



## Products:

- Minicontactors CI 4
- Contactors CI 6-50
- Contactors CI 60-72
- Contactors CI 85-170
- Electronic clip-on timers
- Overload relays TI 9
- Thermal overload relays TI 16-30
- Thermal overload relays TI 80-85
- Thermal overload relays TI 90-110
- Electronic motor protection relays TI 180 E and TI 630 E
- Electronic timers
- Circuit breakers/Manual motor starters CTI 25
- Circuit breakers/Manual motor starters CTI 100
- Direct on line starters and star-delta starters
- Enclosures



# START

# STOP

# PROTECT

## CI-TI™ Contactors and Motor Starters Catalogue

Accessories



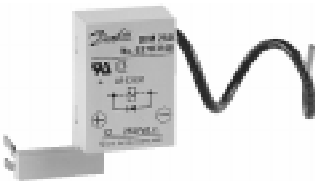
**CBM-**  
Auxiliary contact block



**ETM-ON**  
Clip-on timer



**RCM**  
RC Element



**DIM 250**  
Diode element

Product



**CI 4-**  
Coil voltage:

Accessories



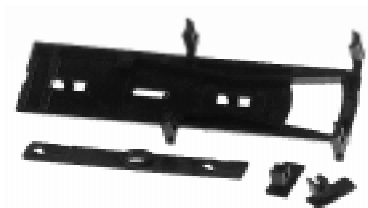
*DIN-rail base for clip-on timer ETM-ON*



*3-pole jumper*



*Loop terminal*



*Mechanical interlock*



*Marking plate*

Introduction



CI 4 minicontactors cover the power range 1.5 to 4 kW and are available for a.c. and d.c. coil voltages. Characteristic of the minicontactors is that they are compact, and with clip-on auxiliary contact blocks and a timer they offer high flexibility. The CI 4 range includes low-power d.c. coils, especially for PC and PLC control. The CI 4 range is particularly suitable for applications where space is at a premium. In addition, the CI 4 range also includes thermal overload relays for the protection of squirrel-cage motors.

Ordering

Minicontactors CI 4, for a.c. coil voltage

Main circuit						Built-in auxiliary contacts Number/Function	Code no. <sup>1)</sup>	Type
U <sub>e</sub> 220-240 V kW	AC-3 load U <sub>e</sub> 380-500 V kW	I <sub>e</sub> A	I <sub>th</sub> <sup>*)</sup> (AC-1) Open A	I <sub>the</sub> <sup>*)</sup> (AC-1) Encl. A	Main contacts (make) Number			
1.1	1.5	3.7	16	12	-	4 NO	037H3210	CI 4-2 <sup>2)</sup>
1.1	1.5	3.7	16	12	-	2 NO, 2 NC	037H3211	CI 4-2 <sup>2)</sup>
1.5	2.2	5.3	20	16	3	1 NO	037H3114	CI 4-5
1.5	2.2	5.3	20	16	3	1 NC	037H3115	CI 4-5
3.0	4.0	9	20	16	3	1 NO	037H3116	CI 4-9
3.0	4.0	9	20	16	3	1 NC	037H3117	CI 4-9
3.0	4.0	9	20	16	4	-	037H3118	CI 4-9

<sup>1)</sup> Coil voltage/frequency or Suffix no. must be added to the Danfoss code no.

<sup>2)</sup> Control relay, 2 A, AC-15

<sup>\*)</sup> I<sub>th</sub> and I<sub>the</sub> are defined and specified under Technical data.

Minicontactors CI 4, for d.c. coil voltage

Main circuit						Built-in auxiliary contacts Number/Function	Code no. <sup>1)</sup>	Type
U <sub>e</sub> 220-240 V kW	AC-3 load U <sub>e</sub> 380-500 V kW	I <sub>e</sub> A	I <sub>th</sub> <sup>*)</sup> (AC-1) Open A	I <sub>the</sub> <sup>*)</sup> (AC-1) Encl. A	Main contacts (make) Number			
1.1	1.5	3.7	16	12	-	4 NO	037H3212	CI 4-2 <sup>2)</sup>
1.1	1.5	3.7	16	12	-	2 NO, 2 NC	037H3213	CI 4-2 <sup>2)</sup>
1.5	2.2	5.3	20	16	3	1/NO	037H3143	CI 4-5
1.5	2.2	5.3	20	16	3	1/NC	037H3144	CI 4-5
3.0	4.0	9	20	16	3	1/NO	037H3145	CI 4-9
3.0	4.0	9	20	16	3	1/NC	037H3146	CI 4-9
3.0	4.0	9	20	16	4	-	037H3147	CI 4-9

<sup>1)</sup> Coil voltage/frequency or Suffix no. must be added to the Danfoss code no.

<sup>2)</sup> Control relay, 2 A, AC-15

<sup>\*)</sup> I<sub>th</sub> and I<sub>the</sub> are defined and specified under Technical data.

*Coil voltages for CI 4*

Coil voltage	Suffix no.
24 V, 50/60 Hz	13
48 V, 50/60 Hz	15
110 V, 50 Hz 110 - 120 V, 60 Hz	23
220-230 V, 50 Hz 230-240 V, 60 Hz	32
240 V, 50/60 Hz	33
380-400 V, 50 Hz 400-415 V, 60 Hz	37
* 12 V, d.c.	01
24 V, d.c.	02
** 48 V, d.c.	04
* 110 V d.c.	06

\* Code no. 037H3145 only

\*\* Code nos. 037H3145 and 037H3146 only

*Correct ordering of contactors*

Example: CI 4-5 with NC auxiliary contact and 24 V, 50/60 Hz coil voltage.

Select one of the following two forms of ordering:

1. Danfoss code no. + Suffix no.:

037H3115.13

or

2. Danfoss code no. + coil voltage/frequency:

037H3115, 24 V/50 Hz

*Auxiliary contact blocks CBM for CI 4*

Contact function	Load				Code no.	Type
	$I_e$ (AC - 15)	$I_{th}^*$ (AC-1) Open	$I_{the}^*$ (AC-1) Encl.	$U_e$		
	A	A	A	V		
4 make (NO)	2	10	6	500	<b>037H3149</b>	CBM-40
2 break (NC)	2	10	6	500	<b>037H3150</b>	CBM-02
1 make (NO) + 1 break (NC)	2	10	6	500	<b>037H3151</b>	CBM-11
2 make (NO) + 2 break (NC)	2	10	6	500	<b>037H3152</b>	CBM-22
4 break (NC)	2	10	6	500	<b>037H3369</b>	CBM-04

)  $I_{th}$  and  $I_{the}$  are defined and specified under Technical data.

Built-in auxiliary contacts and auxiliary contacts CBM- are force-actuated and suitable for safety switching.

Accessories



**CB-**  
Auxiliary contact



**ETB**  
Clip-on timer



**IFB**  
Interface module



**RC-**  
RC Element for CI 6-30

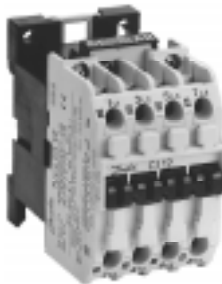


**RCB**  
RC Element for CI 32-50

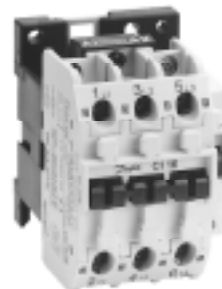
Product



**CI 6, 9, 12, 15**



**CI 16, 20, 25, 30**



**CI 32, 37, 45, 50**

**Coil voltage:**

Accessories



*3-pole jumper for CI 6-15*



*3-pole jumper for CI 16-50*



*Mechanical interlock for CI 6-30*



*Marking plate*



*Marking clips*



*Mechanical interlock for CI 32-50*

Introduction



Danfoss contactors CI 6-50 with a.c. coil voltage cover the power range 2.2-25 kW, and with d.c. coil voltage the power range 2.2-11 kW.

CI 6 is built up as a combined contactor/control relay.

Accessories include a wide selection of clip-on auxiliary contact blocks and timers, interface modules and RC links.

The CI 6-50 range also includes thermal overload relays for protection of squirrel-cage motors.

Ordering

Contactors CI 6-50 for a.c. coil voltage (no built-in auxiliary contacts)

Main circuit							Auxiliary contacts	Code no. 1)	Type
U <sub>e</sub> 220-240 V kW	AC-3 load U <sub>e</sub> 380-690 V kW	I <sub>e</sub> A	I <sub>th</sub> <sup>*)</sup> (AC-1) Open A	I <sub>the</sub> <sup>*)</sup> (AC-1) Encl. A	Max. I <sub>th</sub> <sup>**) )</sup> (AC-1) Open A	Main contacts (make) Number	Built-in options Number		
1.5	2.2	6	20	16	-	3	1-4	037H0015	CI 6 2)
1.5	2.2	6	20	16	-	4	1-4	037H0018	CI 6 2)
2.2	4.0	9	25	16	-	3	1-4	037H0021	CI 9
2.2	4.0	9	25	16	-	4	1-4	037H0022	CI 9
3.0	5.5	12	25	20	-	3	1-4	037H0031	CI 12
3.0	5.5	12	25	20	-	4	1-4	037H0032	CI 12
4.0	7.5 3)	16	25	20	30	3	1-4	037H0049	CI 15
4.0	7.5 3)	16	25	20	30	4	1-4	037H0050	CI 15
4.0	7.5 3)	16	40	25	45	3	1-4	037H0041	CI 16
5.5	10.0	20	40	25	45	3	1-4	037H0045	CI 20
5.5	11.0	25	40	25	45	3	1-4	037H0051	CI 25
7.5	15.0	30	40	30	50	3	1-4	037H0055	CI 30
8.5	15.0 3)	32	63	63	-	3	1-4	037H0061	CI 32
10.0	18.5 3)	37	80	63	-	3	1-4	037H0056	CI 37
11.0	22.0 3)	45	80	80	90	3	1-4	037H0071	CI 45
15.0	25.0 3)	52	80	80	90	3	1-4	037H0080	CI 50

1) Coil voltage/frequency or Suffix no. must be added to the Danfoss code no.

2) AC-15 operation: max. 500 VA/6 A

3) U<sub>e</sub> max.: 500 V

\*) I<sub>th</sub> and I<sub>the</sub> are defined and specified under Technical data.

\*\*) Heat-resistant leads (min. 75°C) must be used.

Contactors CI 6-25 for d.c. coil voltage (no built-in auxiliary contacts)

Main circuit							Auxiliary contacts	Code no. 1)	Type
U <sub>e</sub> 220-240 V kW	AC-3 load U <sub>e</sub> 380-690 V kW	I <sub>e</sub> A	I <sub>th</sub> <sup>*)</sup> (AC-1) Open A	I <sub>the</sub> <sup>*)</sup> (AC-1) Encl. A	Max. I <sub>th</sub> <sup>**) )</sup> (AC-1) Open A	Main contacts (make) Number	Built-in options Number		
1.5	2.2	6	20	16	-	3	1-3	037H0013	CI 6 2)
1.5	2.2	6	20	16	-	4	1-3	037H0014	CI 6 2)
2.2	4.0	9	25	16	-	3	1-3	037H0025	CI 9
2.2	4.0	9	25	16	-	4	1-3	037H0026	CI 9
3.0	5.5	12	25	20	-	3	1-3	037H0035	CI 12
3.0	5.5	12	25	20	-	4	1-3	037H0036	CI 12
4.0	7.5	16	40	25	45	3	1-3	037H0043	CI 16
5.5	11.0	25	40	25	45	3	1-3	037H0053	CI 25

1) Coil voltage/frequency or Suffix no. must be added to the Danfoss code no.

2) AC-15 operation: max. 500 VA / 6 A

\*) I<sub>th</sub> and I<sub>the</sub> are defined and specified under Technical data.

\*\*) Heat-resistant leads (min. 75°C) must be used.

*a.c. coil voltages and coils for CI 6-50*

Coil voltage		Suffix no.	Coils for CI 6 - 30	Coils for CI 32 - 50
50 Hz V	60 Hz V		Code no.	Code no.
12	12	12	037H6486 <sup>1)</sup>	-
20	24	14	037H6461	037H6061
24	24	13	037H6484 <sup>1)</sup>	037H6084 <sup>1)</sup>
24	29	16	037H6462	037H6062
42	50	17	037H6463	037H6063
48	57	18	037H6464	037H6064
92	110	21	037H6465	037H6065
110	110	23	037H6487 <sup>1)</sup>	037H6087 <sup>1)</sup>
-	115	24	037H6451 <sup>2)</sup>	-
110	132	22	037H6466	037H6066
167	200	91	037H6470	-
-	208-230	28	037H6450 <sup>2)</sup>	037H6050 <sup>2)</sup>
183	220	29	037H6469	037H6069
200	240	30	037H6471	037H6071
220-230	220	32	037H6488 <sup>1)</sup>	037H6088 <sup>1)</sup>
220-230	-	31	037H6472	037H6072
220-240	-	34	037H6452 <sup>2)</sup>	-
240	288	33	037H6473	037H6073
317	380	92	037H6476	-
380-400	440	37	037H6478	037H6078
380	-	96	037H6485 <sup>3)</sup>	-
415	500	38	037H6479	037H6079
440	550	93	037H6477	-
500	600	94	037H6481	037H6081

- <sup>1)</sup> Double frequency coil: voltage range  $\pm 10\%$ .  
Continuous operation: ambient temperature max. 55°C, non-enclosed  
Intermittent operation: energized for 30 min/hour: ambient temperature max. 65°C
- <sup>2)</sup> Operating conditions and tolerances as for double frequency coils.
- <sup>3)</sup> Undervoltage coil: voltage tolerance -35 to 0%

*d.c. coil voltages for CI 6-30, incl. economy resistor and contact blocks*

Coil voltage V	Suffix no.	Coils	Economy resistor, 11 W $\pm 5\%$		Late break contact
		Code no.	ohm	Code no.	Code no.
12	01	037H6495	20	037H7464	037H0115
24	02	037H6490	82	037H7465	037H0115
48	04	037H6491	360	037H7466	037H0115
65	05	037H6492	750	037H7467	037H0115
110	06	037H6493	2000	037H7468	037H0115
110 *)	10	037H6499	1000	037H7470	037H0115
220	09	037H6494	7500	037H7469	037H0115

\*) Tolerance +5 to -40%. Inrush: 143 W. Holding, incl. economy resistor: 11 W.

*Correct ordering of contactors*

Example: CI 9 with four main contacts and 24 V, 50 Hz coil voltage.

Select one of the following two forms of ordering:

1. Danfoss code no. + Suffix no.:  
037H0022.16  
or
2. Danfoss code no. + coil voltage/frequency:  
037H0022, 24 V/50 Hz

*Auxiliary contact blocks CB for CI 6-50*

Contact function A	Load				Colour code	Code no.	Type
	I <sub>e</sub> (AC - 15) A	I <sub>th</sub> <sup>*)</sup> (AC-1) Open A	I <sub>the</sub> <sup>*)</sup> (AC-1) Enc. V	U <sub>e</sub>			
start	6	10	10	500	green	<b>037H0110</b>	CB-S
start pulse <sup>2)</sup>	6	10	10	500	green	<b>037H0117</b>	CB-I
make	6	10	10	500	green	<b>037H0111</b>	CB-NO
break	6	10	10	500	red	<b>037H0112</b>	CB-NC
early make	6	10	10	500	white	<b>037H0113</b>	CB-EM
late break	6	10	10	500	blue	<b>037H0114</b>	CB-LB
extralate break <sup>1)</sup>	6	10	10	500	black	<b>037H0115</b>	CB-DC

<sup>1)</sup> Specially for switching d.c. coils

<sup>2)</sup> Without self-holding function.

<sup>\*)</sup> I<sub>th</sub> and I<sub>the</sub> are defined and specified under Technical data.

*Auxiliary contact block CB- with gold-plated contacts (PLC-compatible)*

Contact function	Load		Colour code	Code no.	Type
	I <sub>e</sub> mA	U <sub>e</sub> V			
make	1-30	5-30	white	<b>037H0121</b>	CB-NO
break	1-30	5-30	blue	<b>037H0122</b>	CB-NC

CB auxiliary contact blocks are force-actuated when mounted on CI 6-30 and can therefore form part of safety switching.

Accessories



**CBB-**  
Auxiliary contact block



**CBB-11**  
Auxiliary contact block



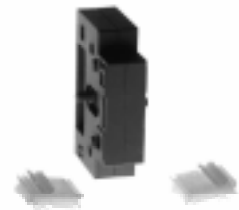
**RCB-**  
RC Element

Product



**CI 60, 72**  
Coil voltage:

Accessories



*Mechanical interlock*



*Loop terminal*



*Marking plate*

Introduction



Contactors CI 60-72 are intended for a.c. coil voltages and cover the power range 30-37 kW.

Ordering

Contactors CI 60 - 72

Main circuit					Main contacts (make) Number	Aux. contacts in base module 1 NO+1 NC Built-in options Number	Code no. <sup>1)</sup>	Type
AC-3 load		$I_{th}^{*}$ (AC-1) Open A	$I_{the}^{*}$ (AC-1) Encl. A	$I_e$ A				
$U_e$ 220-240 V kW	$U_e$ 380-690 V kW							
18.5	30	60	90	75	3	1-3	037H3176	CI 60
20	37	72	90	75	3	1-3	037H3177	CI 72

<sup>1)</sup> Coil voltage/frequency or Suffix no. must be added to the Danfoss code no.  
<sup>2)</sup>  $I_{th}$  and  $I_{the}$  are defined and specified under Technical data.

Coil voltages and coils for CI 60-72

Coil voltage	Suffix no.	Code no.
24 V, 50 Hz	16	037H3250
24 V, 60 Hz	14	037H5105
48 V, 50 Hz	18	037H3043
110 V, 50 Hz	22	037H3251
110 V, 60 Hz	21	037H3312
120 V, 60 Hz	24	037H5106
208 V, 60 Hz	91	037H5107
220-230 V, 50 Hz	31	037H3252
220 V, 60 Hz	29	037H3313
240 V, 50 Hz	33	037H3253
240 V, 60 Hz	30	037H5108
380-400 V, 50 Hz/440, 60 Hz	37	037H3254
415 V, 50 Hz/ 480 V, 60 Hz	38	037H3255
575 V, 60 Hz	94	037H5110

Correct ordering of contactors

Example: CI 60 for 24 V, 50 Hz coil voltage.  
 Select one of the following two forms of ordering:

1. Danfoss code no. + Suffix no.:  
037H3176.16  
or
2. Danfoss code no. + coil voltage/frequency:  
037H3176, 24 V/50 Hz

Auxiliary contact block CBB for CI 60-72 contactors

Contact function	Load				Code no.	Type
	$I_e$ (AC - 15) A	$I_{th}^{*}$ (AC-1) Open A	$I_{the}^{*}$ (AC-1) Encl. A	$U_e$ V		
start	5.5	16	12	690	037H3220	CBB-S
break	5.5	16	12	690	037H3221	CBB-NC
make	5.5	16	12	690	037H3222	CBB-NO
make and break <sup>1)</sup>	5.5	16	12	690	037H3219	CBB-11

<sup>1)</sup> Force-actuated contacts suitable for safety switching.  
<sup>2)</sup>  $I_{th}$  and  $I_{the}$  are defined and specified under Technical data.

Accessories



**CBC-11**  
Auxiliary contact block



**RCC-**  
RC Element



**VRC-**  
Varistor Element



Mechanical interlock



Marking plate

Product



**CI 85, 105**



**CI 140, 170/ CI 140 EI, 170 EI**



**CI 210 EI, 250 EI, 300 EI, 420 EI**

Coil voltage:

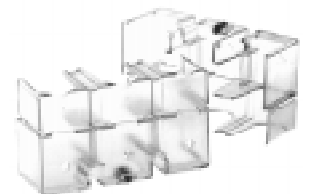
Accessories



Terminal block for CI 85, 105



Terminal block for CI 140, 170  
CI 140 EI, 170 EI



Terminal cover for CI 85, 105



Terminal cover for CI 140, 170/  
CI 140 EI, 170 EI



Terminal cover for CI 210 EI, 250 EI,  
300 EI, 420 EI

Introduction



Contactors CI 85-420 EI are intended for a.c. coil voltages and cover the power range 45-238 kW. The largest types, CI 140-420 EI have electronic control circuits that mean low holding power and wide coil voltage ranges on both 50 and 60 Hz. Accessories include a wide selection of clip-on auxiliary contact blocks and timers. In addition, the range also includes thermal overload relays and an electronic motor protection relay for the protection of squirrel-cage motors.

Ordering

Contactors CI 85-420 EI

Main circuit					Main contacts (make) Number	Aux. contacts in base module 1 NO + 1 NC	Code no. <sup>1)</sup>	Type
AC-3 load			I <sub>th</sub> <sup>*</sup> (AC-1) Open A	I <sub>the</sub> <sup>*</sup> (AC-1) Encl. A		Built-in options Number		
U <sub>e</sub> 220-240 V kW	U <sub>e</sub> 380-1000 V kW	I <sub>e</sub> A						
25	<b>45</b>	85	160	120	3	2-6	<b>037H3205</b>	CI 85
30	<b>55</b>	105	160	120	3	2-6	<b>037H3206</b>	CI 105
43	<b>75</b>	140	160	210	3	2-6	<b>037H3207</b>	CI 140
52	<b>90</b>	170	250	210	3	2-6	<b>037H3208</b>	CI 170
45	<b>78</b>	140	250	210	3	2-6	<b>037H3217</b>	CI 140 EI
55	<b>95</b>	170	250	210	3	2-6	<b>037H3257</b>	CI 170 EI
67	<b>118</b>	210	250	300	3	2-6	<b>037H3259</b>	CI 210 EI
80	<b>140</b>	250	350	300	3	2-6	<b>037H3267</b>	CI 250 EI
97	<b>170</b>	300	500	450	3	2-6	<b>037H3269</b>	CI 300 EI
135	<b>238</b>	420	500	450	3	2-6	<b>037H3279</b>	CI 420 EI

<sup>1)</sup> Coil voltage/frequency or Suffix no. must be added to the Danfoss code no.  
<sup>2)</sup> I<sub>th</sub> and I<sub>the</sub> are defined and specified under Technical data.

Coil voltages and coils for CI 85-105

Coil voltage	Suffix no.	Code no.
24 V, 50 Hz	16	<b>037H3260</b>
24 V, 60 Hz	14	<b>037H5011</b>
110 V, 50 Hz	22	<b>037H3261</b>
110 V, 60 Hz	21	<b>037H3322</b>
120 V, 60 Hz	24	<b>037H5012</b>
208 V, 60 Hz	91	<b>037H5013</b>
220-230 V, 50 Hz	31	<b>037H3262</b>
220 V, 60 Hz	29	<b>037H3323</b>
240 V, 50 Hz	33	<b>037H3263</b>
240 V, 60 Hz	30	<b>037H5014</b>
380-400 V, 50 Hz/440, 60 Hz	37	<b>037H3264</b>
415 V, 50 Hz/ 480 V, 60 Hz	38	<b>037H3265</b>
575 V, 60 Hz	94	<b>037H5016</b>

Coil voltages and coils for CI 140-170

Coil voltage	Suffix no.	Code no.
24-28 V, 50/60 Hz	13	<b>037H3274</b>
110-130 V, 50/60 Hz	23	<b>037H3275</b>
185-277 V, 50/60 Hz	32	<b>037H3276</b>
380-440 V, 50/60 Hz	37	<b>037H3277</b>

*Coil voltages and coils for CI 140 EI-420 EI*

Coil voltage	Suffix no.	Coils for CI 140 EI-170 EI	Coils for CI 210 EI-300 EI	Coils for CI 420 EI
24-28 V, 50/60 Hz	13	<b>037H3411</b>	-	-
43-65 V, 50/60 Hz	15	<b>037H3045</b>		-
110-130 V, 50/60 Hz	23	<b>037H3413</b>		<b>037H3421</b>
208-277 V, 50/60 Hz	32	<b>037H3415</b>		<b>037H3423</b>
380-400 V, 50/60 Hz	39	<b>037H3417</b>		<b>037H3425</b>

*Correct ordering of contactors*

Example: CI 170 EI for 24 V, 50 Hz coil voltage.

Select one of the following two forms of ordering:

1. Danfoss code no. + Suffix no.:

037H3257.13

or

2. Danfoss code no. + coil voltage/frequency:

037H3257, 24 V/50 Hz

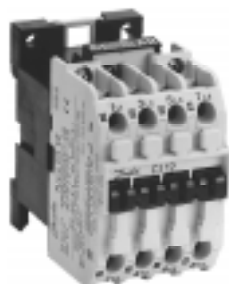
*Auxiliary contact block CBC for CI 85-420 EI contactors*

Contact function	Load				Code no.	Type
	$I_o$ (AC - 15)	$I_{th}^*)$ (AC-1) Open	$I_{the}^*)$ (AC-1) Encl.	$U_o$		
	A	A	A	V		
1 NO+1NC left hand side	5.5	16	12	690	<b>037H3230</b>	CBC-11 <sup>1)</sup>
1 NO+1NC right hand side	5.5	16	12	690	<b>037H3231</b>	CBC-11 <sup>1)</sup>

<sup>1)</sup> Force-actuated contacts suitable for safety switching.

<sup>2)</sup>  $I_{th}$  and  $I_{the}$  are defined and specified under Technical data.

Combination possibilities



**CI 6, 9, 12, 15**  
Contactor



**CI 16, 20, 25, 30**  
Contactor



**CI 32, 37, 45, 50**  
Contactor

Product



**ETB**  
Clip-on timer

Accessories



Mounting base

Introduction



ETB electronic clip-on timers are for use with Danfoss contactors to delay contactor close and open.  
 IFB electronic interface modules are for use with Danfoss contactors on applications with PLC's with 24 V d.c. output.  
 The clip-on timers and interface modules can be clipped direct onto contactors CI 6-50 and occupy as little space as one auxiliary contact.  
 Where separate mounting at the side of contactors is required, a DIN rail mounting base is available.

Ordering

*ON-delay clip-on timers for a.c. control voltage 50/60 Hz*

Time range	Voltage range V	Code no.	Type
0.5-20 s	24-65	<b>047H0170</b>	ETB
4-160 s	24-65	<b>047H0171</b>	
0.5-20 min	24-65	<b>047H0172</b>	
0.5-20 s	110-240	<b>047H0173</b>	
4-160 s	110-240	<b>047H0174</b>	
0.5-20 min	110-240	<b>047H0175</b>	

*OFF-delay clip-on timers for a.c. control voltage 50/60 Hz*

Time range	Voltage range V	Code no.	Type
0.5-20 s	24-65	<b>047H0180</b>	ETB
4-160 s	24-65	<b>047H0181</b>	
0.5-20 min	24-65	<b>047H0182</b>	
0.5-20 s	110-240	<b>047H0183</b>	
4-160 s	110-240	<b>047H0184</b>	
0.5-20 min	110-240	<b>047H0185</b>	

*ON-delay clip-on timers for d.c. control voltage*

Time range	Voltage range V	Code no.	Type
0.5-20 s	24-65	<b>047H0190</b>	ETB
4-160 s	24-65	<b>047H0191</b>	
0.5-20 s	110-240	<b>047H0193</b>	
4-160 s	110-240	<b>047H0194</b>	

*Interface module*

Voltage supply		Code no.	Type
d.c.	a.c.		
10-15 V	48-240 V	<b>047H0219</b>	IFB
20-30 V	48-240 V	<b>047H0220</b>	

**Accessories for contactors, Ordering data**

*Accessories for contactors*

Description	Comments	Code no.
Mech. interlock for CI 4-2/4-5/4-9	Mech. interlock can be established between pairs (Applies only to versions with a.c. coils)	037H3157
Mech. interlock for CI 6-30	Mech. interlock can be established between pairs (10-off)	037H0100
Mech. interlock for CI 32-50	Mech. interlock can be established between pairs (10-off)	037H0106
Mech. interlock for CI 60-72	Mech. interlock can be established between pairs	037H3223
Mech. interlock for CI 85-420 EI	Mech. interlock can be established between pairs	037H3232
Diode element for CI 4-2/4-5/4-9	Reduces overvoltage on de-energization of coils Type DIM 250 (12-250 V, d.c.)	037H3148
RC Element for CI 4-2/4-5/4-9	Reduces overvoltage on de-energization of coils Type RCM 48 (24-48 V, 50/60 Hz)	037H3155
	Type RCM 280 (110-280 V, 50/60 Hz)	037H3156
RC Element for CI 6-30	Reduces overvoltage on de-energization of coils Type RC 48 (24-48 V, 50/60 Hz)	037H0075
	Type RC 250 (110-250 V, 50/60 Hz)	037H0076
	Type RC 415 (380-415 V, 50/60 Hz)	037H0077
RC Element for CI 32-72	Reduces overvoltage on de-energization of coils Type RCB 48 (24-48 V, 50/60 Hz)	037H3224
	Type RCB 280 (110-280 V, 50/60 Hz)	037H3225
	Type RCB 480 (380-480 V, 50/60 Hz)	037H3226
RC Element for CI 85-105	Reduces overvoltage on de-energization of coils Type RCC 48 (24-48 V, 50/60 Hz)	037H3235
	Type RCC 240 (190-240 V, 50/60 Hz)	037H3236
	Type RCC 550 (380-550 V, 50/60 Hz)	037H3237
Varistor Element for CI 85-420 EI	Reduces overvoltage on de-energization of coils Type VRC 40 (24-28 V, 50-60 Hz)	037H3238
	Type VRC 75 (43-65 V, 50-60 Hz)	037H3399
	Type VRC 460 (380-400 V, 50-60 Hz)	037H3407
	Type VRC 550 (380-440 V, 50-60 Hz)	037H3241
Clip-on timer for CI 4-2/4-5/4-9	Clip-on timer (On-delay) Time range 1-30 s, voltage range 110-250 V a.c./d.c. Type ETM-ON	037H3153
DIN-rail base for ETM-ON	For DIN rail mounting of clip-on timer ETM-ON, suitable for 35 mm DIN rail and 32 mm C rail	037H3154
DIN rail base for ETB/IFB	For separate mounting of clip-on timers ETB and interface modules IFB	047H0164
Loop terminal	Neutral terminal (16 mm <sup>2</sup> ) for screw fixing, can be mounted on side of CI 4- and CI 60/72.	037H3158
UL-terminals	For CI 85-105, type CI 105 HU (set of 3)	037H3240
	For CI 140-170, CI 140 EI-170 EI type CI 170 HU (set of 3)	037H3249
	For CI 210 EI-420 EI, type CI 420 HU (set of 3)	037H3442
Terminal cover	Finger protection of terminals: Transparent cover for CI 85-105 (set of 2)	037H3246
	Transparent cover CI 140-170, CI 140 EI-170 EI (set of 2)	037H3409
	Transparent cover CI 210 EI-420 EI (set of 2)	037H3406
	Terminal block for CI 85-105 (set of 2)	037H4244
	Terminal block for CI 140-170, CI 140 EI-170 EI (set of 2)	037H4247
Terminal block for CI 210 EI-420 EI (set of 2)	037H3404	
Rating plate for CI 6-50	Rating plate, can be mounted in auxiliary contact space (10-off)	037H0101
Clip-on markers for CI 6-50 and auxiliary contact blocks	Clip-on markers can be mounted on CI 6-50 and auxiliary contact blocks type CB- (250-off)	037H0105
Clip-on markers for CI 4 and CI 60...420 EI	Rating plate with cover (100-off)	037H3142

*Accessories for contactors, continued*

Description	Comments	Code no.
Main contact set for CI 85-420 EI	Contact set (complete) for CI 85	<b>037H3228</b>
	Contact set (complete) for CI 105	<b>037H3229</b>
	Contact set (complete) for CI 140, CI 140 EI	<b>037H3233</b>
	Contact set (complete) for CI 170, CI 170 EI	<b>037H3234</b>
	Contact set (complete) for CI 210 EI	<b>037H3400</b>
	Contact set (complete) for CI 250 EI	<b>037H3401</b>
	Contact set (complete) for CI 300 EI	<b>037H3402</b>
Contact set (complete) for CI 420 EI	<b>037H3403</b>	
3-pole jumper for CI 4-5/4-9	For single-phase loads and star point connection (50-off)	<b>037H0169</b>
3-pole jumper for CI 6-15	For single-phase loads and star point connection (50-off)	<b>037H0104</b>
3-pole jumper for CI 16-30	For single-phase loads (50-off)	<b>037H0103</b>
	For star point connection (50-off)	<b>037H0109</b>

Combination possibilities

Product

Accessories



**CI 4-**  
Contactor



**TI 9C**



*Automatic reset button  
(supplied with unit)*



*Stop button extension (3 mm)*

Introduction

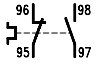


Thermal overload relays TI 9 are used with minicontactors CI 4 for protection of squirrel-cage motors where compactness is required. The relays have single-phase protection, i.e. accelerated release if phase drop-out occurs. This is particularly important for motors with delta-connected windings.

Other features of TI 9:

- stop/reset button
- manual/automatic reset
- test button
- double scale for direct start or Y/D start
- signal contact with changeover or galvanically isolated
- version for 600 V (CSA/UL-approved)

Thermal overload relays TI 9 C, with CSA/UL- approval for minicontactors CI 4

Range		Max. fuse <sup>1)</sup>				HRC <sup>2)</sup>	Signal contact galvanically isolated 	Code no.	Type
Motor starter	Y/D-starter	gl, gL, gG		BS 88, type T		Form II			
		type 1	type 2	type 1	type 2				
A	A	A	A	A	A	A			
0.13 - 0.20	-	25	-	32	-	1	x	<b>047H3060</b>	TI 9 C
0.19 - 0.29	-	25	-	32	2	1	x	<b>047H3061</b>	
0.27 - 0.42	-	25	2	32	2	1	x	<b>047H3062</b>	
0.4 - 0.62	-	25	2	32	4	1	x	<b>047H3063</b>	
0.6 - 0.92	-	25	4	32	6	3	x	<b>047H3064</b>	
0.85 - 1.3	-	25	4	32	6	3	x	<b>047H3065</b>	
1.2 - 1.9	-	25	6	32	10	6	x	<b>047H3066</b>	
1.8 - 2.8	3.2 - 4.8	25	6	32	10	15	x	<b>047H3067</b>	
2.7 - 4.2	4.7 - 7.3	25	16	32	20	15	x	<b>047H3068</b>	
4.0 - 6.2	6.9 - 10.7	35	20	40	25	15	x	<b>047H3069</b>	
6.0 - 9.2	10 - 16	50	20	50	25	35	x	<b>047H3070</b>	

<sup>1)</sup> To IEC 947-4 coordination types 1 and 2:

Coordination type 1: Any type of damage to the motor starter is permissible. If the motor starter is in an enclosure, no external damage to the enclosure is permissible. After a short-circuit the thermal overload relay shall be partially or wholly replaced.

Coordination type 2: No damage to the motor starter is permissible, but slight contact burning and welding is permissible.

<sup>2)</sup> In accordance with HRC form II, TI 9 C is suitable for operation in Canada and the USA.

*Selection of thermal overload relay*

The selection of a thermal overload relay must be based on the motor full load current and the method of starting:

- With direct start the range for motor starter is used.
- With star-delta start the range for Y/D starter is used.

*Example:*

Full load current: 6 A

- With direct start, the suitable motor starter range is 4.0-6.2 A, i.e. thermal overload relay **047H3049**.
- With star-delta start, the suitable Y/D starter range is 4.7-7.3 A, i.e. thermal overload relay **047H3048**.

Combination possibilities

Product

Accessories



**CI 6, 9, 12, 15**  
Contactor



**CI 16, 20, 25, 30**  
Contactor



**TI 16C, 25C, 30C**



*Assembly clips*



*Holder for separate mounting*



*Automatic reset button  
(supplied with unit)*



*Stop button extension  
(3 mm)*



*3-pole terminal block and  
adaptor*

Introduction



Thermal overload relays TI 16, TI 25 and TI 30 are used with contactors CI 6-30 to give protection of squirrel-cage motors of 0.09 kW to 15 kW.

The relays have single-phase protection, i.e. accelerated release if phase drop-out occurs. This is particularly important for motors with delta-connected windings.

Other features of TI 16/25/30:

- stop/reset button
- manual/automatic reset
- test button
- double scale for direct start or Y/D start
- signal contact with changeover or galvanically isolated
- version for 600 V (CSA/UL-approved)

Thermal overload relays TI 16 C, TI 25 C, TI 30 C with CSA/UL-approval, for contactors CI 6-30

Range		Max. fuse <sup>1)</sup>				HRC <sup>2)</sup>	Signal contact galvanically isolated 	Code no.	Type
Motor-starter	Y/D-starter	gl, gL, gG		BS 88, type T		Form II			
A	A	type 1	type 2	type 1	type 2	A			
0.13 - 0.20	-	25	-	32	-	1	x	<b>047H0200</b>	TI 16C
0.19 - 0.29	-	25	-	32	2	1	x	<b>047H0201</b>	
0.27 - 0.42	-	25	2	32	2	1	x	<b>047H0202</b>	
0.4 - 0.62	-	25	2	32	4	1	x	<b>047H0203</b>	
0.6 - 0.92	-	25	4	32	6	3	x	<b>047H0204</b>	
0.85 - 1.3	-	25	4	32	6	3	x	<b>047H0205</b>	
1.2 - 1.9	-	25	6	32	10	6	x	<b>047H0206</b>	
1.8 - 2.8	3.2 - 4.8	25	6	32	10	15	x	<b>047H0207</b>	
2.7 - 4.2	4.7 - 7.3	25	16	32	20	15	x	<b>047H0208</b>	
4.0 - 6.2	6.9 - 10.7	35	20	40	25	15	x	<b>047H0209</b>	
6.0 - 9.2	10 - 16	50	20	50	25	35	x	<b>047H0210</b>	
8.0 - 12	13 - 20.8	63	25	63	32	35	x	<b>047H0211</b>	
11 - 16	19 - 27	80	25	80	32	50	x	<b>047H0212</b>	
15 - 20	26 - 35	80	35 <sup>3)</sup>	80	40	60	x	<b>047H0213</b>	TI 25C
19 - 25	33 - 43	80	63	80	63	60	x	<b>047H0214</b>	
24 - 32	41 - 55	80	63	80	63	60	x	<b>047H0215</b>	TI 30C

<sup>1)</sup> To IEC 947-4 coordination types 1 and 2:

Coordination type 1: Any type of damage to the motor starter is permissible. If the motor starter is in an enclosure, no external damage to the enclosure is permissible. After a short-circuit the thermal overload relay shall be partially or wholly replaced.

Coordination type 2: No damage to the motor starter is permissible, but slight contact burning and welding is permissible.

<sup>2)</sup> In accordance with HRC form II, TI 16 C, TI 25 C and TI 30 C are suitable for operation in Canada and the USA.

<sup>3)</sup> 50 A in Norway.

*Selection of thermal overload relay*

The selection of a thermal overload relay must be based on the motor full load current and the method of starting:

- With direct start the range for motor starter is used.
- With star-delta start the range for Y/D starter is used.

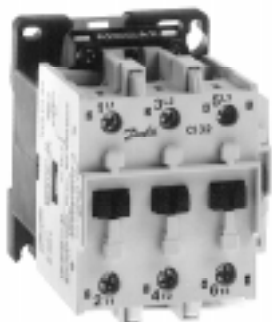
*Example:*

Full load current: 16 A

- With direct start, the suitable motor starter range is 11-16 A, i.e. thermal overload relay **047H0212**.
- With star-delta start, the suitable Y/D starter range is 10-16 A, i.e. thermal overload relay **047H0210**.

The range 13-20.8 A could also be used, but thermal overload relay 047H0211 will not release as quickly if one phase drops out.

Combination possibilities



**CI 32, 37, 45, 50**  
Contactor



**CI 60, 72**  
Contactor



**CI 85**  
Contactor

Product



**TI 80, 85**

Accessories



Stop button extension (3 mm)



Current rail set for TI 80 + (CI 32-72)



Adaptor

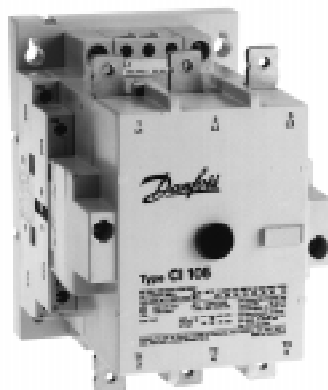
Combination possibilities

Product

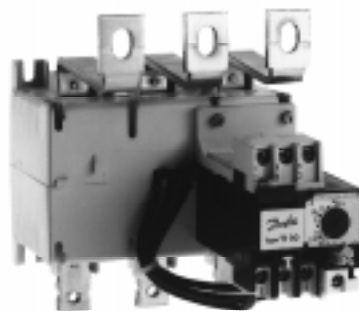
Accessories



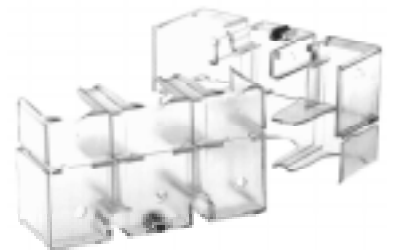
**CI 85**  
*Contactor*



**CI 105**  
*Contactor*



**TI 90, 110**



*Terminal cover*

Introduction



Thermal overload relays TI 80-110 are used with contactors CI 32-105 to give protection of squirrel-cage motors of 7.5 kW to 55 kW. The relays have single-phase protection, i.e. accelerated release if phase drop-out occurs. This is particularly important for motors with delta-connected windings. Other features of TI 80/110:

- stop/reset button (TI 80/85)
- reset button (TI 90/110)
- manual/automatic reset
- test button
- double scale for direct start or Y/D start
- signal contact with changeover or galvanically isolated

Ordering

Thermal overload relays TI 80, TI 85, TI 90 and TI 110

Range		Max. fuse <sup>1)</sup>				Signal contact		Code no.	Type
Motor-starter	Y/D-starter	gl, gL, gG		BS 88, type T					
A	A	type 1	type 2	type 1	type 2				
16 - 23	28 - 40	125	63	125	63	x		<b>047H1013</b>	TI 80
22 - 32	38 - 56	125	63	125	63	x		<b>047H1014</b>	
30 - 45	52 - 78	125	100	125	100	x		<b>047H1015</b>	
42 - 63	75 - 109		100		100	x		<b>047H1016</b>	
60 - 80	105 - 138		125		125	x		<b>047H1017</b>	
74 - 85	130 - 147		125		125	x		<b>047H1018</b>	TI 85
68 - 90	121 - 155		200		200		x	<b>047H3010</b>	TI 90
85 - 110	147 - 190		200		200		x	<b>047H3011</b>	TI 110

<sup>1)</sup> To IEC 947-4 coordination types 1 and 2:  
 Coordination type 1: Any type of damage to the motor starter is permissible. If the motor starter is in an enclosure, no external damage to the enclosure is permissible. After a short-circuit the thermal overload relay shall be partially or wholly replaced.  
 Coordination type 2: No damage to the motor starter is permissible, but slight contact burning and welding is permissible.

*Selection of thermal overload relay*

The selection of a thermal overload relay must be based on the motor full load current and the method of starting:

- With direct start the range for motor starter is used.
- With star-delta start the range for Y/D starter is used.

*Example:*

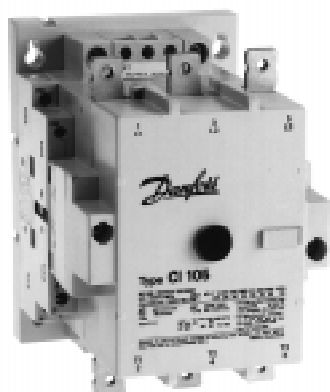
Full load current: 75 A

- With direct start, the suitable motor starter range is 60-80 A, i.e. thermal overload relay **047H1017**.

- With star-delta start, the suitable Y/D starter range is 52-78 A, i.e. thermal overload relay **047H1015**.

The range 75-109 A could also be used, but thermal overload relay 047H1016 will not release as quickly if one phase drops out.

**Combination possibilities**

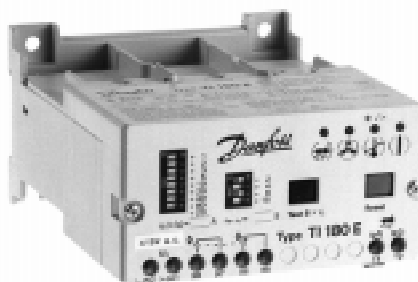


**CI 85, 105, 140, 170/ CI 140 EI, 170 EI**  
Contactor



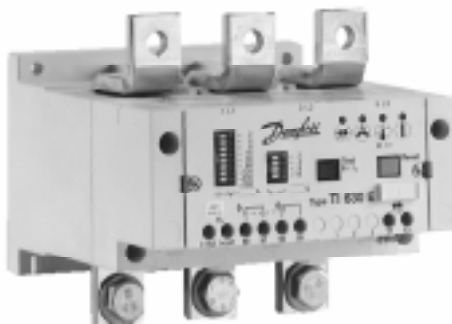
**CI 210 EI, 250 EI, 300 EI, 420 EI**  
Contactor

**Product**



**TI 180 E**

- Operating current setting
- Release time setting
- Supply terminals
- Relay output
- Over temperature indication
- Phase drop-out/asymmetry indication
- Thermal overload indication
- Supply indication
- Manual reset button
- Test button
- PTC circuit connection



**TI 630 E**

- Operating current setting
- Release time setting
- Supply terminals
- Relay output
- Over temperature indication
- Phase drop-out/asymmetry indication
- Thermal overload indication
- Supply indication
- Manual reset button
- Test button
- PTC circuit connection

**Accessories**



*Front cover for TI 180 E*



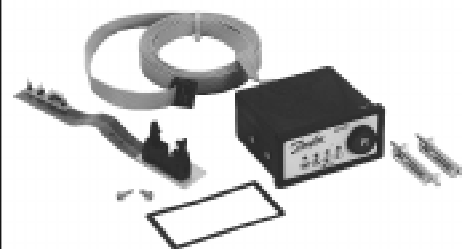
*Current rail set for CI 85/105*



*Current rail set for CI 140/170 and CI 140 EI/170 EI*



*Marking plate for TI 630 E*



**IMR**  
*Indication module for TI 180 E, 630 E*

## Introduction



Electronic motor protection relays TI 180 E and TI 630 E gives effective protection of electric motors exposed to thermal overload, phase failure and asymmetrical load. They therefore fulfil the requirements of IEC 947-4 and IEC 255-8.

TI 180 E/630 E are compact units with built-in current transformers for the measurement of motor operating current.

Other features:

- Trip range 20-180 A, that can be reduced by loop to 2.5-5 A or less.
- Trip range from 160-630 A
- Galvanically isolated signal contact.
- Light emitting diodes for operating and protection functions.
- Connection for thermistor over temperature protection.
- TI 180 E can be mounted on backplate, 35 mm symmetrical DIN rail or direct on contactors CI 85-170 EI via bus bars.
- Test and reset functions

## Ordering

*Electronic motor protection relay TI 180 E and TI 630 E*

Control voltage $U_s$	Range D.O.L.	Remote reset Code no.	Manual reset Code no.	Type
24 V, 50/60 Hz	20-180 A	<b>047H3004</b>	<b>047H3013</b>	TI 180 E
110 V, 50/60 Hz		<b>047H3005</b>	<b>047H3014</b>	
220-230 V, 50/60 Hz		<b>047H3006</b>	<b>047H3015</b>	
240 V, 50/60 Hz		<b>047H3007</b>	<b>047H3016</b>	
380-400 V, 50/60 Hz		<b>047H3008</b>	<b>047H3017</b>	
415 V, 50/60 Hz		<b>047H3009</b>	<b>047H3018</b>	
24 V, 50/60 Hz	160-630 A	<b>047H3053</b>	<b>047H3031</b>	TI 630 E
110 V, 50/60 Hz		<b>047H3054</b>	<b>047H3032</b>	
220-230 V, 50/60 Hz		<b>047H3055</b>	<b>047H3033</b>	
240 V, 50/60 Hz		<b>047H3056</b>	<b>047H3034</b>	
380-400 V, 50/60 Hz		<b>047H3057</b>	<b>047H3035</b>	
415 V, 50/60 Hz		<b>047H3058</b>	<b>047H3036</b>	

With Y/D start, the motor full load current must be multiplied by 0.58

*Accessories for thermal overload relays TI 9-TI 110 and motor protection relays TI 180 E-630 E*

Description	Comments	Code no.
Clip-on markers	For thermal overload relays TI 9-85 (250-off)	<b>037H0105</b>
Assembly clips	Vibration-proofing of motor starter with thermal overload relays TI 16-30 and contactors CI 6-30 (10-off).	<b>037H0102</b>
Holder for sep. mounting	Mounting of thermal overload relays TI 16-30 on 35 mm DIN rail	<b>047H0165</b>
3-pole terminal block	Separate mounting of thermal overload relays TI 16	<b>613B1002</b>
Base		<b>047L0405</b>
Base	Separate mounting of thermal overload relays TI 80-85	<b>047L0456</b>
Stop-pushbutton extension	For thermal overload relays TI 9-85 (3 mm)	<b>047L0406</b>
Current rail set	For direct mounting of thermal overload relay TI 80 on contactors CI 32-72 (set of 3)	<b>037H0108</b>
	For direct mounting of motor protection relay TI 180 E on contactors CI 85-105 (set of 3)	<b>047H3027</b>
	For direct mounting of motor protection relay TI 180 E on contactors CI 140-170/ CI 140 EI-170 EI (set of 3)	<b>047H3028</b>
Cover	Front cover for motor protection relay TI 180 E (prevents tampering with settings on front)	<b>047H3025</b>
	Finger protection of main terminals on TI 90, TI 110, TI 180 E and CI 85-105 (set of 2)	<b>037H3246</b>
	Finger protection of main terminals on TI 180 E and CI 140-170/ CI 140 EI-170 EI (set of 2)	<b>047H3409</b>
	Finger protection of main terminals on TI 630 E and CI 210 EI-420 EI (set of 2)	<b>037H3406</b>
Indication module type IMR for TI 180 E, 630 E	Indication and reset module for panel mounting (IP 54 from front). Inclusive 3 m connection cable, plugs and mounting fixture.	<b>047H3023</b>
Marking plate	Marking plate with covers for TI 630 E (100 off)	<b>037H3142</b>

Accessories



Adaptor

Product



- ON delay (ATI)
- OFF delay (BTI)
- Star-delta (SDT) for SDU 12-25

**ATI, BTI, SDT**  
*Single function electronic timers*



- 10 adjustable time ranges from 1 second to 300 hours.
- Setting ranges from 0.05 sec
- Function selector
  - AV = ON delay
  - RV = OFF delay
  - EW = pulse with ON delay
  - AW = pulse with OFF delay
  - BI = flasher relay with pulse start
  - BP = flasher relay with pause start
  - YDAV = star-delta starters with ON delay
  - YDEW = star-delta starters with pulse function

- output relay R2 (On LED = red)
- output relay R1 (On LED = red)
- U/T supply voltage (established LED = green)
- „Inst“ switch (changes output relay R2 to instantaneous relay).

**MTI**  
*Multi function electronic timer*

Introduction



- Easy time setting
- Electrical noise immunity
- Mechanical shock and vibration resistance
- Time ranges 0.1 s to 30 min for single function Electronic timers and 0.05 s to 300 h for multi function Electronic timers
- Compact standard dimensions
- DIN rail or adaptor mounting
- Single function electronic timers featuring:
  - ON delay
  - OFF delay
 or
  - star-delta start
- Multi function electronic timers featuring:
  - ON delay
  - OFF delay
  - single pulse pause or pause pulse
  - flasher pulse pause or pause pulse
  - and
  - star-delta start

With their robust design and many built-in functions, electronic timers ATI, BTI, SDT and MTI are ideal for OEMs and panel builders:

Ordering

*ON-delay electronic timers*

Time range	Voltage range	Contact function	Code no.	Type
0.1-10 s	110-130 V a.c., 50-60 Hz	1 changeover	<b>047H3090</b>	ATI
3-300 s	110-130 V a.c., 50-60 Hz	1 changeover	<b>047H3091</b>	
0.1-10 s	220-240 V a.c., 50-60 Hz	1 changeover	<b>047H3092</b>	
	24 V a.c., 50-60 Hz			
	24 V d.c.			
0.3-30 s	220-240 V a.c., 50-60 Hz	1 changeover	<b>047H3104</b>	
	24 V a.c., 50-60 Hz			
	24 V d.c.			
3-300 s	220-240 V a.c., 50-60 Hz	1 changeover	<b>047H3093</b>	
	24 V a.c., 50-60 Hz			
	24 V d.c.			
0.3-30 min	220-240 V a.c., 50-60 Hz	1 changeover	<b>047H3105</b>	
	24 V a.c., 50-60 Hz			
	24 V d.c.			

*OFF-delay electronic timers*

Time range	Voltage range	Contact function	Code no.	Type
0.1-10 s	24 V a.c., 50-60 Hz	1 changeover	<b>047H3094</b>	BTI
	24 V d.c.			
0.3-30 s	24 V a.c., 50-60 Hz	1 changeover	<b>047H3106</b>	
	24 V d.c.			
3-300 s	24 V a.c., 50-60 Hz	1 changeover	<b>047H3095</b>	
	24 V d.c.			
0.1-10 s	110-130 V a.c., 50-60 Hz	1 changeover	<b>047H3096</b>	
3-300 s	110-130 V a.c., 50-60 Hz	1 changeover	<b>047H3097</b>	
0.1-10 s	220-240 V a.c., 50-60 Hz	1 changeover	<b>047H3098</b>	
0.3-30 s	220-240 V a.c., 50-60 Hz	1 changeover	<b>047H3107</b>	
3-300 s	220-240 V a.c., 50-60 Hz	1 changeover	<b>047H3099</b>	

*Star-delta electronic timers for SDU 12-25*

Time range	Voltage range	Contact function	Code no.	Type
0.3-30 s	110-130 V a.c., 50-60 Hz	1 changeover	<b>047H3110</b>	SDT
	220-240 V a.c., 50-60 Hz	1 changeover	<b>047H3111</b>	
	24 V a.c., 50-60 Hz			
	24 V d.c.			
	380-415 V a.c., 50-60 Hz	1 changeover	<b>047H3112</b>	

*Multi function electronic timers*

Time range	Voltage range	Contact function	Code no.	Type
0.05 s-300 h	24-240 V a.c., 50-60 Hz	2 changeover	<b>047H3075</b>	MTI
	24-240 V d.c.			
	24 V a.c., 50-60 Hz	1 changeover	<b>047H3076</b>	
	24 V d.c.			
	42-48 V a.c., 50-60 Hz			
	42-48 V d.c.			
	110-240 V a.c., 50-60 Hz			

*Accessories for electronic timers*

Description	Comments	Code no.
Adapter	Mounting base with DIN rail for screw fixing of electronic timers	<b>047H3120</b>

Accessories



**CBI - UA/ CBI - AA**  
Undervoltage trip/ Shunt trip



**CTL 65**  
Current limiter



**CTA 25**  
Supply block



**CTT 25**  
Terminal block



**CTS 45-**  
Bus bar

Product



**CTI 25**

Accessories



**CBI - NO**  
**- NC**  
**- EM**  
Auxiliary contact block



**CBI-UI - NO**  
**- NC**  
Signal contact block



**CBI - 20**  
**- 02**  
**- 11**  
Auxiliary contact block



**CTS 54-**  
Bus bar

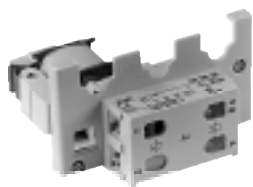


Terminal cover for CTS

Accessories



**CBI 100 - UA**  
*Undervoltage trip*



**CBI 100 - AA**  
*Shunt trip*

Product



**CTI 100**

Accessories



**CBI 100-UI - 20**  
- 02  
- 11  
*Signal contact block*



**CBI - 20**  
- 02  
- 11  
*Auxiliary contact block*



**CBI 100 LK**  
*Lockable stop button*

Introduction



Circuit breakers/Manual motor starters CTI 25 and CTI 100 cover the power ranges 0.02-12.5 kW and 3-45 kW respectively.

This product range is modular, flexible, and offers a large selection of clip-on auxiliary functions and accessories: auxiliary contact blocks, alarm contact blocks, shunt releases, current limiters, connection blocks, bus bars and enclosures.

Other features of CTI 25/CTI 100:

- Short-circuit protection: An advanced and fast reacting contact system with arc-control devices give CTI high short-circuit break capability which makes them very suitable for the protection of electrical panels.
- Supply isolation:
  - operation switch (manual motor starter)
  - isolation switch (with locking device)
  - emergency stop switch (with undervoltage trip)
- Indicating functions:
  - condition (ON or OFF)
  - alarm (short-circuiting or thermal trip)
  - recoupling prevention (manual reset)

Ordering

*Circuit breakers/Manual motor starters CTI 25 and CTI 100*

AC-3 load U <sub>e</sub> 380-415 V kW	Range Motor starter A	Electromagnetic trip current A	Codeno.	Type
0.02	0.1 - 0.16	1.8	047B3020	CTI 25
0.04	0.16 - 0.25	2.8	047B3021	
0.09	0.25 - 0.4	4.4	047B3022	
0.12	0.4 - 0.63	6.9	047B3023	
0.37	0.63 - 1.0	11	047B3024	
0.55	1.0 - 1.6	18	047B3025	
0.75	1.6 - 2.5	28	047B3026	
1.5	2.5 - 4.0	44	047B3027	
2.5	4.0 - 6.3	69	047B3028	
5.5	6.3 - 10	110	047B3029	
7.5	10 - 16	176	047B3030	
10	16 - 20	220	047B3031	
12.5	20 - 25	275	047B3032	
12.5	16 - 25	350	047B3012	
22	25 - 40	560	047B3013	
31.5	40 - 63	882	047B3014	
50	63 - 90	1260	047B3015	

Accessories for circuit breakers/manual motor starters CTI 25

Description	Comments	Code no.
Auxiliary contact blocks for CTI 25	Auxiliary contact blocks for building in	
	CBI-NO (make) terminal 13-14	047B3040
	CBI-NO (make) terminal 33-34	047B3041
	CBI-NC (break) terminal 11-12	047B3042
	CBI-NC (break) terminal 31-32	047B3043
	CBI-EM (early make) terminal 37-38	047B3044
	Alarm contact blocks for building in	
	CBI UI-NO (make), terminal 53-54	047B3074
	CBI UI-NC (break), terminal 51-52	047B3075
	Auxiliary contact blocks for lefthand mounting	
CBI 20 (2 make), terminal 13-14, 23-24	047B3048	
CBI 11 (1 make + 1 break), terminal 13-14, 21-22	047B3049	
CBI 02 (2 break), terminal 11-12, 21-22	047B3050	
Undervoltage trip for CTI 25	Undervoltage trip for righthand mounting	
	CBI-UA 24 V, 50 Hz - 28 V, 60 Hz, D1-D2	047B3060
	CBI-UA 110 V, 50 Hz - 127 V, 60 Hz, D1-D2	047B3064
	CBI-UA 220-230 V, 50 Hz - 254 V, 60 Hz, D1-D2	047B3061
	CBI-UA 240 V, 50 Hz - 277 V, 60 Hz, D1-D2	047B3062
	CBI-UA 380-400 V, 50 Hz - 440 V, 60 Hz, D1-D2	047B3063
	CBI-UA 415 V, 50 Hz - 500 V, 60 Hz, D1-D2	047B3065
CBI-UA 500 V, 50 Hz - 575 V, 60 Hz, D1-D2	047B3077	
Shunt trip for CTI 25	Shunt trip for righthand mounting	
	CBI-AA 24 V, 50 Hz - 28 V, 60 Hz, C1-C2	047B3066
	CBI-AA 110 V, 50 Hz - 127 V, 60 Hz, C1-C2	047B3070
	CBI-AA 220-230 V, 50 Hz - 254 V, 60 Hz, C1-C2	047B3067
	CBI-AA 240 V, 50 Hz - 277 V, 60 Hz, C1-C2	047B3068
	CBI-AA 380-400 V, 50 Hz - 440 V, 60 Hz, C1-C2	047B3069
CBI-AA 415 V, 50 Hz - 500 V, 60 Hz, C1-C2	047B3071	
Current limiter for CTI 25	Increases CTI 25 short-circuit break capability to 50 kA, CTL 65	047B3072
Supply block for CTI 25	For supply to bus bars max. 25 mm <sup>2</sup> , CTA 25	047B3073
Terminal block for CTI 25	For mounting direct on CTI 25, max. 16 mm <sup>2</sup> , CTT 25	047B3076
Lockable bracket for CTI 25	For locking CTI 25 mounted in panel (up to three padlocks) Type CBI LB	047B3093
Bus bars for CTI 25	For parallel coupling of several CTI 25 units in a panel. The number can be increased by using several bus bars.	
	CTS 45-2 (2 x 45 mm)	047B3084
	CTS 45-3 (3 x 45 mm)	047B3096
	CTS 45-4 (4 x 45 mm)	047B3085
	CTS 45-5 (5 x 45 mm)	047B3086
	For CTI 25 with auxiliary contact mounted on side.	
	CTS 54-2 (2 x 54 mm)	047B3087
	CTS 54-3 (3 x 54 mm)	047B3097
	CTS 54-4 (4 x 54 mm)	047B3088
CTS 54-5 (5 x 54 mm)	047B3089	
Terminal cover	Finger protection of terminals on CTS	047B3101

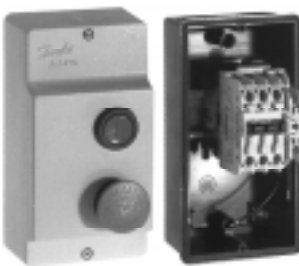
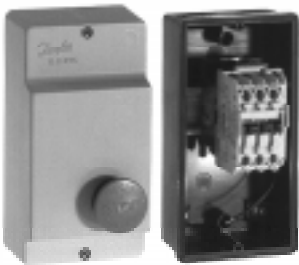
*Accessories for circuit breakers/manual motor starters CTI 100*

Description	Comments	Code no.
Auxiliary contact blocks for CTI 100	Auxiliary contact blocks for building in CBI 100-20 (2 make), terminal 13-14, 23-24	<b>047B3110</b>
	CBI 100-02 (2 break), terminal 11-12, 21-22	<b>047B3111</b>
	CBI 100-11 (1 make + 1 break), terminal 13-14, 21-22	<b>047B3112</b>
	Alarm contact blocks for building in CBI 100 UI - 20 (2 make), terminal 37-38, 43-44	<b>047B3116</b>
	CBI 100 UI - 02 (2 break), terminal 35-36, 41-42	<b>047B3117</b>
	CBI 100 UI - 11 (1 make + 1 break) <sup>1)</sup> , terminal 35-36, 43-44	<b>047B3118</b>
Undervoltage trip for CTI 100	CBI 100 UI2 - 11 (1 make + 1 break) <sup>2)</sup> , terminal 37-38, 41-42	<b>047B3119</b>
	Undervoltage trip for building in CBI 100-UA 24 V, 50 Hz, D1-D2 terminal 43-44	<b>047B3123</b>
	CBI 100-UA 110 V, 50 Hz, D1-D2 terminal 43-44	<b>047B3124</b>
Shunt trip for CTI 100	CBI 100-UA 220-230 V, 50 Hz, D1-D2 terminal 43-44	<b>047B3125</b>
	Shunt trip for building in CBI 100-AA 24 V, 50 Hz, C1-C2 terminal 43-44	<b>047B3130</b>
	CBI 100-AA 110 V, 50 Hz, C1-C2 terminal 43-44	<b>047B3131</b>
Lockable stop button for CTI 100	CBI 100-AA 220-230 V, 50 Hz, C1-C2 terminal 43-44	<b>047B3132</b>
	For locking CTI 100 (up to three padlocks) Type CBI 100-LK (Black)	<b>047B3127</b>
	Type CBI 100-LK (Red/Yellow)	<b>047B3129</b>

<sup>1)</sup> NO electromagnetic alarm contact, NC thermal alarm contact.

<sup>2)</sup> NC electromagnetic alarm contact, NO thermal alarm contact.

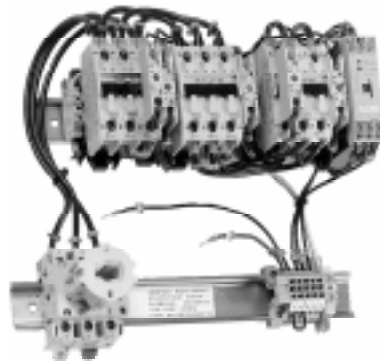
Motor starters



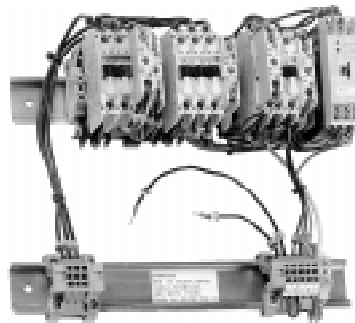
CIM 6-30

Coil voltage

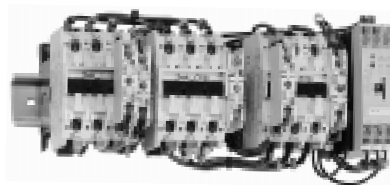
Star-delta starters



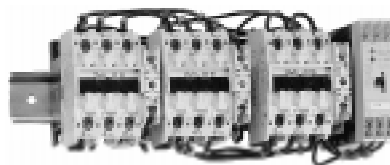
SDU 12-25 insert for enclosure F3



SDU 12-25 insert for enclosure F2



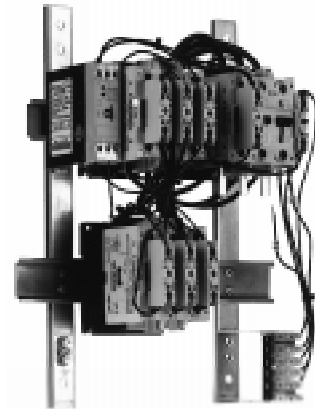
SDU 12-25 insert for enclosure F1



SDU 12-25 insert for panel mounting

Coil voltage

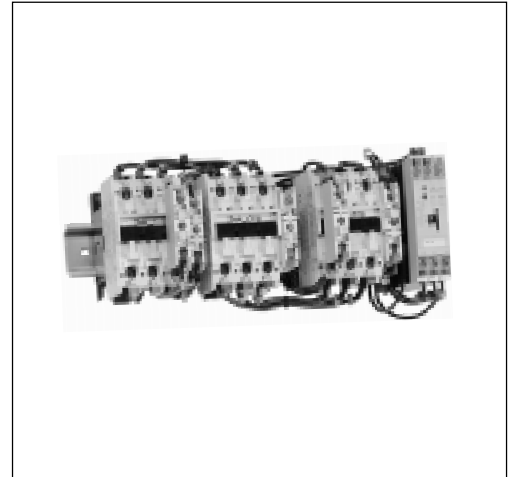
Star-delta starters



SDI 32-45 insert for enclosure M32, M44 and M45

Coil voltage

## Introduction



We can supply direct on line starters up to 15 kW and star-delta starters up to 37 kW with and without isolating switches.

*Motor starters*

To fully exploit the flexibility of the range where stock levels and combination possibilities are concerned, motor starters are not normally supplied as complete units.

Instead, the individual components making up a motor starter can be ordered and supplied separately. However, the contactor can be supplied enclosed, with stop/reset or start-stop/reset buttons up to 30 A, under type designation CIM followed by the code number. The thermal overload relay must be ordered separately.

The full load currents given in the table are indicative values and should only be used as such when sizing contactors. When determining contactor size, account should be taken of the full load current value stamped on the motor rating plate, and the ratio between start and full load currents. This ratio depends, among other things, on the number of motor poles and is specified by the motor manufacturer. The ratio varies greatly from motor to motor and between makes of motors; the start current can be as much as 12-15 times the full load current.

For this reason the recommendation is to always refer to the specification from the motor manufacturer when selecting contactor size because contactors made to IEC 947-4 are designed to switch six times the full load current.

*Example*

4 kW motor: 3 x 380 V

Start current:  $10 \times I_e$

Full load current:  $I_e = 9 \text{ A}$

Start current:  $10 \times 9 = 90 \text{ A}$

*Selection of contactor*

CI 9: Start current  $6 \times 9 = 54 \text{ A}$ : too small

CI 12: Start current  $6 \times 12 = 72 \text{ A}$ : too small

CI 15 or CI 16: Start current  $6 \times 16 = 96 \text{ A}$ : OK

Ordering

Motor starters CIM (contactor in enclosure with **standard** stop pushbutton)

Max. motor output			Full load current (FLC) A	Push buttons	Code no. 1)	Type
1 × 220-240 V kW	3 × 220-240 V kW	3 × 380-690 V kW				
0.75	1.5	2.2	6	Stop/reset	<b>047B4019</b>	CIM 6
0.75	1.5	2.2	6	Start-stop/reset	<b>047B4020</b>	CIM 6
1.1	2.2	4.0	9	Stop/reset	<b>047B4023</b>	CIM 9
1.1	2.2	4.0	9	Start-stop/reset	<b>047B4024</b>	CIM 9
1.5	3.0	5.5	12	Stop/reset	<b>047B4033</b>	CIM 12
1.5	3.0	5.5	12	Start-stop/reset	<b>047B4034</b>	CIM 12
2.2	4.0	7.5 <sup>2)</sup>	16	Stop/reset	<b>047B4063</b>	CIM 15
2.2	4.0	7.5 <sup>2)</sup>	16	Start-stop/reset	<b>047B4064</b>	CIM 15
2.2	4.0	7.5	16	Stop/reset	<b>047B4043</b>	CIM 16
2.2	4.0	7.5	16	Start-stop/reset	<b>047B4044</b>	CIM 16
3	5.5	10	20	Stop/reset	<b>047B4045</b>	CIM 20
3	5.5	10	20	Start-stop/reset	<b>047B4046</b>	CIM 20
4	5.5	11	25	Stop/reset	<b>047B4053</b>	CIM 25
4	5.5	11	25	Start-stop/reset	<b>047B4054</b>	CIM 25
4	7.5	15	30	Stop/reset	<b>047B4055</b>	CIM 30
4	7.5	15	30	Start-stop/reset	<b>047B4056</b>	CIM 30

1) Coil voltage/frequency or Suffix no. must be added to the Danfoss code no.

2) Max. 500 V

*Note! Thermal overload relay must be ordered separately, see page 21-22*

Coil voltage for CIM

Coil voltage		Suffix no.
50 Hz V	60 Hz V	
12	12	12
20	24	14
24	24	13
24	29	16
42	50	17
48	57	18
92	110	21
110	110	23
-	115	24
110	132	22
167	200	91
-	208-230	28

Coil voltage for CIM

Coil voltage		Suffix no.
50 Hz V	60 Hz V	
183	220	29
200	240	30
220-230	220	32
220-230	-	31
220-240	-	34
240	288	33
317	380	92
380-400	440	37
380-400 *)	-	96
415	500	38
440	550	93
500	600	94

\*) Under voltage coil -35 to 0%

*Automatic star-delta starter inserts SDU12, SDU 16, SDU 25*

Max. motor output		I <sub>max</sub> A	For enclosure type	Code no.	Type <sup>1)</sup>
3x220-230 V kW	3x380-690 V kW				
5.5	10	21	F1	<b>047B1300</b>	SDU 12
7.5	13	27		<b>047B1301</b>	SDU 16
11	22	43		<b>047B1302</b>	SDU 25
5.5	10	21	F2	<b>047B1303</b>	SDU 12
7.5	13	27		<b>047B1304</b>	SDU 16
11	22	43		<b>047B1305</b>	SDU 25
5.5	10	21	F3	<b>047B1306</b>	SDU 12
7.5	13	27		<b>047B1307</b>	SDU 16
11	22	43		<b>047B1308</b>	SDU 25
5.5	10	21	Panel mounting	<b>047B1314</b>	SDU 12
7.5	13	27		<b>047B1315</b>	SDU 16
11	22	43		<b>047B1316</b>	SDU 25

<sup>1)</sup> Note! Thermal overload relay must be ordered separately

*Automatic star-delta starter inserts SDI 32, SDI 45*

Max. motor output		I <sub>max</sub> A	For enclosure type	Code no.	Type <sup>2)</sup>
3x220-230 V kW	3x380-690 V kW				
15	30	56	M 34, M 44	<b>047B1003</b>	SDI 32
22	37	78	M 34, M 45	<b>047B1004</b>	SDI 45

<sup>2)</sup> Note! Thermal overload relay must be ordered separately, Current rail set supplied with the unit.

*Coil voltages for star-delta starters*

Coil voltage		Suffix no.
50 Hz (V)	60 Hz (V)	
20	24	14
24	29	16
92	110	21
110	132	22
183	220	29
200	240	30
220-230	264	31
240	288	33
317	380	92
380-400	440	37
415	500	38

*Correct ordering*

Example: SDU 12 insert for plastic enclosure, coil voltage 220-230 V/50 Hz  
Select one of the following two forms of ordering:

1. Danfoss code no. + Suffix no.:  
047B1300.31  
or
2. Danfoss code no. + coil voltage/frequency:  
047B1300, 220-230 V/50 Hz

Motor starters



**BCI**  
For CI 6-30



**BCI1**  
For CI 6-30



**BCI2**  
For CI 6-30



**Enclosure CITF**  
For CI 6-16



**BXI**  
For CTI 25

Motor starters



**Enclosure M10/M11/M12**  
For CI 32-50



**Enclosure M13/M14**  
For CI 6-30



**Enclosure M23/M24**  
For CI 32-50

Star-delta starters



**Enclosure F1**  
For SDU 12-25



**Enclosure F2**  
For SDU 12-25



**Enclosure F3**  
For SDU 12-25

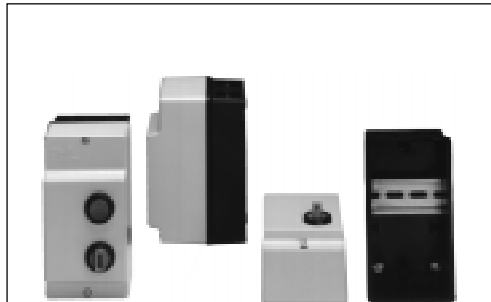


**Enclosure M34**  
For SDI 32-45



**Enclosure M44/45**  
For SDI 32-45

Introduction



Enclosure for motor starter with CI 6-30



Enclosure for circuit breaker CTI 25



Enclosure for star-delta starter SDU 12-25

Enclosures for the CI range up to 30 A are made of plastic and offer a very high degree of enclosure (IP 55 to IEC 529). They are fitted with a DIN rail and there is ample space for a timer block (ETB) or terminal at the side of the contactor. There is an earth terminal and a loop terminal in the bottom of the enclosure. There are versions with four knockouts for Pg 16/21 or M20/25 cable entries.

Enclosures for starters larger than 30 A and for star-delta starters type SDI 32 and SDI 45 are of fibreglass-reinforced polyester giving a high degree of enclosure with high strength (IP 55 to IEC 529). The bottoms of the enclosures are pre-drilled for cable entries. The holes are blanked off with grommets; cable glands are not supplied. The fibreglass-reinforced polyester enclosures are available in versions with mains isolator. For safety reasons, the mains isolator can be locked in the off position with up to three padlocks.

Star-delta starters type SDU 12, 16 and 25 up to 22 kW fit in plastic enclosures F1, F2 and F3. The enclosures are equipped with different sizes of knockouts for Pg and metric cable glands. Degree of protection is IP 55 to IEC 529.

For details of CSA-approved enclosures, please contact Danfoss.  
Enclosures BCI, BCI 1, M 10, M 11, M 12, M 13, M 23, M 24: Up to four auxiliary contact blocks can be fitted on each contactor.  
Boxes BCI 2 and M 14: In addition to the start contact, two auxiliary contact blocks can be fitted to a three-pole contactor.  
Enclosure CITF: A start contact can be fitted to a three-pole contactor.

Ordering

*Plastic enclosures for motor starters up to 30 A (IP 55)*

Application	Pushbuttons	Knockouts	Code no.	Type
Control relay/ Contactor	None	4 Pg 16/4 Pg 21	<b>047B0105</b>	BCI
Motor starter	Stop/reset	4 Pg 16/4 Pg 21	<b>047B0103</b>	BCI 1
	Stop/reset <sup>1)</sup>	4 Pg 16/4 Pg 21	<b>047B0108</b>	
	Start-Stop/reset	4 Pg 16/4 Pg 21	<b>047B0101</b>	BCI 2
	Start-Stop/reset <sup>1)</sup>	4 Pg 16/4 Pg 21	<b>047B0107</b>	

<sup>1)</sup> Mushroom stop button

*Flush steel enclosures for motor starters up to 16 A (IP 55)*

Application	Pushbuttons	Knockouts	Code no.	Type
Motor starter	Start-Stop/reset <sup>1)</sup>	4 Pg 16/4 Pg 21	<b>047B0225</b>	Box CITF

<sup>1)</sup> Mushroom stop button

*Plastic enclosures with mains isolator for motor starters from 9 A to 30 A (IP 55)*

Application	Pushbuttons	Cable entries in base excl. screwed entries <sup>1)</sup>	Code no.	Type <sup>2)</sup>
Motor starter	Stop/reset	3 Pg 16/ 3 Pg 21	<b>047B0228</b>	Box M 13
	Start-Stop/reset	3 Pg 16/ 3 Pg 21	<b>047B0229</b>	Box M 14

<sup>1)</sup> Pre-drilled holes for Pg 16/M 20 and Pg 21/M 25 screwed cable entries blanked off with grommet.

<sup>2)</sup> With DIN rail

*Plastic enclosures for motor starters from 32 A to 52 A (IP 55)*

Application	Pushbuttons	Cable entries in base excl. screwed entries <sup>1)</sup>	Code no.	Type <sup>2)</sup>
Contactor	None	3 Pg 16/3 Pg 21	<b>047B0230</b>	Box M 10
Motor starter	Stop/reset	3 Pg 16/3 Pg 21	<b>047B0231</b>	Box M 11
	Start-Stop/reset	3 Pg 16/3 Pg 21	<b>047B0232</b>	Box M 12

<sup>1)</sup> Pre-drilled holes for Pg 16/M 20 and Pg 21/M 25 screwed cable entries blanked off with grommet.

<sup>2)</sup> With DIN rail

*Plastic enclosures with mains isolator for motor starters from 32 A to 52 A (IP 55)*

Application	Push buttons	Cable entries in base excl. screwed entries <sup>1)</sup>	Code no.	Type <sup>2)</sup>
Motor starter	Stop/reset	1 Pg 16/1 Pg 21	<b>047B0233</b>	Box M 23
	Start-Stop/reset	1 Pg 16/1 Pg 21	<b>047B0234</b>	Box M 24

<sup>1)</sup> Pre-drilled holes for Pg 16/M 20 and Pg 21/M 25 screwed cable entries blanked off with grommet.

<sup>2)</sup> With DIN rail

*Plastic enclosures for circuit breakers/manual motor starters CTI 25 (IP 41/55)*

Application	Pushbuttons	Knockouts	Code no.	Type <sup>1) 2)</sup>
CTI 25	Start-Stop/reset	4 Pg 16/4 Pg 21	<b>047B3090</b>	BXI 41
			<b>047B3091</b>	BXI 55

<sup>1)</sup> With neutral and earth terminals

<sup>2)</sup> The enclosure also leaves space for a shunt release or an undervoltage release.

*Plastic enclosures for star-delta starters type SDU 12, SDU 16, SDU 25 (IP 55)*

Y/D-starter insert	Pushbuttons	Knockouts	Code no.	Type
SDU 12, 047B1300		4 Pg 9, 6 Pg 11, 8 Pg 13.5,		
SDU 16, 047B1301	Start-Stop/reset	16 Pg 16, 6 Pg 21, 1 Pg 29, 8 M 20, 6 M 25	<b>047B1310</b>	F1
SDU 25, 047B1302				
SDU 12, 047B1303	Start-Stop/reset	4 Pg 9, 6 Pg 11, 8 Pg 13.5, 16 Pg 16, 6 Pg 21, 1 Pg 29, 8 M 20, 6 M 25	<b>047B1311</b>	F2
SDU 16, 047B1304				
SDU 25, 047B1305				
SDU 12, 047B1306	Start-Stop/reset and isolator	4 Pg 9, 6 Pg 11, 8 Pg 13.5, 16 Pg 16, 6 Pg 21, 1 Pg 29, 8 M 20, 6 M 25	<b>047B1312</b>	F3
SDU 16, 047B1307				
SDU 25, 047B1308				

Ordering

*Plastic enclosures for star-delta starters from 30 kW to 37 kW (IP 55)*

Application Y/D starter type	Pushbuttons	Cable entries in base <sup>1)</sup> excl. screwed entries	Code no.	Type <sup>2)</sup>
SDI 32/45	Start-Stop/reset	1 Pg 16/2 Pg 21/1 Pg 29	<b>047B0250</b>	Box M 32

<sup>1)</sup> Pre-drilled holes for Pg 16/M 20 and Pg 21/M 25 screwed cable entries blanked off with grommet.

<sup>2)</sup> With DIN rail

*Plastic enclosures with mains isolator for star-delta starters from 30 kW to 37 kW (IP 55)*

Application Y/D starter type	Pushbuttons	Cable entries in base <sup>1)</sup> excl. screwed entries	Code no.	Type
SDI 32	Start-Stop/reset	1 Pg 16/2 Pg 21/1 Pg 29	<b>047B0251</b>	Box M 44
SDI 45	Start-Stop/reset	1 Pg 16/2 Pg 21/1 Pg 29	<b>047B0252</b>	Box M 45

<sup>1)</sup> Pre-drilled holes for Pg 16/M 20 and Pg 21/M 25 screwed cable entries blanked off with grommet.

<sup>2)</sup> With DIN rail

*Accessories for enclosures and circuit breakers*

Description	Comments	Code no.
Stop/reset pushbutton	Pushbuttons incl. extension and rubber cap Standard version for BCI 1/BCI 2 boxes	<b>047B0052</b>
	Mushroom version for BCI 1/BCI 2 boxes	<b>047B0054</b>
Start pushbutton	Incl. extension and rubber cap for BCI 2 box	<b>047B0053</b>
Lock fittings for boxes BXI	For use in servicing and inspection on BXI enclosures, type CBI LA	<b>047B3092</b>
Diaphragm for BXI 55	For replacement in BXI enclosure	<b>047B3099</b>