

# CI-tronic™ Electronic contactors

## Type ECI

**Features**

- Compact modular design complete with heatsink
- DIN rail mountable
- Easy and quick installation
- Specification according to industry standard
- Available in single phase, dual phase or three phase version
- Operational current up to 63 A (AC-1), 30 A (AC-3)
- LED Status indication
- Line voltage up to 600 V a.c.
- Universal control voltage
- Burst firing (zero cross)
- IP 20 protection
- CE, CSA, UL and C-tick approvals
- SCR power chip with LTE technology
- Built-in varistor protection



**Description**

ECI electronic contactors are designed for fast and demanding switching of loads such as heaters, solenoids, transformers and motors.

The contactors are burst fired for reduced EMC emission, have LED status indicators and accept universal control voltage ranges.

ECI Electronic contactors utilize power chip with LTE (Low Thermal Expansion) technology.

The units are DIN rail mountable, complete with heatsink and require no additional components.

This unique power chip design ensures high switching capacity and long life.

**Ordering**

*Single phase*

| Operational current |      | Control voltage    | Dimensions     | Type     | Code no.                     |                 |                 |
|---------------------|------|--------------------|----------------|----------|------------------------------|-----------------|-----------------|
| AC-1                | AC-3 |                    |                |          | Operational voltage [V a.c.] |                 |                 |
|                     |      |                    |                |          | 12-230                       | 24-480          | 24-600          |
| 15 A                | 15 A | 5-24 V d.c.        | 22.5 mm module | ECI 15-1 | <b>037N0063</b>              | <b>037N0065</b> | <b>037N0067</b> |
| 15 A                | 15 A | 24-230 V a.c./d.c. | 22.5 mm module | ECI 15-1 | <b>037N0064</b>              | <b>037N0066</b> | <b>037N0068</b> |
| 30 A                | 15 A | 5-24 V d.c.        | 45 mm module   | ECI 30-1 | <b>037N0007</b>              | <b>037N0009</b> | <b>037N0011</b> |
| 30 A                | 15 A | 24-230 V a.c./d.c. | 45 mm module   | ECI 30-1 | <b>037N0001</b>              | <b>037N0003</b> | <b>037N0005</b> |
| 50 A                | 15 A | 5-24 V d.c.        | 90 mm module   | ECI 50-1 | <b>037N0008</b>              | <b>037N0010</b> | <b>037N0012</b> |
| 50 A                | 15 A | 24-230 V a.c./d.c. | 90 mm module   | ECI 50-1 | <b>037N0002</b>              | <b>037N0004</b> | <b>037N0006</b> |
| 63 A                | 30 A | 5-24 V d.c.        | 90 mm module   | ECI 63-1 | <b>037N0078</b>              | <b>037N0080</b> | <b>037N0082</b> |
| 63 A                | 30 A | 24-230 V a.c./d.c. | 90 mm module   | ECI 63-1 | <b>037N0079</b>              | <b>037N0081</b> | <b>037N0083</b> |

*Dual phase*

| Operational current <sup>1)</sup> |      | Control voltage    | Dimensions   | Type     | Code no.                     |                 |                 |
|-----------------------------------|------|--------------------|--------------|----------|------------------------------|-----------------|-----------------|
| AC-1                              | AC-3 |                    |              |          | Operational voltage [V a.c.] |                 |                 |
|                                   |      |                    |              |          | 12-230                       | 24-480          | 24-600          |
| 30 A                              | 15 A | 5-24 V d.c.        | 45 mm module | ECI 30-2 | <b>037N0019</b>              | <b>037N0021</b> | <b>037N0023</b> |
| 30 A                              | 15 A | 24-230 V a.c./d.c. | 45 mm module | ECI 30-2 | <b>037N0013</b>              | <b>037N0015</b> | <b>037N0017</b> |
| 50 A                              | 15 A | 5-24 V d.c.        | 90 mm module | ECI 50-2 | <b>037N0020</b>              | <b>037N0022</b> | <b>037N0024</b> |
| 50 A                              | 15 A | 24-230 V a.c./d.c. | 90 mm module | ECI 50-2 | <b>037N0014</b>              | <b>037N0016</b> | <b>037N0018</b> |

<sup>1)</sup> Rated as the maximum sum of current in L1 and L2

Ordering (continued)

Three phase

| Operational current |      | Control voltage    | Dimensions   | Type     | Code no.                     |                 |                 |
|---------------------|------|--------------------|--------------|----------|------------------------------|-----------------|-----------------|
| AC-1                | AC-3 |                    |              |          | Operational voltage [V a.c.] |                 |                 |
|                     |      |                    |              |          | 12-230                       | 24-480          | 24-600          |
| 10 A                | 10 A | 5-24 V d.c.        | 45 mm module | ECI 10-3 | <b>037N0031</b>              | <b>037N0033</b> | <b>037N0035</b> |
| 10 A                | 10 A | 24-230 V a.c./d.c. | 45 mm module | ECI 10-3 | <b>037N0025</b>              | <b>037N0027</b> | <b>037N0029</b> |
| 20 A                | 10 A | 5-24 V d.c.        | 90 mm module | ECI 20-3 | <b>037N0032</b>              | <b>037N0034</b> | <b>037N0036</b> |
| 20 A                | 10 A | 24-230 V a.c./d.c. | 90 mm module | ECI 20-3 | <b>037N0026</b>              | <b>037N0028</b> | <b>037N0030</b> |

Operating at high temperature

| Ambient temperature |     | Single and dual phase |        |        |        | Three phase |        |
|---------------------|-----|-----------------------|--------|--------|--------|-------------|--------|
|                     |     | ECI 15                | ECI 30 | ECI 50 | ECI 63 | ECI 10      | ECI 20 |
| +40°C               | [A] | 15                    | 30     | 50     | 63     | 10          | 20     |
| +50°C               | [A] | 12.5                  | 25     | 40     | 50     | 8           | 16     |
| +60°C               | [A] | 10                    | 20     | 30     | 35     | 6.5         | 13     |

Technical data

Output specification

|                                 |            | Single and dual phase <sup>1)</sup>                   |        |                       |        | Three phase          |        |
|---------------------------------|------------|-------------------------------------------------------|--------|-----------------------|--------|----------------------|--------|
|                                 |            | ECI 15                                                | ECI 30 | ECI 50                | ECI 63 | ECI 10               | ECI 20 |
| Operational current             | [A]        |                                                       |        |                       |        |                      |        |
| AC-1, AC-51 (heater load)       | max.       | 15                                                    | 30     | 50                    | 63     | 10                   | 20     |
| AC-3, AC-53a (motor load)       | max.       | 15 <sup>2)</sup>                                      | 15     | 15                    | 30     | 10                   | 10     |
| Operational voltage (50/60 Hz)  |            | 12 - 230 V a.c.<br>24 - 480 V a.c.<br>24 - 600 V a.c. |        |                       |        |                      |        |
| Leakage current                 | max.       | 1 mA                                                  |        |                       |        |                      |        |
| Operational current             | min.       | 10 mA                                                 |        |                       |        |                      |        |
| Semiconductor protection fusing |            | 50 A gL/gG                                            |        | 80A gL/gG             |        | 35 A gL/gG           |        |
| Type 1 coordination             |            | 1800 A <sup>2</sup> s <sup>2)</sup>                   |        | 6300 A <sup>2</sup> s |        | 450 A <sup>2</sup> s |        |
| Type 2 coordination             | Pt(t=10ms) |                                                       |        |                       |        |                      |        |

<sup>1)</sup> Dual phase: Current rating is accumulated, i.e. the sum of current in L1 and L2

<sup>2)</sup> Contactors designed for 600 V: AC-3 load 10 A max., type 2 coordination fuse 450 A<sup>2</sup>s

Control circuit specification

|                              |      |                                          |
|------------------------------|------|------------------------------------------|
| Control voltage range (±10%) |      | 5 - 24 V d.c. / 24 - 230 V a.c. / d.c.   |
| Pick-up voltage              | max. | 4.25 V d.c. / 20.4 V a.c. / d.c.         |
| Drop-out voltage             | min. | 1.5 V d.c. / 7.2 V a.c. / d.c.           |
| Control current / power      | max. | 15 mA at 24 V d.c. / 1.5 VA at 24 V d.c. |
| Response time                | max. | ½ cycle / 1 cycle                        |
| EMC immunity                 |      | Meets requirements of EN 60947-4-3       |

Insulation

|                                 |                  |            |
|---------------------------------|------------------|------------|
| Rated insulation voltage        | U <sub>i</sub>   | 660 V a.c. |
| Rated impulse withstand voltage | U <sub>imp</sub> | 4 kV       |
| Installation category           |                  | III        |

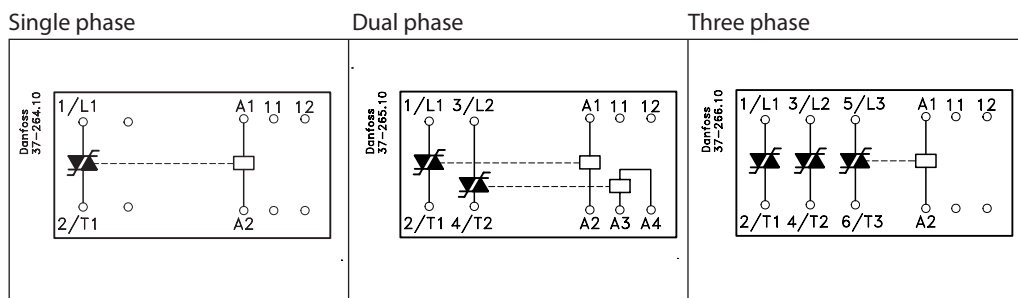
Thermal specification

|                                                    | Single and dual phase                                   |        |        |        | Three phase                 |        |
|----------------------------------------------------|---------------------------------------------------------|--------|--------|--------|-----------------------------|--------|
|                                                    | ECI 15                                                  | ECI 30 | ECI 50 | ECI 63 | ECI 10                      | ECI 20 |
| Power dissipation continuous duty intermitten duty | 1.2 W/A (per phase)<br>1.2 W/A × duty cycle (per phase) |        |        |        | 3 W/A<br>3 W/A × duty cycle |        |
| Ambient temperature range                          | -5°C to +40°C                                           |        |        |        |                             |        |
| Cooling method                                     | Natural convection                                      |        |        |        |                             |        |
| Mounting                                           | Vertical (see general mounting instruction)             |        |        |        |                             |        |
| Storage temperature range                          | -20°C to +80°C                                          |        |        |        |                             |        |
| Enclosure degree/ pollution degree                 | IP 20 / 3                                               |        |        |        |                             |        |

Materials

|          |                               |
|----------|-------------------------------|
| Housing  | Self-extinguishing PPO UL94V1 |
| Heatsink | Aluminium black anodized      |
| Base     | Electroplated steel           |

Wiring diagram



Terminals 11 and 12 have no connection to the internal circuit but are intended for connection to an optional overload protection (see overheat protection instruction, page 4).

Applications

**Single phase**

Max. heater power [kW]

|          | 230 V | 400 V | 575 V |
|----------|-------|-------|-------|
| ECI 15-1 | 3.5   | 6     | 8.7   |
| ECI 30-1 | 6.9   | 12    | 17.3  |
| ECI 50-1 | 11.5  | 20    | 28.8  |
| ECI 63-1 | 14.5  | 25.1  | 36.2  |

**Dual phase**

Max. heater power [kW]

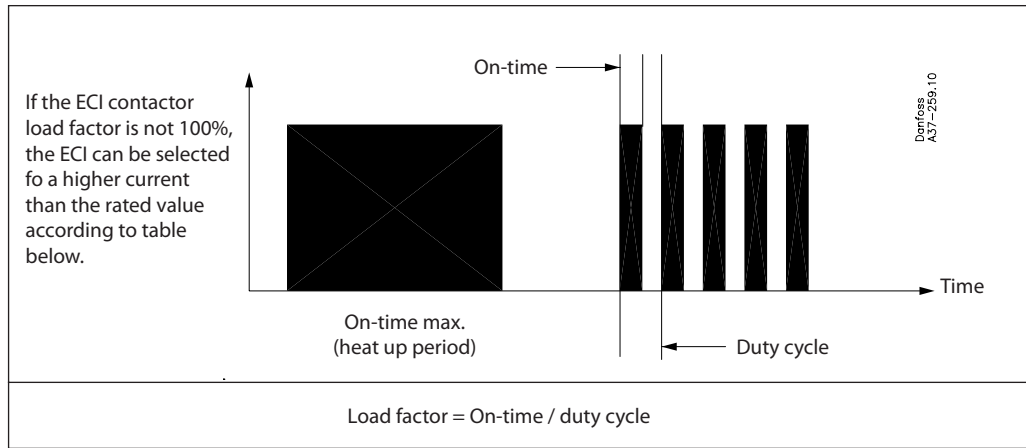
|          | 230 V | 400 V | 575 V |
|----------|-------|-------|-------|
| ECI 30-2 | 6.9   | 12    | 17.3  |
| ECI 50-2 | 11.5  | 20    | 28.8  |

**Three phase**

Max. heater power [kW]

|          | 230 V | 400 V | 575 V |
|----------|-------|-------|-------|
| ECI 30-2 | 4     | 6.9   | 10    |
| ECI 50-2 | 8     | 13.8  | 20    |

Duty cycle rating



ECI 15-1

| Load current | On-time max. | Load factor max. |
|--------------|--------------|------------------|
| 17.5 A       | 15 min.      | 85%              |
| 20 A         | 13 min.      | 75%              |
| 22.5 A       | 11 min.      | 67%              |
| 25 A         | 9 min.       | 60%              |
| 27.5 A       | 7 min.       | 55%              |
| 30 A         | 5 min.       | 50%              |

ECI 15-1 for 600 V

| Load current | On-time max. | Load factor max. |
|--------------|--------------|------------------|
| 17.5 A       | 15 min.      | 85%              |
| 20 A         | 13 min.      | 75%              |

ECI 30-1 and ECI 30-2

| Load current | On-time max. | Load factor max. |
|--------------|--------------|------------------|
| 35 A         | 15 min.      | 85%              |
| 40 A         | 13 min.      | 75%              |
| 45 A         | 11.5 min.    | 67%              |
| 50 A         | 10 min.      | 60%              |

ECI 10-3

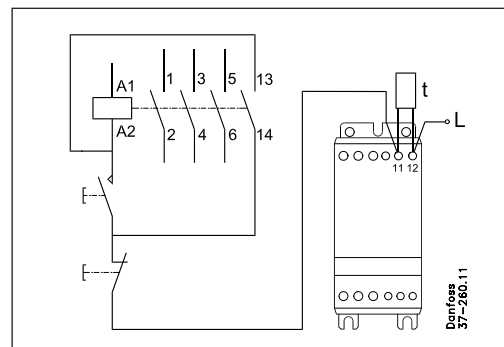
| Load current | On-time max. | Load factor max. |
|--------------|--------------|------------------|
| 12.5 A       | 15 min.      | 85%              |
| 15 A         | 13 min.      | 75%              |
| 17.5 A       | 11.5 min.    | 67%              |
| 20 A         | 10 min.      | 60%              |

Overheat protection

If required the controller can be protected against overheating by inserting a thermostat in the slot on the right-hand side of the controller.

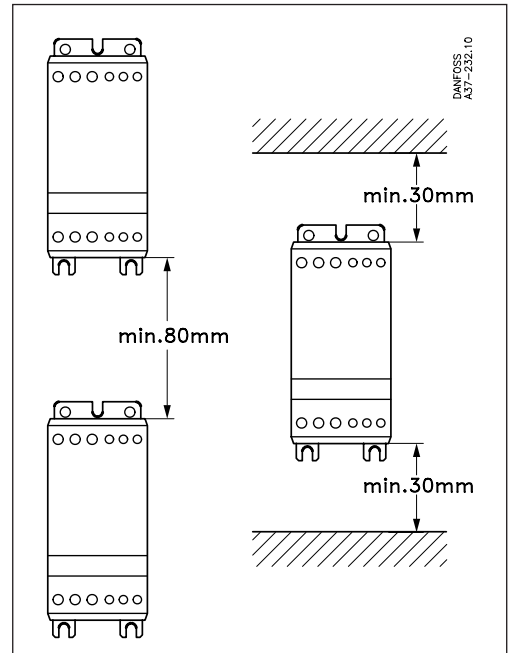
Order: UP 62 thermostat 037N0050

The thermostat is connected in series with the control circuit of the main contactor. When the temperature of the heat sink exceeds 100°C the main contactor will be switched OFF. A manual reset is necessary to restart this circuit.

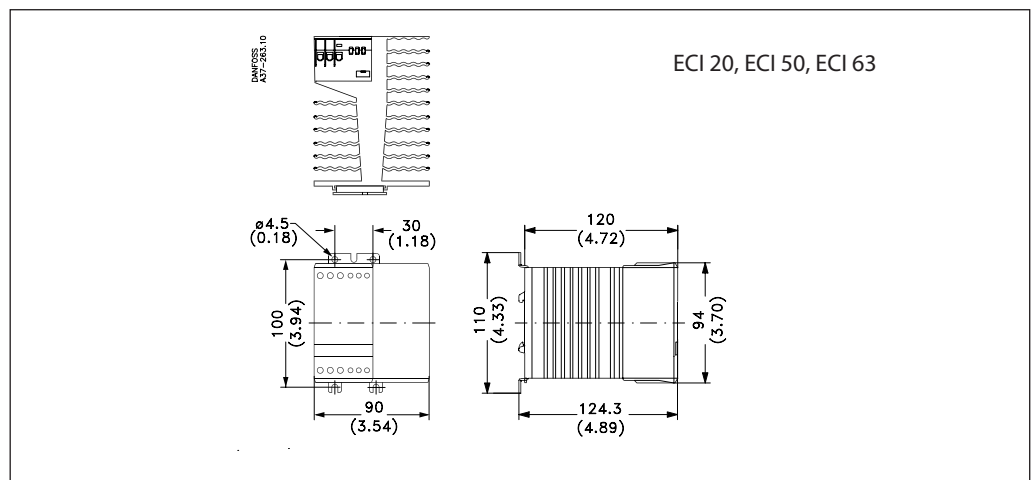
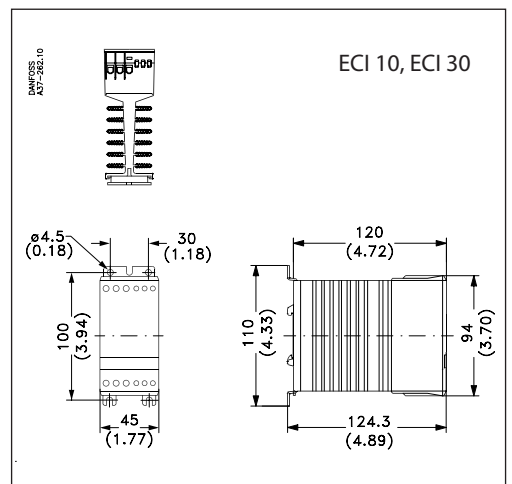
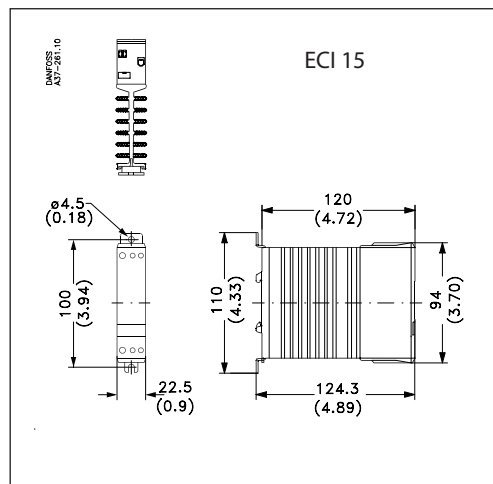


**Mounting instruction**

The controller is designed for vertical mounting. If the controller is mounted horizontally the load current must be reduced by 50%. The controller needs no side clearance. Clearance between two vertical mounted controller must be minimum 80 mm (3.15"). Clearance between controller and top and bottom walls must be minimum 30 mm (1.2").



**Dimensions**  
[mm (inches)]



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