

LITROL™

### Dimmer Actuator

for integrated operation of lighting ;  
with LONMARK Association-Certified device



- 4-channel dimmer actuator for fluorescent lamp
- Test button for the hardware check
- PI control algorithm for the constant light controller
- Hold timer function for the occupancy controller object
- Simple installation – DIN rail mounting device
- LONMARK Association-Certified device

### Application

The DACT-FL4 is four-channel Dimmer Actuator for the fluorescent lamp. It has constant light controller objects and scene controller objects and is used to turn On/Off, make the illumination of the incandescent lamp. The objects and functions provide versatile way for the lighting applications.

### Technical data

Power requirements	Operating voltage Max. Operating Current	+18V/-18V (supplied from RCM-4FE) 120mA
Functions	Analog Output channel Analog Output	4 channel 1 ~ 10Vdc/channel, Max 15mA/channel
Interfaces	Interface type Transceiver Baud rate	LON (LONMARK) FTT-10 78 kBit/s
Cable connection	Terminals LONWORKS Network (Polarity insensitive)	Screw terminals 2-wire twisted pair 0.2 ~ 1.0 mm <sup>2</sup>
Hardware	Main Processor Processor clock Memory	TMPN3150 10MHz 56KB(32K ROM, 24K RAM)
Industry standards	<b>CE</b> conformity to EMC directive Emission Immunity LONMARK conformance	89/336/EEC EN 55011 EN 50082-2 Guidelines Version 3.2
Operating Environments	Temperature Humidity	0 ... 50 °C Max 95 % RH (Non-condensing)

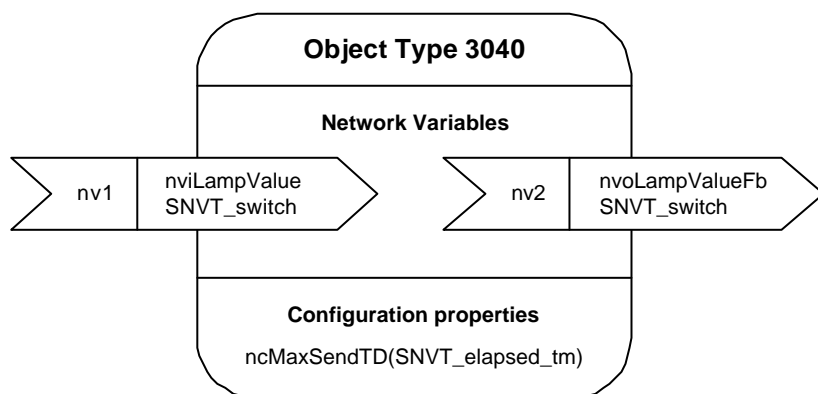
Standard program ID	80:00:72:1E:0A:06:04:00
External Interface File	DACTFL_xx.XIF
Plug-In Software	DACTFL_xx.EXE

**Objects**

<b>Object #0</b> Node object	Status request support: RQ_NORMAL for each Object Status request support: RQ_OVERRIDE, RQ_RMV_OVERRIDE for constant light controller object and occupancy controller object Configuration variables for Location String
<b>Object #1 to #4</b> Lamp actuator object	Functional profile 3040 version 1.0 SNVT_switch for feedback output and signal input Configuration variables for output function
<b>Object #5 to #6</b> Constant light controller object	Functional profile 3050 version 1.0 SNVT_Lux for illumination level input SNVT_switch for output value and manual override function SNVT_setting set-point level (0 ~ 65,000lux) Configuration variables for set point, constant value and override function
<b>Object #7 to #8</b> Occupancy controller object	Functional profile 3071 version 1.0 SNVT_occupancy for occupant state of certain area SNVT_setting for input value SNVT_switch for lamp value output and manual override function Configuration variables for hold time and prime value, override function
<b>Object #9 to #12</b> Scene controller object	Functional profile 3251 version 1.0 SNVT_switch for control output, and SNVT_scene for scene trigger input SNVT_scene_cfg for scene configuration SNVT_setting for input value Configuration variables for output value

**Object #1 to #4**

Dimmer Actuator (DIM1, DIM2, DIM3, DIM4)



**Network Variables**

<b>nviLampValue</b>	Switch input valid values 0-100% and state on/off
<b>nvoLampValueFb</b>	Switch feedback output valid values 0-100% and state on/off

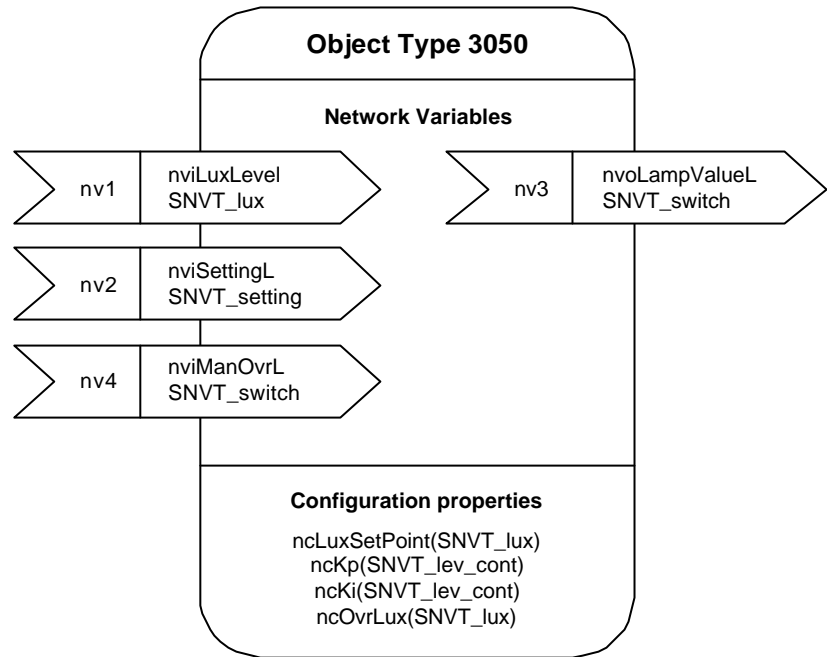
## Configuration Properties

**ncMaxSendTD**

Time between subsequent updates. Range 0min 0sec ~ 59min 59sec.  
Default = 0 sec

## Object #5 to #6

Constant Light Controller (CLC1, CLC2)



## Network Variables

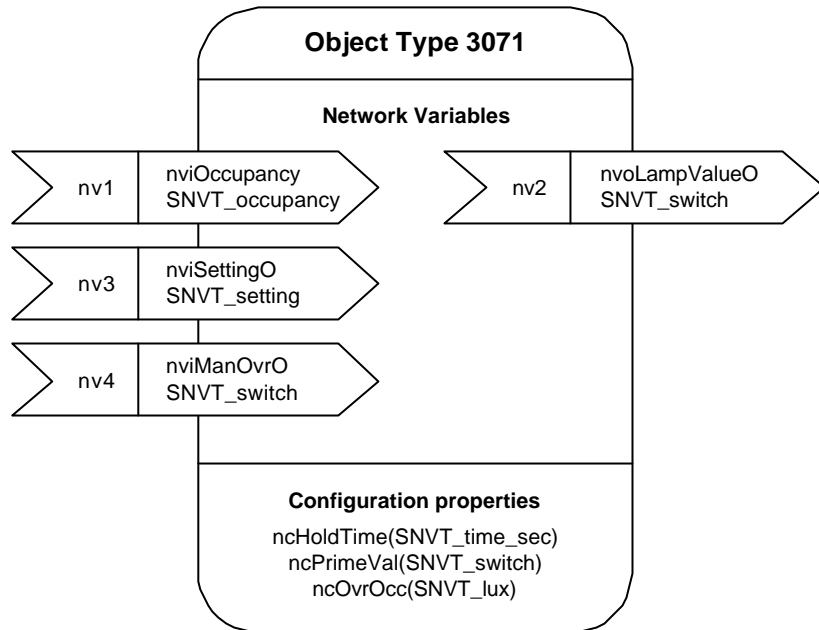
**nviLuxLevel**  
**nviSettingL**  
**nviManOvrL**  
**nvoLampValueL**

Lux level input  
Object enable/disable (SET\_ON/SET\_OFF)  
Manual override switch input. Passed through to nvoLampValueL  
Switch output for slave units, includes value 0~100% and state on/off

## Configuration Properties

**ncLuxSetPoint**  
**ncKp**  
**ncKi**  
**ncOvrLux**

Configuration input to set target lux value, default = 100.  
Proportional gain of the controller.  
Integral gain of the controller.  
It is substituted for nviLuxLevel when an object is overridden.

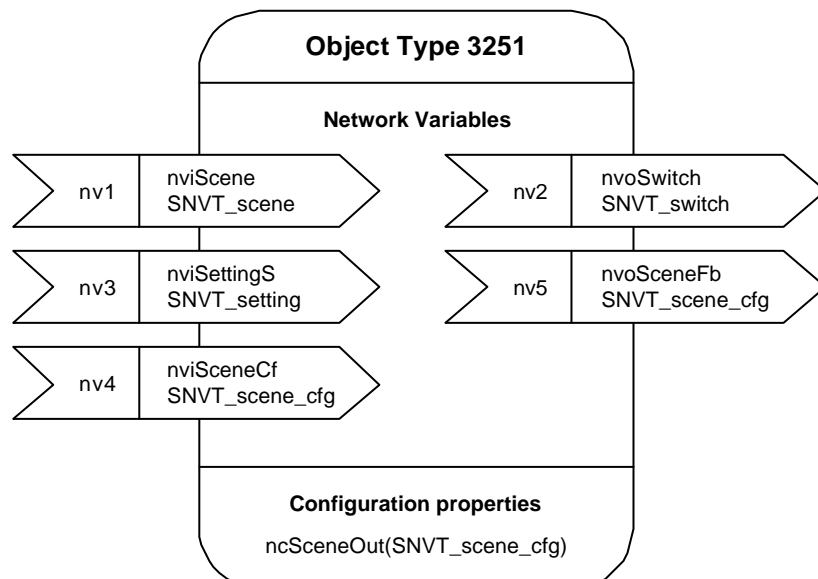


**Network Variables**

<b>nviOccupancy</b>	Occupancy Input
<b>nviSettingO</b>	Temporary UP/DOWN of the Prime Value and object enable/disable
<b>nviManOvrO</b>	Manual override control input. Passed through to nvoLampValueO
<b>nvoLampValueO</b>	Switch output for slave units, includes value 0-100% and state on/off

**Configuration Properties**

<b>ncHoldTime</b>	Hold time before output changes, when occupancy input goes UNOCCUPIED. Default = 600sec
<b>ncPrimeVal</b>	Value passed to Switch output when input nviOccupancy = OCCUPIED. Default = 100%
<b>ncOvrOcc</b>	It is substituted for nviOccupancy when an object is overridden.



## Network Variables

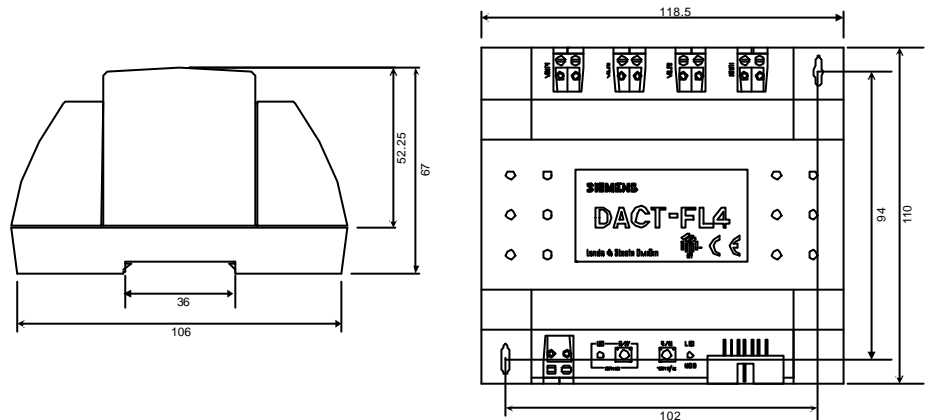
<b>nviScene</b>	Scene Input - RECALL is used to call scene from memory, valid range 1-30 - LEARN is used to record current level to scene, valid range 1-30
<b>nviSettingS</b> <b>nviSceneCf</b>	Temporary UP/DOWN of the lux setpoint and object enable/disable Scene configuration input - SAVE records entered scene - CLEAR deletes entered scene - REPORT update the configuration output(nvoSceneFb) with scene contents - SIZE reports total number of scenes in controller - FREE reports number of free scenes in controller Valid ranges are for scenes 1-30 setting 0.0-100%, Fade time, Delay time and rotation fields are unavailable.
<b>nvoSwitch</b> <b>nvoSceneFb</b>	Switch output for slave units, includes value 0~100% and state on/off SceneCf feedback output

## Configuration Properties

<b>ncSceneOut</b>	Save Scene. Saving scene number up to 30.
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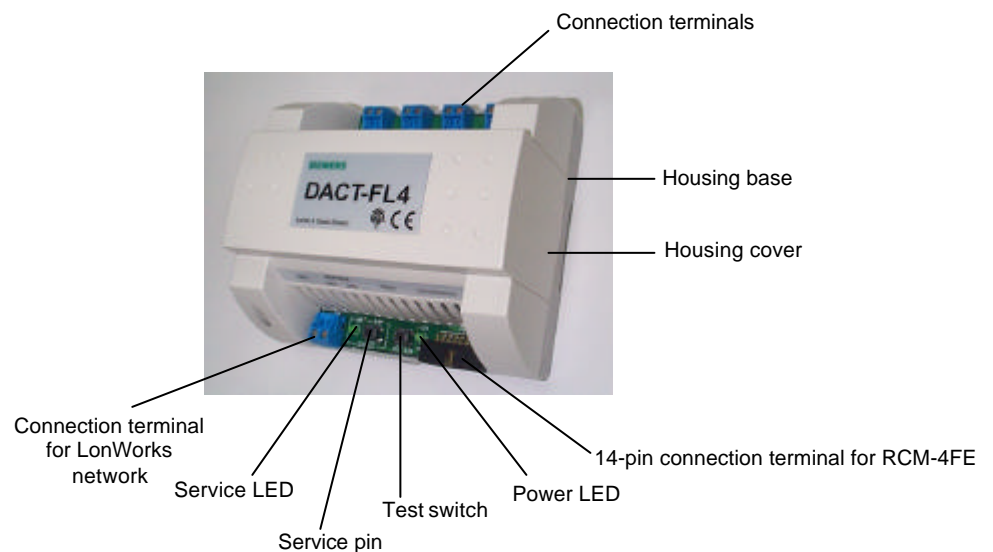
## Dimensions

All dimensions in mm



## Mechanical design

The DACT-FL4 comprises a housing base and a housing cover. The device also has a service Pin/LED, a Power LED, a Test switch and connection terminals for NET A/B.



### Test switch

Test the dimmer Actuators. When the test switch is pressed, the illumination of the lighting bulbs are changed by means of different level.:

0% ⇒ 25% ⇒ 50% ⇒ 75% ⇒ 100% ⇒ previous level

### Service LED

This LED shows the overall status of the LonWorks device. When the device application is not configured, this LED flashes green and off. When the device application is configured, the LED goes off.

### Service pin

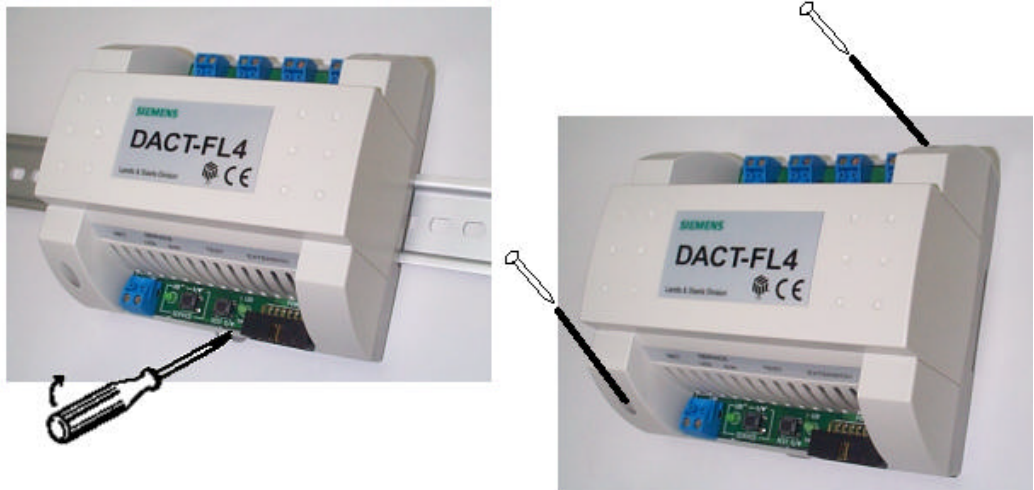
The service pin is used to identify the device at commissioning. When the service pin is pressed, program ID and LonWorks Unique ID(Neuron ID) contained in the device are transmitted to the commissioning or service tools.

### 14-pin connection terminal for RCM-4FE

The connection terminal is used to link with the RCM-4FE by using a 14-pin connector cable.

## Mounting notes

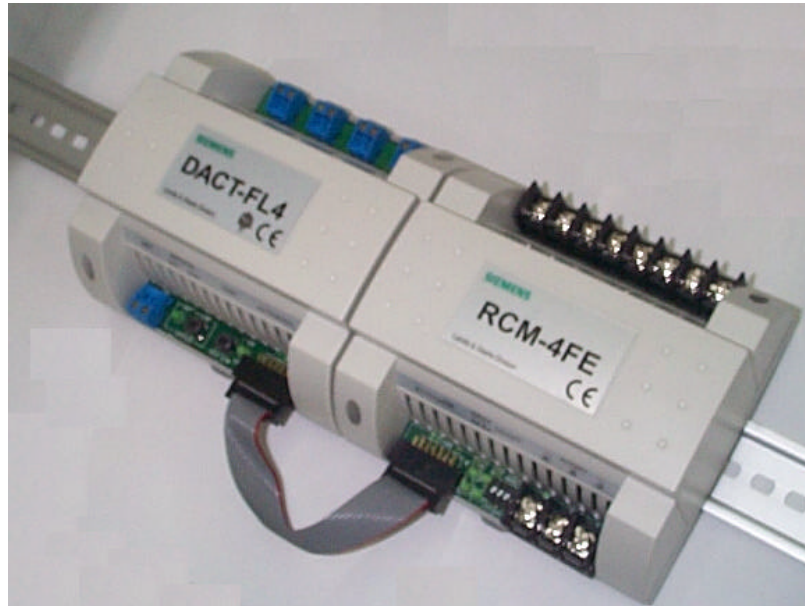
The device can be mounted in any orientation and fixed as follows:



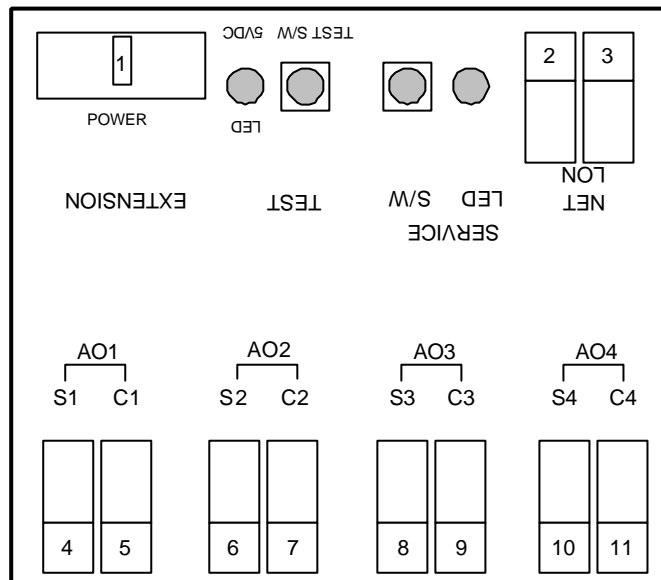
<i>Rail mounting</i>	<i>Direct mounting</i>
The housing base is designed for snap-mounting on DIN rails. (can be released with a screwdriver)	Two drill holes are provided for screw-mounting.

## Mounting with extension module

You have to connect this device with RCM-4FE to use dimming control of fluorescent lights. The following figure displays how to mount the extension module.



## Connection terminals



### EXTENSION

- 1 Connect with extension module (RCM-4FE)

### LonWorks Network

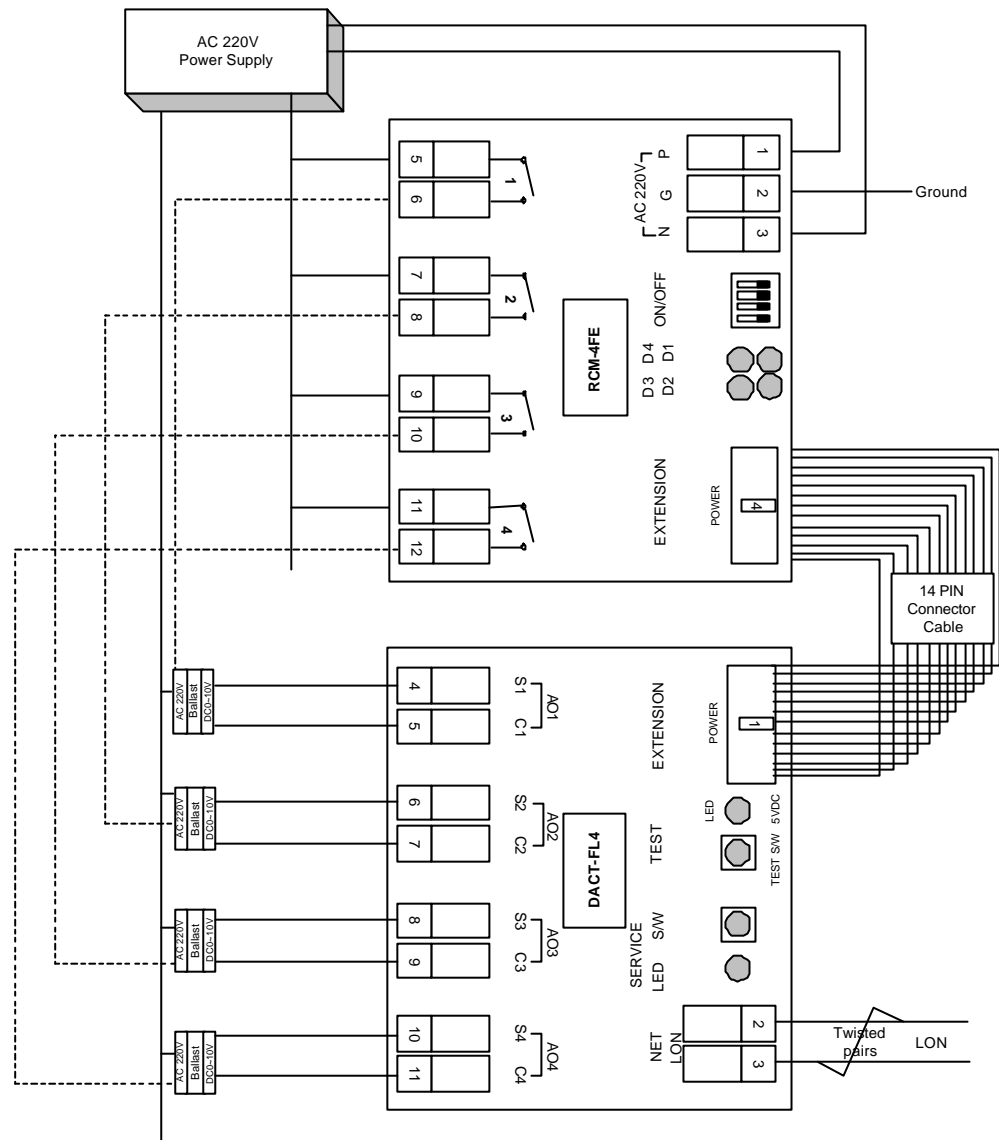
- 2 Data B
- 3 Data A

### Signal outputs

- 4 signal output for ballast1(+)
- 5 signal output for ballast1(-)
- 6 signal output for ballast2(+)
- 7 signal output for ballast2(-)
- 8 signal output for ballast3(+)
- 9 signal output for ballast3(-)
- 10 signal output for ballast4(+)
- 11 signal output for ballast4(-)

## Connection diagrams

Connection of fluorescent lights, extension module (RCM-4FE), LonWorks network and power supply. The RCM-4FE must be connected to the DACT-FL4 by using 14-pin cable to control On/Off lighting load.



## Installation instructions

1. Mount the DACT-FL4 in the required location by firmly fixing to the wall with a minimum of two screws or by fixing to the din rail. (See mounting notes)
2. Mount the same backplate with RCM-4FE. (See mounting with extension module)
3. Connect the cable as per connection diagram. (See connection diagrams)
4. Once the connections are completed, you must commission the device using LonWorks commissioning tool. (like as Echelon's LonMaker for Windows or SBT's Robust Manager)
5. Once the device is successfully added in the LonWorks network, you have to check the following.  
"The service LED is indicated by 5 flashes by **Wink** command."
6. If you want to set unconfigured state of the device, press the "Service pin" during 10 second.

## Ordering information

Model	Description	P/N	Remark
DACT-FL4	Dimmer Actuator for Fluorescent, 4 channels, 0-10Vdc Output, for LonMark	35-130	



LITROL™

## RCM-4FE

### Extension module for DACT-FL4

for integrated operation of lighting ;



- 4-channel conventional relay output module for fluorescent lamp
- Simple installation – DIN rail mounting device
- Extension module for DACT-FL4

#### Application

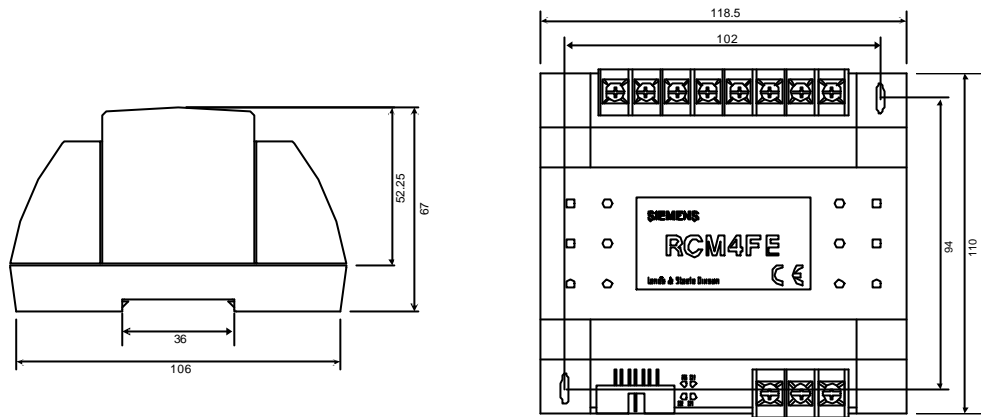
The RCM-4FE is an extension module for the DACT-FL4 control relay output. DACT-FL4 is used to control the light level and RCM-4FE is used to turn on and off the lamps .

#### Technical data

Power requirements	Operating voltage Max. Operating Current	110V/220V, 60Hz/50Hz 170mA
Functions	Digital Output channel Digital Output capacity	4 relays 16A 250Vac(16A 30Vdc) /relay
Cable connection	Terminals Extension Connection	Screw terminals Included 14pin connector
Industry standards	<b>CE</b> conformity to EMC directive Emission Immunity	89/336/EEC EN 55011 EN 50082-2
Operating Environments	Temperature Humidity	0 ... 50 °C Max 95 % RH (Non-condensing)

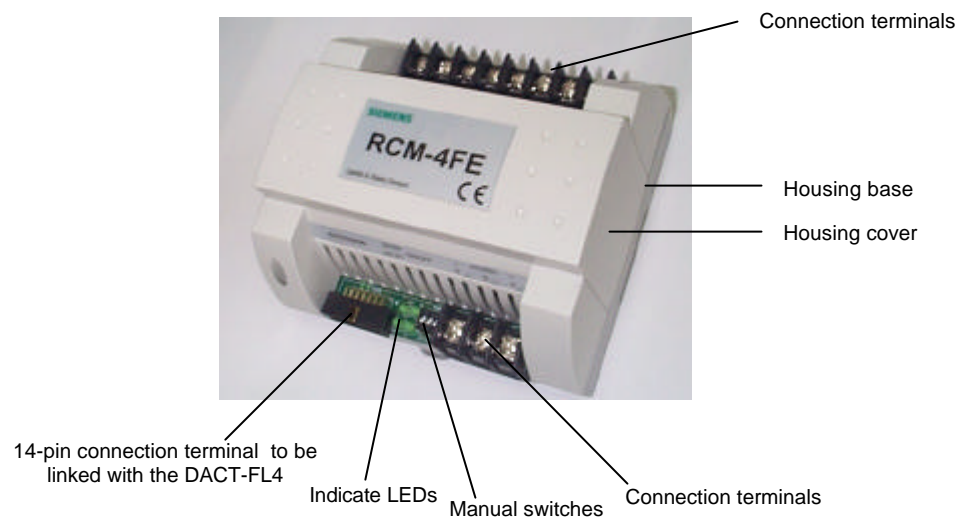
## Dimensions

All dimensions in mm



## Mechanical design

The RCM-4FE comprises a housing base and a housing cover. The device also has manual switches, status indicating LEDs and power connection terminals.



### Indicating LEDs

These LEDs reflect the current status of relays. If a relay is off, the relevant LED is off. If a relay is on, the relevant LED is on. The following are the relations of relays and LEDs:

D1	----	Relay1
D2	----	Relay2
D3	----	Relay3
D4	----	Relay4

### Manual switch

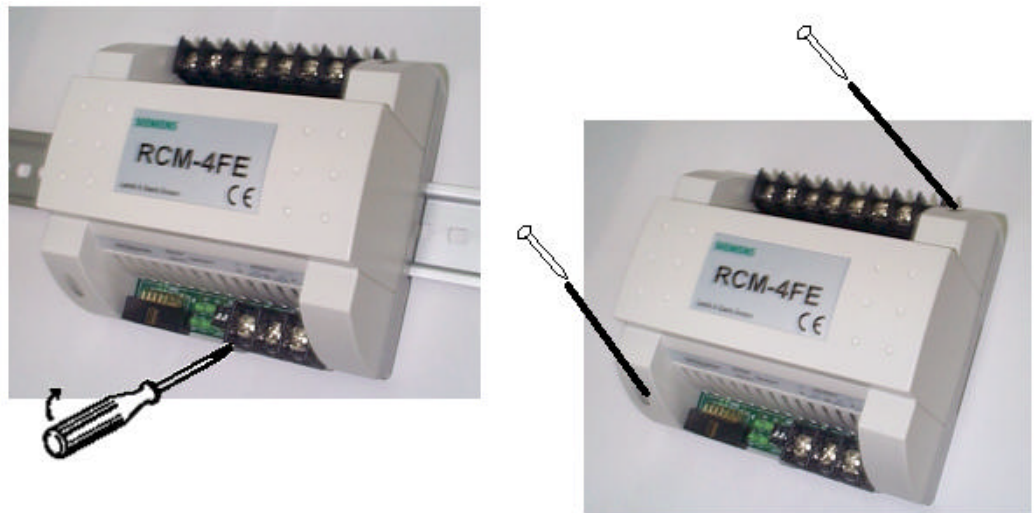
When the RCM4-FE is not connected to the DACT-FL4, then you can manually control the output relays by the manual switch. However, when the RCM-4FE is connected to the DACT-FL4, this manual switch is disabled.

### 14pin connection terminal for DACT-FL4

The connection terminal is used to link with the DACT-FL4 by using a 14-pin connector cable.

## Mounting notes

The device can be mounted in any orientation and fixed as follows:



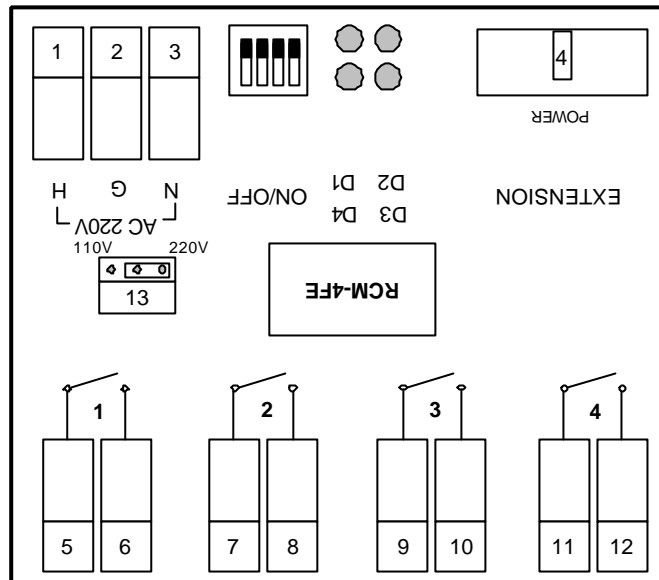
<i>Rail mounting</i>	<i>Direct mounting</i>
The housing base is designed for snap-mounting on DIN rails.(can be released with a screwdriver)	Two drill holes are provided for screw-mounting.

## Mounting with DACT-FL4

You have to connect this device with DACT-FL4 to use dimming control of fluorescent lights. The following figure displays how to mount the extension module.



## Connection terminals



### Power Supply

1	AC 220V	H
2	Ground	
3	AC 220V	Neutral

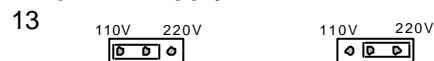
### EXTENSION

4	Connection terminal for DACT-FL4, by using 14 pin connector cable
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### Relay outputs

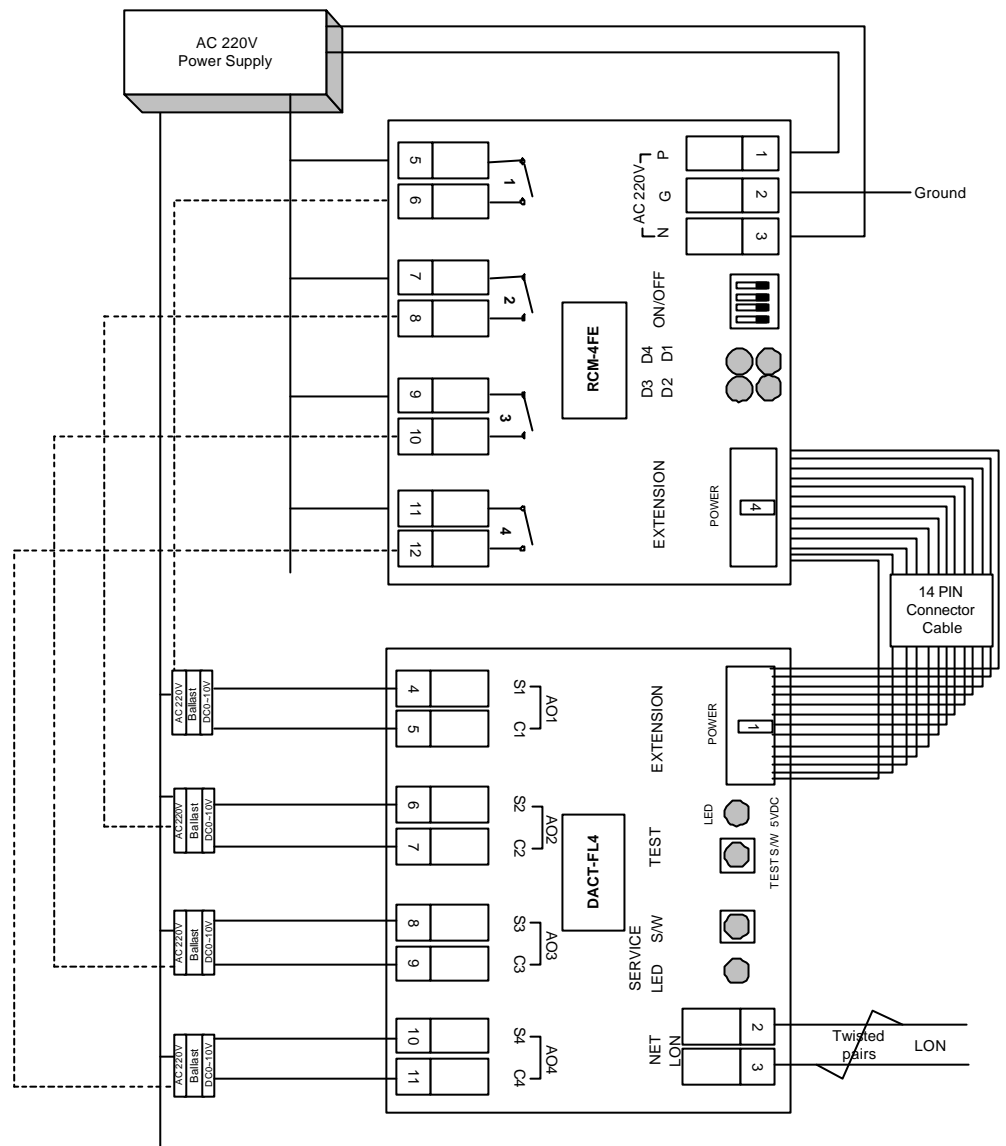
5	contact for 6
6	Max AC 250V, maintained contact, 16 A
7	contact for 8
8	Max AC 250V, maintained contact, 16 A
9	contact for 9
10	Max AC 250V, maintained contact, 16 A
11	contact for 12
12	Max AC 250V, maintained contact, 16 A

### Selection of power supply



## Connection diagrams

Connection of fluorescent lights, extension module (RCM-4FE), LonWorks network and power supply. The RCM-4FE must be connected to the DACT-FL4 by using 14-pin connector cable to control On/Off lighting load.



## Installation instructions

1. Mount the RCM-4FE in the required location by firmly fixing to the wall with a minimum of two screws or by fixing to the din rail. (See mounting notes)
2. Mount the same back plate with DACT-FL4. (See mounting with extension module)
3. Connect the cable as per connection diagram. (See connection diagrams)
4. Once the connections are completed, you must follow the DACT-FL4 device's installation process.

## Ordering information

Model	Description	P/N	Remark
RCM-4FE	Relay Control Module, Expansion for DACT-FL4, 4 Conventional Relays	35-131	