0 (Input B Disabled)
1005	20 (20 sec deactivation, sw2)
1007	0 (Input A Disabled)
1008	0 (Input B Disabled)
1010	0 (Max output power)

Figure 1. Typical application. Opening the door activates Gustav for 30 seconds. 20 seconds deactivation by switch2.
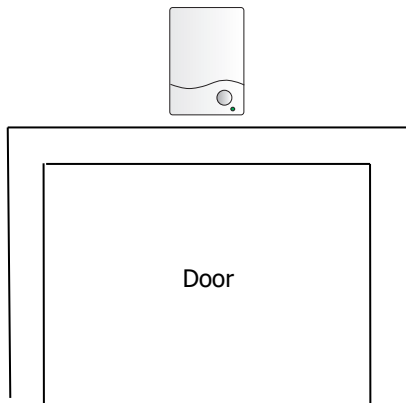
Parameter	Value
1001	968000 (ID = 968)
1002	0 (Not controlled by magnet)
1003	0 (Input A Disabled)
1004	0 (Input B Disabled)
1005	30 (No effect)
1007	0 (Default)
1008	0 (Default)
1010	0 (Default)

Figure 2. Gustav is mounted above the door frame and is always active. 30 seconds deactivation by Switch2.

Parameter	Value
1001	968000 (ID = 968)
1002	0 (Not controlled by magnet)
1003	1 (Active until input A is grounded)
1004	0 (Input B Disabled)
1005	30 (Default)
1007	0 (Default)
1008	0 (Default)
1010	0 (Default)

Figure 3. Gustav is active, deactivation as long as input A is connected to GND or for 30 seconds when switch 2 is activated.

3.1.2 Position indication

There is no general way of how to mount the Gustav units when setting up a positioning indication system. The units can be wall mounted or in the roof. The most important thing is to get good coverage area in the environment without overlapping any other unit magnetic field. The only way of doing it is by testing with an alarm trigger.

Parameter	Value
1001	123000 (ID = 123)
1002	0 (Default)
1003	0 (Default)
1004	0 (Default)
1005	0 (Default)
1007	0 (Default)
1008	0 (Default)
1010	0 (Default)

4 Technical data

Voltage	10.5 – 27 VDC
Current consumption	120 mA max
Coverage area	Up to 1.8m, depending on the environment
Data bus	RS-485
Protocol	Smart Call System 5000
RFID frequency	125kHz
Inputs	2 programmable Inputs
Size	110 x 70 x 24 mm
Temperature range	+5 to +35°C

5 Important Information

All systems using radio communication are subject to interference beyond the user's control. Products from CareTech are designed to minimise the impact of such interference. Nevertheless, the user must be aware that system components can be subjected to interference or other influences that may cause malfunction. It is therefore important to regularly check that every part of the system works in all areas, especially radio communications. Contact your supplier immediately in case of any suspected malfunction. Users should pay particular attention to the risk of disruption from products which communicate using the same or adjacent frequencies. For further information, please contact your supplier.

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