

Data sheet

CI-tronic™ Electronic contactors

Type ECI



ECI electronic contactors are designed for fast and demanding switching of loads such as heaters, solenoids, transformers and motors. ECI Electronic contactors utilize power chip with LTE (Low Thermal Expansion) technology. This unique power chip design ensures high switching capacity and long life.

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

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

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 AC
- Universal control voltage
- Burst firing (zero cross)
- IP20 protection
- CE, cULus and C-tick approvals
- SCR power chip with LTE technology
- Built-in varistor protection

Technical data

<i>Output specification</i>	Single and dual phase ¹⁾				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 ²⁾	15	15	30	10	10
Operational voltage (50/60 Hz)	12 – 230 V AC 24 – 480 V AC 24 – 600 V AC					
Leakage current max.	1 mA					
Operational current min.	10 mA					
Semiconductor protection fusing						
Type 1 coordination	50 A gL / gG		80 A gL / gG		35 A gL / gG	
Type 2 coordination Pt(t=10ms)	1800 A ² s ²⁾		6300 A ² s		450 A ² s	

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

²⁾ Contactors designed for 600 V: AC-3 load 10 A max., type 2 coordination fuse 450 A2s

Control circuit specification

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

Insulation

Rated insulation voltage	U _i	660 V AC
Rated impulse withstand voltage	U _{imp}	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 intermittend duty	1.2 W/A (per phase) 1.2 W/A × duty cycle (per phase)				3 W/A 3 W/A × duty cycle	
Ambient temperature range	-5 – 40 °C					
Cooling method	Natural convection					
Mounting	Vertical (see general mounting instruction)					
Storage temperature range	-20 – 80 °C					
Enclosure degree/pollution degree	IP20 / IP3					

Materials

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

Ordering
Single phase

Operational current [A]		Control voltage	Dimensions	Type	Code no.		
					Operational voltage [V AC]		
AC-1	AC-3				12 – 230	24 – 480	24 – 600
15	15	5 – 24 V DC	22.5 mm module	ECI 15-1	037N0063	037N0065	–
15	15	24 – 230 V AC / DC	22.5 mm module	ECI 15-1	037N0064	037N0066	–
30	15	5 – 24 V DC	45 mm module	ECI 30-1	037N0007	037N0009	–
30	15	24 – 230 V AC / DC	45 mm module	ECI 30-1	037N0001	037N0003	037N0005
50	15	5 – 24 V DC	90 mm module	ECI 50-1	037N0008	037N0010	–
50	15	24 – 230 V AC / DC	90 mm module	ECI 50-1	–	037N0004	–
63	30	5 – 24 V DC	90 mm module	ECI 63-1	037N0078	037N0080	037N0082
63	30	24 – 230 V AC / DC	90 mm module	ECI 63-1	037N0079	037N0081	037N0083

Dual phase

Operational current ¹⁾ [A]		Control voltage	Dimensions	Type	Code no.		
					Operational voltage [V AC]		
AC-1	AC-3				12 – 230	24 – 480	24 – 600
30	15	5 – 24 V DC	45 mm module	ECI 30-2	037N0019	037N0021	037N0023
30	15	24 – 230 V AC / DC	45 mm module	ECI 30-2	037N0013	037N0015	–
50	15	5 – 24 V DC	90 mm module	ECI 50-2	037N0020	037N0022	–
50	15	24 – 230 V AC / DC	90 mm module	ECI 50-2	037N0014	037N0016	037N0018

¹⁾Rated as the maximum sum of current in L1 and L2

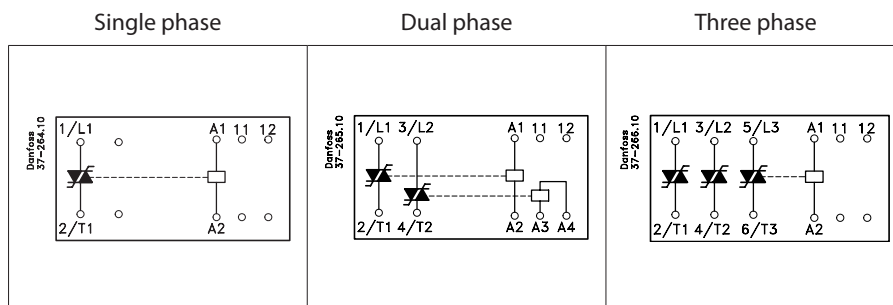
Three phase

Operational current [A]		Control voltage	Dimensions	Type	Code no.		
					Operational voltage [V AC]		
AC-1	AC-3				12 – 230	24 – 480	24 – 600
10	10	5 – 24 V DC	45 mm module	ECI 10-3	037N0031	037N0033	037N0035
10	10	24 – 230 V AC / DC	45 mm module	ECI 10-3	–	037N0027	037N0029
20	10	5 – 24 V DC	90 mm module	ECI 20-3	037N0032	037N0034	037N0036
20	10	24 – 230 V AC / DC	90 mm modul	ECI 20-3	–	037N0028	037N0030

Operating at high temperature

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

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

	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

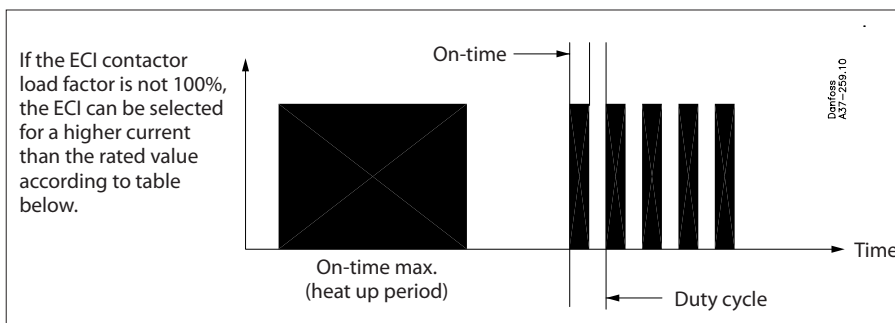
Dual phase

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

Three phase

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

Duty cycle rating



$$\text{Load factor} = \text{On-time} / \text{duty cycle}$$

ECI 15-1

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

ECI 15-1 for 600 V

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

ECI 30-1 and ECI 30-2

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

ECI 10-3

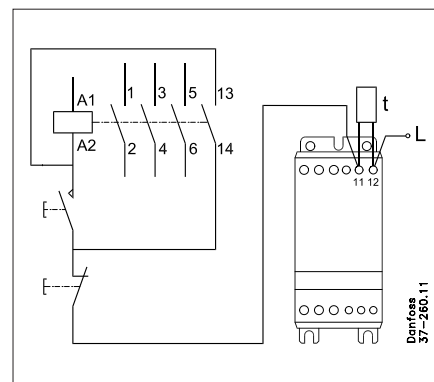
Load current [A]	On-time max. [min.]	Load factor max. [%]
12.5	15	85
15	13	75
17.5	11.5	67
20	10	60

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.

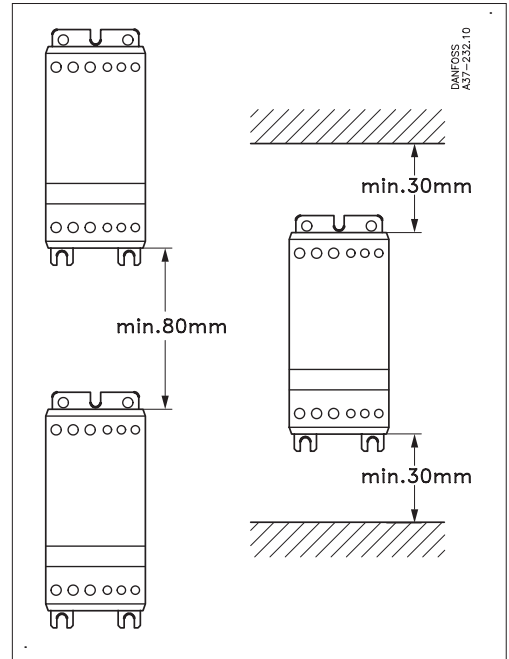
Order: UP 62 thermostat 037N0050

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.

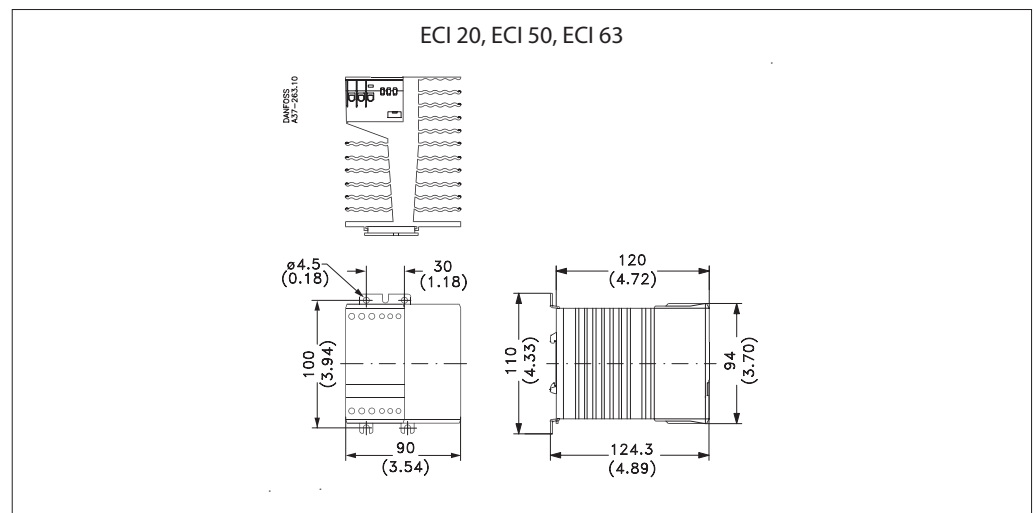
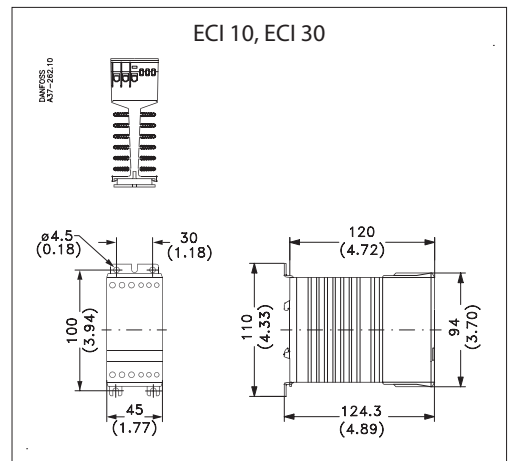
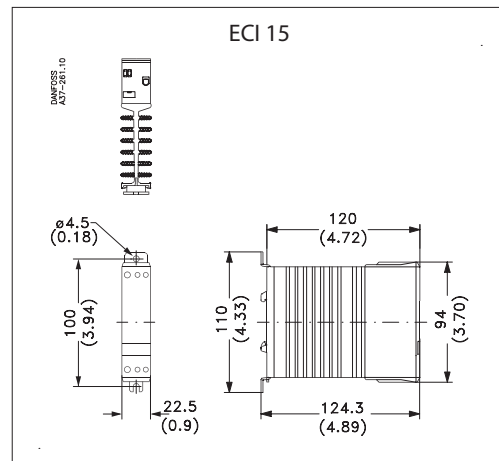


Mounting instruction

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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