

# 4585

## COM-LOOP REPEATER

Fire alarm solutions  
technical description

# Table of Contents

<b>1.</b>	<b>INTRODUCTION</b>	3
<b>2.</b>	<b>ABBREVIATIONS</b>	4
<b>3.</b>	<b>GENERAL DESCRIPTION</b>	5
3.1.	LED 1	6
3.1.1.	TOGGLE LED	6
3.2.	LED 2	6
3.3.	POWER	6
3.4.	COM-LOOP	6
3.5.	SUB-LOOP	6
3.6.	FUNCTIONAL OVERVIEW	7
3.7.	FAULTS	7
<b>4.</b>	<b>CONFIGURATION</b>	8
4.1.	CABLE LENGTH	8
4.2.	SUMMARY OF LOOP UNITS	9
<b>5.</b>	<b>SET THE COM LOOP ADDRESS</b>	10
5.1.	AUTO ADDRESSING	10
5.2.	WHEN POWER SUPPLY 4466 IS MANUALLY ADDRESSED	10
5.2.1.	CHECK LOOP	10
5.3.	CHANGE THE COM LOOP ADDRESS	11
5.4.	RESET ADDRESS	11
<b>6.</b>	<b>SET THE MODE</b>	12
6.1.	COMPATIBILITY TABLE	12
<b>7.</b>	<b>MOUNTING</b>	13
<b>8.</b>	<b>INSTALLATION AND WIRING</b>	14
8.1.	4585 CONNECTIONS TO ADDRESSABLE DEVICES	14
8.2.	CONNECTIONS TO 4466, MOLEX CONNECTOR J2	14
8.3.	CONNECTIONS FOR SUB-LOOP, TERMINAL BLOCK J1	14
<b>9.</b>	<b>TECHNICAL DATA</b>	15
<b>10.</b>	<b>APPROVALS</b>	16

# 1. INTRODUCTION

This document describes the COM-loop repeater, type number 4585.

The document contains information about the product and instructions on how to mount and connect it.

## 2. ABBREVIATIONS

<b>CIE</b>	Control and indicating equipment	= control unit
<b>I/O</b>	Input/Output	
<b>LED</b>	Light Emitting Diode	
<b>nF</b>	nanofarad	
<b>PCB</b>	Printed circuit board	
<b>RH</b>	Relative humidity	
<b>S/W</b>	Software	

### 3. GENERAL DESCRIPTION

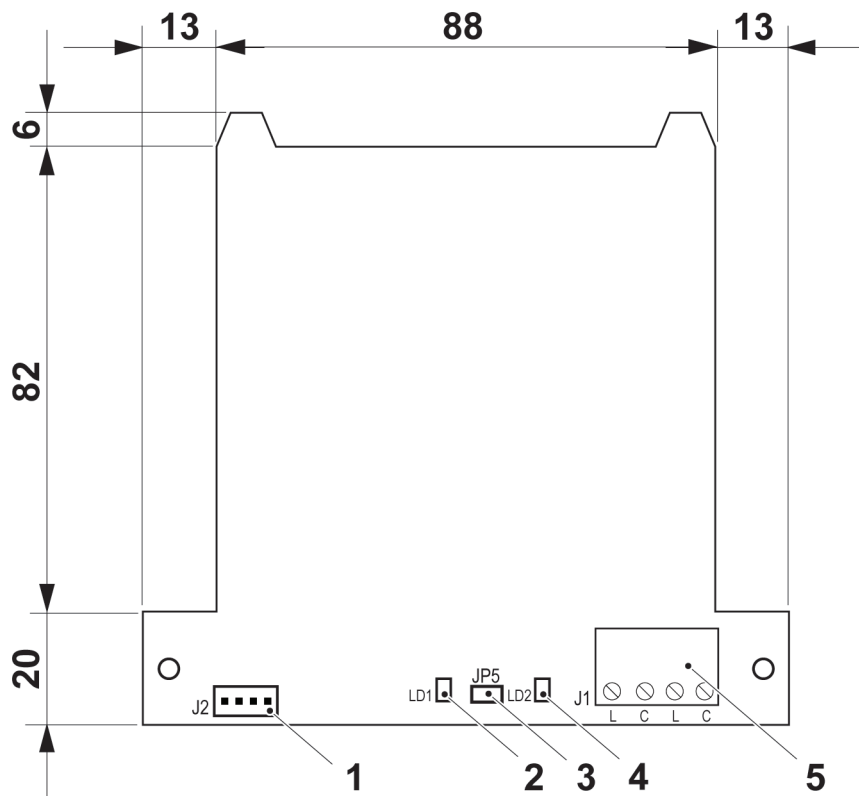
The COM-loop repeater extends the length of the COM-loop by amplifying the signal. The extension, hereafter called the **SUB-loop**, has a maximum cable length of up to 1100 m (for cables with 24 ohm/km cable resistance).

The board is intended to be mounted as an expansion board inside the External power supply 4466. The COM-loop repeater is power supplied with 24 V DC via the External power supply 4466.

The 4585 has no short circuit isolator, but is protected against short circuits on the COM-loop via the short circuit isolator in 4466. The COM-loop repeater has a terminal block for cable connections to the SUB-loop.

It is possible to mount two 4585 in each External power supply 4466.

The 4585 is intended for indoor use and in dry premises.



(Measure in mm)

1. Molex connector - connection to the 4466
2. LED 1
3. Jumper 5 (reset address)
4. LED 2
5. Terminal block for SUB-loop

### 3.1. LED 1

LED 1 is lit red when the board is not yet addressed, and also lit red during manual address reset by jumper JP5.

#### 3.1.1. TOGGLE LED

LED 1 is lit red when activating 'Toggle LED'.

The 4585 supports the function 'Toggle LED' via EBLWin.

For more information, see Planning Instructions for the system.

### 3.2. LED 2

LED 2 is lit green when the communication on the SUB-loop is ok.

### 3.3. POWER

The COM-loop repeater is powered with 24V DC (nominal) from one of the outputs of the external power supply 4466.

Voltage: Allowed Normal	16.0 – 30 V DC 24 V DC
Current: Max Min (internal)	640 mA 10 mA The input current is approximate $10\text{mA} + (24 \times \text{Sub-loop current}) / (0.85 \times \text{input voltage})$ .

### 3.4. COM-LOOP

The COM-loop repeater is connected to the COM-loop via the external power supply 4466. After the short circuit isolator in 4466 the COM-loop signals (SA and SB) are connected to the COM-loop repeater.

Voltage: Allowed Normal	12.0 – 30V DC 24 V DC
Current:	< 6 mA

### 3.5. SUB-LOOP

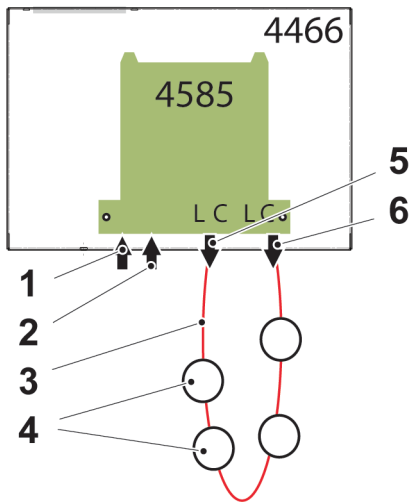
The COM-loop repeater has terminals to connect the signals of the SUB-loop (SAA, SBA, SAB and SBB).

The COM-loop repeater can detect an open circuit or short circuit on the SUB-loop. The SUB-loop will be powerless if the current outtake is too high.

Voltage:	22.0 – 24.0V DC
Current: Max outtage	350 mA

### 3.6. FUNCTIONAL OVERVIEW

This overview is an example of how the COM-loop repeater 4585 can be used.



1. COM-loop (internally via 4466)
2. Power (internally via 4466)
3. SUB-loop
4. Addressable COM-loop units
5. SUB-loop A-direction
6. SUB-loop B-direction

### 3.7. FAULTS

The 4585 is generating fault signal in the c.i.e. when the following occurs:

- Low Voltage
- Internal Fault
- Short circuit
- Open circuit

## 4. CONFIGURATION

The 4585 needs to be added into the configuration, manually or via auto addressing function. For more information, see the Planning Instructions for the system.

In the COM-loop repeater 4585 unit properties window, set the following:

- Technical address: Automatically set if auto addressing is used.
- SUB-loop information: 0-3, used to separate the SUB-loops from each other

### 4.1. CABLE LENGTH

- Number of 2218 on the loop.
- Conductor resistance.
- Feeder line conductor resistance.
- Feeder line length.
- Approx. possible COM loop cable length (automatically calculated).
- Max allowed COM loop resistance
- Max allowed SB conductor resistance
- Distance: Drag and move the last unit in A - and B direction to get correct value.

COM-loop repeater 4585 ? X

General Information

Technical address  Name

Sub-loop information

Sub-loop

Cable length Summary of loop units

Number of 2218 on the loop	<input type="text" value="0"/>
Number of 4418 in NORMAL mode on the loop	<input type="text" value="0"/>
Conductor resistance	<input type="text" value="24.5"/> ohm/km
Feeder line conductor resistance	<input type="text" value="24.5"/> ohm/km
Feeder line length	<input type="text" value="0"/> m
Approx. possible COM loop cable length	<input type="text" value="1100"/> m
Max allowed COM loop resistance	<input type="text" value="54"/> Ohm
Max allowed COM loop SB conductor resistance	<input type="text" value="27"/> Ohm

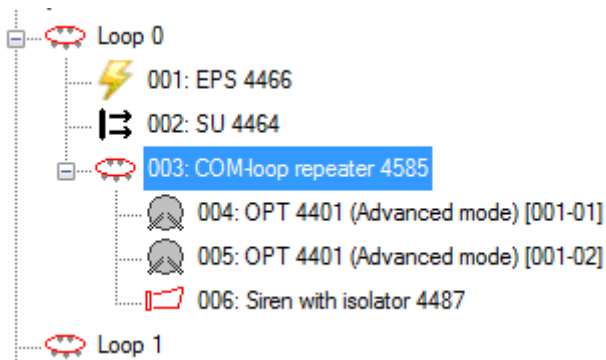
OK Cancel Apply

Press **Apply** to calculate new value input.



## 4.2. SUMMARY OF LOOP UNITS

The units that are added in the tree view are also summarized in the 'Summary of loop units' tab.



- Type
- Amount
- Quiescent consumption (current)
- Max consumption (current)

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**General Information**

Technical address  Name

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**Sub-loop information**

Sub-loop

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**Cable length** | **Summary of loop units**

Type	Amount	Quiescent consumption	Max consumption
OPT 4401	2	0,7	2,7
ASI 4487	1	2,0	10,0
<b>Total</b>	<b>3</b>	<b>2,7</b>	<b>12,7</b>

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## 5. SET THE COM LOOP ADDRESS

### 5.1. AUTO ADDRESSING

The 4585 supports automatic addressing via EBLWin.

For more information, see the Planning Instructions for the system.

The unit connected to power supply output 0 will get the 4466 technical address plus one. The unit connected to power supply output 1 will get the 4466 technical address plus two.

The 4585 unit will automatically be addressed via the External power supply 4466 unit.

### 5.2. WHEN POWER SUPPLY 4466 IS MANUALLY ADDRESSED

The 4585 units can only be addressed by the CIE via the 4466 (auto addressing). If manual addressing is used for the 4466, the 4585 unit will get its address automatically when the loop is connected / re-enabled to the CIE.

Add the configuration for 4585 manually in EBLWin. The unit connected to power supply output 0 must have the 4466 technical address plus one. The unit connected to power supply output 1 must have the 4466 technical address plus two.

#### 5.2.1. CHECK LOOP

If a 4585 unit without address is found during check loop, the CIE will report it to EBLWin with the correct address, i.e. the address of the 4466 unit plus one or two. This way, a correct SSD can be created after the check loop procedure is finished.

Once the SSD is download to the CIE the CIE will automatically address the 4585 unit.

### 5.3. CHANGE THE COM LOOP ADDRESS

If the COM loop address for 4466 must be changed, the address for 4464 and 4585 also must be changed (if mounted).

- a) Disconnect the 4466 from the COM loop.
- b) Reset the address for PCB 4464/4585 according to the instruction [5.4. RESET ADDRESS](#) on page 11.
- c) Set the new address manually for 4466.
- d) Connect the 4466 to the COM loop.
- e) Download SSD to the CIE During download SSD, the 4464 and 4585 will get the correct addresses.

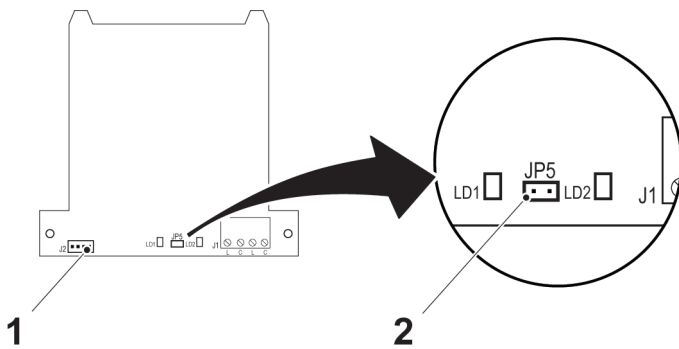
### 5.4. RESET ADDRESS

It is possible to reset the address of the 4585 board by shunting the jumper JP5.

Do the following:

- a) Disconnect the Molex connector.
- b) Shunt the jumper JP5.
- c) Re-connect the Molex connector.
- d) Check that LD1 is lit.
- e) Remove the jumper.
- f) Check that LD1 is off.

The technical address of the board is reset to 254 (factory setting).



- 1. Molex connector
- 2. Jumper JP5

## 6. SET THE MODE

The mode is automatically set to Advanced mode during auto addressing.

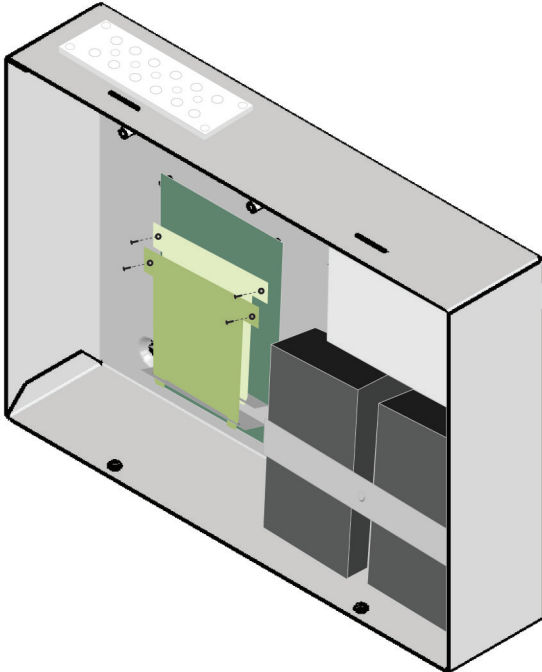
### 6.1. COMPATIBILITY TABLE

	Advanced mode	NORMAL mode	2330 mode	2312 mode
EBL512 G3	$V \geq 2.5$	Not used	Not used	Not used
EBL128	Not used	Not used	Not used	Not used
EBL512	Not used	Not used	Not used	Not used

## 7. MOUNTING

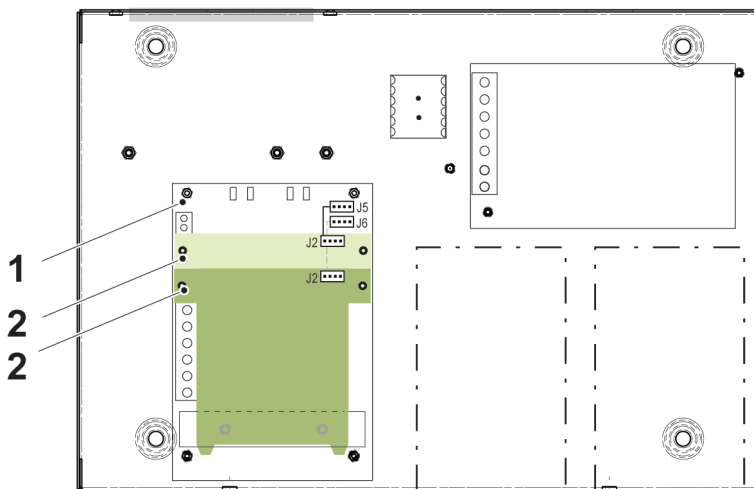
One or two expansion boards 4585 can be mounted on the charger board, inside the 4466.

- a) Mount the expansion boards according to the picture below. Screws are supplied with the expansion boards.



- b) Connect each Molex connector to contact header J2 on the expansion board, and to contact header J5 or J6 on the charger board.
- J5 is powered from OUT0
  - J6 is powered from OUT1

***If an expansion board is mounted without any units on the SUB-loop, the SUB-loop must be closed.***



1. Charger board 4467
2. Expansion board

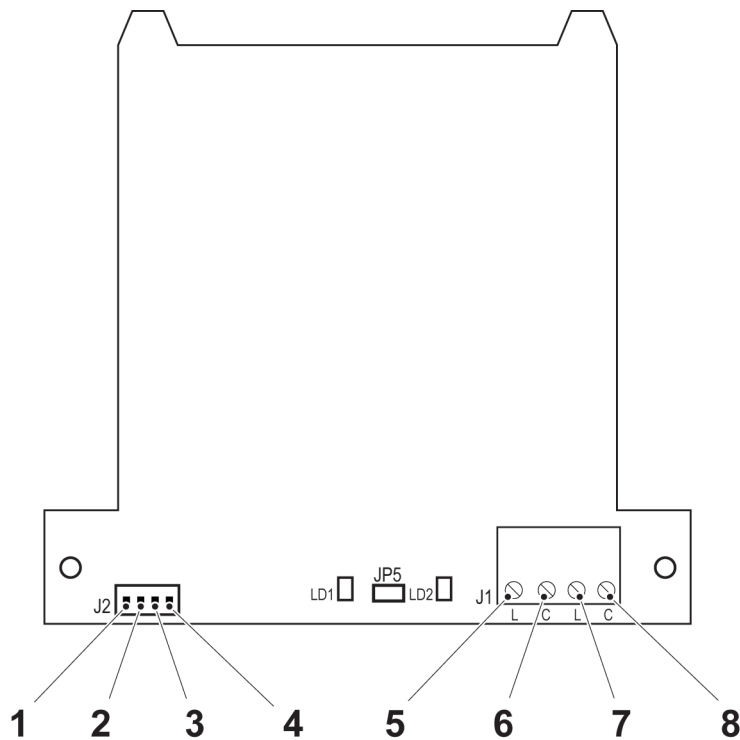
## 8. INSTALLATION AND WIRING

*Screen wire termination is not provided.*

Wire size (Min)	Ø 0.65 mm (0.33 mm <sup>2</sup> )
Wire size (Max)	Ø 1.6 mm (2 mm <sup>2</sup> )

### 8.1. 4585 CONNECTIONS TO ADDRESSABLE DEVICES

See Technical Description for each unit.



### 8.2. CONNECTIONS TO 4466, MOLEX CONNECTOR J2

1. +24V DC
2. 0V
3. SA (COM-loop)
4. SB (COM-loop)

### 8.3. CONNECTIONS FOR SUB-LOOP, TERMINAL BLOCK J1

5. SAA
6. SBA
7. SAB
8. SBB

## 9. TECHNICAL DATA

*All current consumptions are valid by nominal voltage and by 25 °C.*

Voltage: Allowed Normal	The 4585 unit is power supplied from the 4466. 16 – 30.0V DC 24V DC
Current: Max min (internal)	640 mA 10 mA
COM loop voltage: Allowed Normal  COM loop current:	12 - 30V DC 24V DC  < 6 mA
SUB-loop: Voltage Current Max outtake	22.0V - 24.0V  350 mA
Address range	001-253
Address setting	Automatic
Short circuit isolator	No
Internal battery	No
Ambient temperature: Operating Storage	-5 to +40 °C -20 to +70 °C
Ambient humidity	Maximum 95 % RH (Non condensing)
Size: H x W x D	108 x 114 x 15 mm (the p.c.b. incl. components)
Weight (including batteries):	55 g

## 10. APPROVALS

Applicable directive/ Approval	Applicable standards	Notified body
CPR	EN54-18	VdS No. 0786-CPR-21627
VdS	EN54-18 VdS 2344 VdS 2503	VdS No. G219025
EMC	EN55032 (Emission) EN50130-4 (Immunity)	Self declaration VdS
RoHS	EN IEC 63000	Self declaration





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