

# Manual Motor Starters

according to IEC 947 / EN 60947




Quality made in



D509E201


 **BENEDICT**  
GMBH  
[www.benedict.at](http://www.benedict.at)

**General Catalogue**




Complete Assortment  
Technical Datas  
Dimensions  
Applicationen  
Distributors

Catalogue **D946E..**




**Circuit Breakers**




M4-32T.. up to 32A  
M4-32R.. up to 32A  
M4-63R.. up to 63A  
M4-100R.. up to 100A

Catalogue **D795E..**




**Switches**




On-Off-Switches  
Changeover Switches  
Motor Switches  
Step Switches  
Main Switches  
Modular Switches  
Key Operated Switches

Catalogue **D371E..**




**Main Switches**




Emergency Off  
Main Switches  
On-Off-Switches  
Add-On-Module

Catalogue **D656E..**




**Capacitor Switching Contactors**



Contactors for reactive and non reactive capacitor banks

Catalogue **D385E..**



**Manual Motorstarter**




MU25A up to 32A

Auxiliary Contact Blocks  
Trip Alarm Auxiliary Switches  
Busbar Connectors  
Enclosure

Catalogue **D509E..**




**Push Buttons**




Push Buttons  
Emergency Stop  
Key Operated Rotary Switches  
Rotary Knobs  
Illuminated Push Buttons  
Assembled Stations

Catalogue **D580E..**




**Modular Contactors**




Modular Contactors  
Accessories  
Emergency Off Switches  
Main Switches  
On-Off Switches  
Control Switches

Catalogue **D681E..**




**DC-Switchgear for Photovoltaic**



Main Switches  
On-Off-Switches  
Contactors for DC-Switching

Catalogue **D911E..**



**Contactors Motor-Starter**



Mini-Contactors  
Contactors  
Overload Relays  
Capacitor Switching  
Contactors  
Motor-Starters  
Modular Contactors

Catalogue **D677E..**





Manual Motors Starters

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Auxiliary Contact Blocks

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Shunt Release

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Under-voltage Release

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Accessories

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Busbar Connectors

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Enclosures

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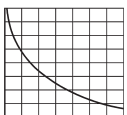
Technical Data

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Dimensions

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Tripping Characteristic

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## Manual Motor Starters



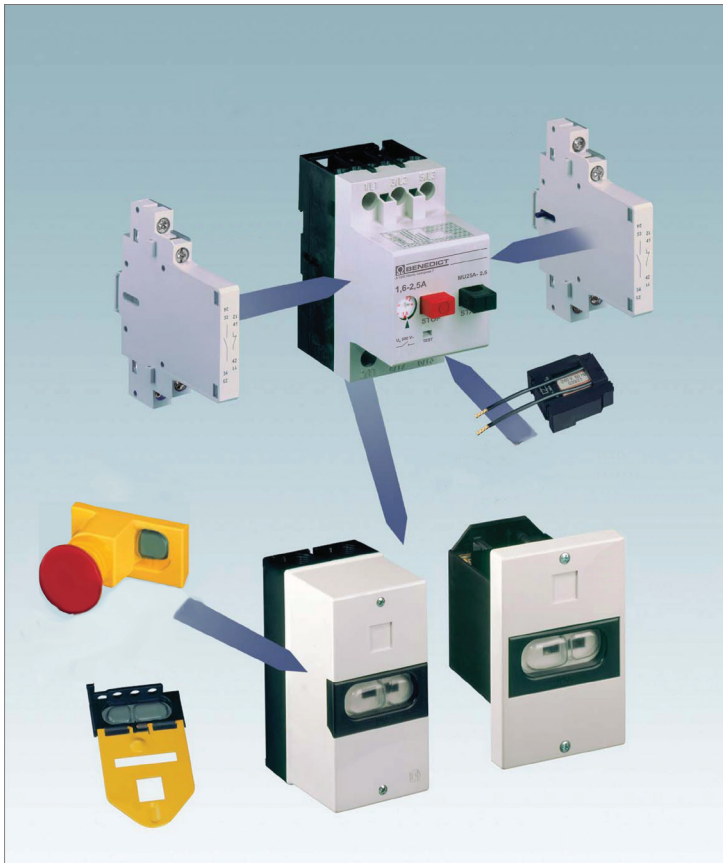
Thermal Overload Release Setting Range A	Ratings AC3 at		Magnetic short circuit trip A	Type	Pack pcs.	Weight kg/pc.
	400V kW	690V kW				
0,16 - <b>0,25</b>	<b>0,06</b>	0,12	3,75	<b>MU25-0,25</b> <b>MU25-0,4</b>	1	0,25
0,25 - <b>0,4</b>	<b>0,09</b>	0,18	6		1	0,25
0,4 - <b>0,63</b>	<b>0,12</b>	0,25	7,45	<b>MU25-0,63</b> <b>MU25-1</b>	1	0,25
0,63 - <b>1</b>	<b>0,25</b>	0,55	15		1	0,25
1 - <b>1,6</b>	<b>0,55</b>	1,1	24	<b>MU25-1,6</b> <b>MU25-2,5</b>	1	0,25
1,6 - <b>2,5</b>	<b>0,75</b>	1,5	37,50		1	0,25
2,5 - <b>4</b>	<b>1,5</b>	3	60	<b>MU25-4</b> <b>MU25-6,3</b>	1	0,25
4 - <b>6,3</b>	<b>2,5</b>	4	94,50		1	0,25
6,3 - <b>10</b>	<b>4</b>	7,5	150	<b>MU25-10</b> <b>MU25-16</b>	1	0,25
10 - <b>16</b>	<b>7,5</b>	11	240		1	0,25
16 - <b>20</b>	<b>9</b>	12	300	<b>MU25-20</b> <b>MU25-25</b>	1	0,25
20 - <b>25</b>	<b>12,5</b>	22	375		1	0,25
25 - <b>32</b>	<b>15</b>		480	<b>MU25-32</b>	1	0,25

## Auxiliary Contact Blocks, for side mounting, max. 2 pieces



Contacts				Rated Operational Current			Type	Pack pcs.	Weight kg/pc.
NO	NC	EM <sup>1)</sup>	AC15 230V A	400V A	AC1 500V A				
1	1	-	<b>3,5</b>	2	6	<b>MU25-PS11</b>	10	0,03	

## System MU25



## Approvals

Country	USA, Canada UL	Europe
Type		

## Shunt Release for mounting under the cover



Rated Control Voltage and Frequency V	Power Consumption		Type	Pack pcs.	Weight kg/pc.
	VA	W			
110V 50Hz, 110-120V 60Hz	2,7	1,8	<b>MU25-A110</b>	10	0,06
220-230V 50Hz, 240V 60Hz	2,7	1,8	<b>MU25-A230</b>	10	0,06

## Under-voltage Release for mounting under the cover



Rated Control Voltage and Frequency V	Power Consumption		Type	Pack pcs.	Weight kg/pc.
	VA	W			
110V 50Hz, 110-120V 60Hz	2,7	1,8	<b>MU25-U110</b>	10	0,06
220-230V 50Hz, 240V 60Hz	2,7	1,8	<b>MU25-U230</b>	10	0,06
380-415V 50Hz, 440V 60Hz	2,7	1,8	<b>MU25-U400</b>	10	0,06

## Accessories



Description	Specification	Type	Pack pcs.	Weight kg/pc.
Busbar Connector Fully Isolated, Ui 690V, Iu 63A				
Busbar	for 2 units, 99mm long	<b>MU25A-D99</b>	10	0,036
Busbar	for 3 units, 154mm long	<b>MU25A-D154</b>	10	0,060
Busbar	for 4 units, 208mm long	<b>MU25A-D208</b>	10	0,084
Busbar	for 5 units, 262mm long	<b>MU25A-D262</b>	10	0,107
Supply Block	3-pole for use with busbar connector	<b>MU25A-DB</b>	10	0,034
Spacing piece ½TE	for ambient temperature >40°C	<b>P730</b>	10	0,013
<b>Enclosures</b>				
Moulded Enclosure	Protection to IP55	<b>MU25-O55</b>	1	0,24
Moulded Front Plate	Protection to IP55	<b>MU25-C55</b>	1	0,16
Locking Bracket	Suitable for 3 padlocks in "OFF"-position, stirrup diameter of the padlock max. 8 mm	<b>MU25-Z</b>	1	0,1
Emergency Stop Button	latch, release by turning	<b>MU25-NAV</b>	1	0,04

# Manual Motor Starters

Data according to IEC 947, IEC 204, EN 60947, EN 60204, VDE 0660, VDE 0113

Type	MU25			
<b>Main Contacts</b>				
<b>Rated insulation voltage <math>U_i</math></b>	V~ <sup>1)</sup>	690		
Rated operational current $I_e$ (=Ith) open, at 50°C	A	25 <sup>2)</sup>		
<b>Mechanical life</b>	S x 10 <sup>6</sup>	0,1		
<b>Contact life at <math>I_e</math> /AC3</b>	S x 10 <sup>6</sup>	0,1		
<b>Tripping class according to IEC 60947-4-1</b>		10A		
<b>Rated ultimate short-circuit breaking capacity <math>I_{cu}</math></b>		220-240V~	380-415V~	500V~ 660-690V~
Values for open unit, when incoming supply on upper terminals				
Setting range	bis 1A kA	50	50	50 50
	1 - 1,6A kA	50	50	50 50
	1,6 - 2,5A kA	50	50	3 2,5
	2,5 - 4A kA	50	50	3 2,5
	4 - 6,3A kA	50	50	3 2,5
	6,3 - 10A kA	50	6	3 2,5
	10 - 16A kA	10	6	2,5 2
	16 - 20A kA	10	6	2,5 2
	20 - 25A kA	10	6	2,5 2
	25 - 32A kA	10	6	2,5 2
<b>Short circuit protection</b>		220-240V~	380-415V~	500V~ 660-690V~
Setting range	bis 1A A	-	-	- -
	1 - 1,6A A	-	-	- -
Fuse gL(gG) only necessary if the short circuit current could be greater than the rated ultimate short-circuit breaking capacity	1,6 - 2,5A A	-	-	25 20
	2,5 - 4A A	-	-	35 25
	4 - 6,3A A	-	-	50 35
	6,3 - 10A A	-	80	50 35
	10 - 16A A	80	80	63 35
	16 - 20A A	80	80	63 50
	20 - 25A A	80	80	63 50
	25 - 32A A	80	80	63 50
<b>Maximum ambient temperature Operation</b>	open °C	-25 bis +60		
	enclose °C	-25 bis +40		
Temperature compensation	°C	-5 bis +40		
Storage	°C	-25 bis +70		
<b>Power loss at rated current, warm condition</b>	W	6 - 8		
<b>Auxiliary Contacts</b>				
<b>Rated insulation voltage <math>U_i</math></b>	V~	500		
<b>Thermal rated current Ith Ambient temperature max. 50°C</b>	A	6		
<b>Utilization category AC15</b>				
<b>Rated operational current <math>I_e</math></b>	220-240V A	3,5		
	380-415V A	2		
	500V A	1,5		
<b>Short circuit protection max. fuse size</b>	gL (gG) A	6		
<b>Cable cross-section</b>				
<b>Main connector</b>	solid or stranded mm <sup>2</sup>	1 - 6		
	flexible mm <sup>2</sup>	1 - 4		
	flexible with multicore cable end mm <sup>2</sup>	0,75 - 4		
Number of clampable conductors per terminal / Screw torque		2 / M3 - Pz2 1,8Nm		
<b>Auxiliary connector</b>	solid or stranded mm <sup>2</sup>	0,75 - 2,5		
	flexible mm <sup>2</sup>	0,75 - 1,5		
	flexible with multicore cable end mm <sup>2</sup>	0,75 - 1,5		
Number of clampable conductors per terminal / Screw torque		2 / M3,5 - Pz1 1Nm		
<b>Resistance to shock according to IEC 68-2-27</b>	g	20		
vibration resistance to IEC68-2-6	g	5 (by f= 5...150Hz)		

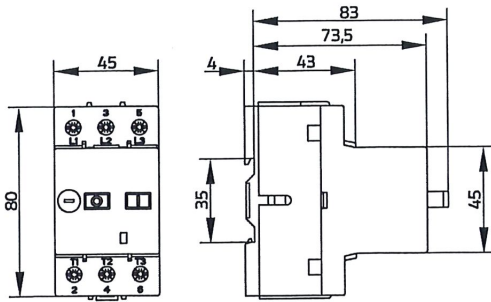
1) Suitable for: earthed-neutral systems, overvoltage category I to III, pollution degree 3 (standard-industry):  $U_{imp} = 6kV$ .

2) Maximum number without gap: 3

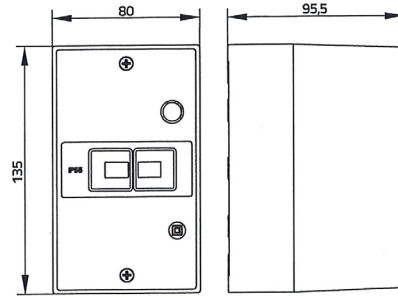
# Manual Motor Starters

## Maße

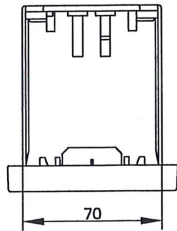
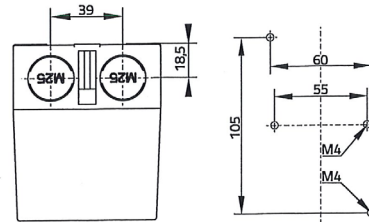
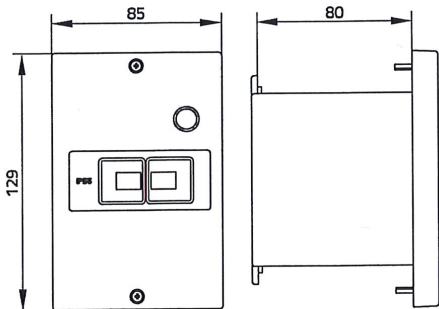
Manual Motor Starter  
MU25



Moulded Enclosure  
MU25-O55



Moulded Front Plate  
MU25-C55



Mounting  
with clamps

with screws

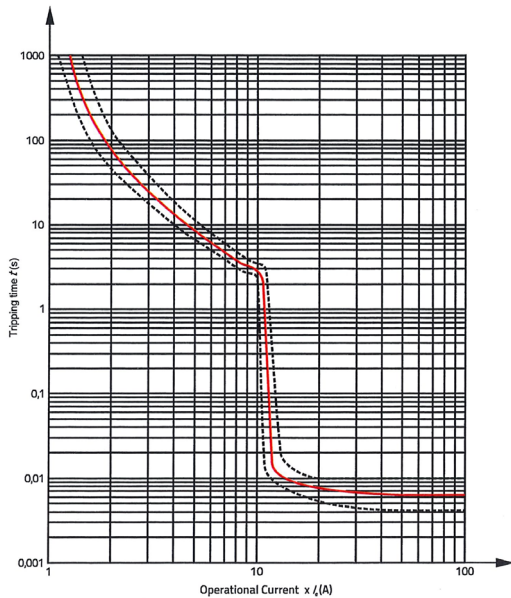
## Temperature Compensation

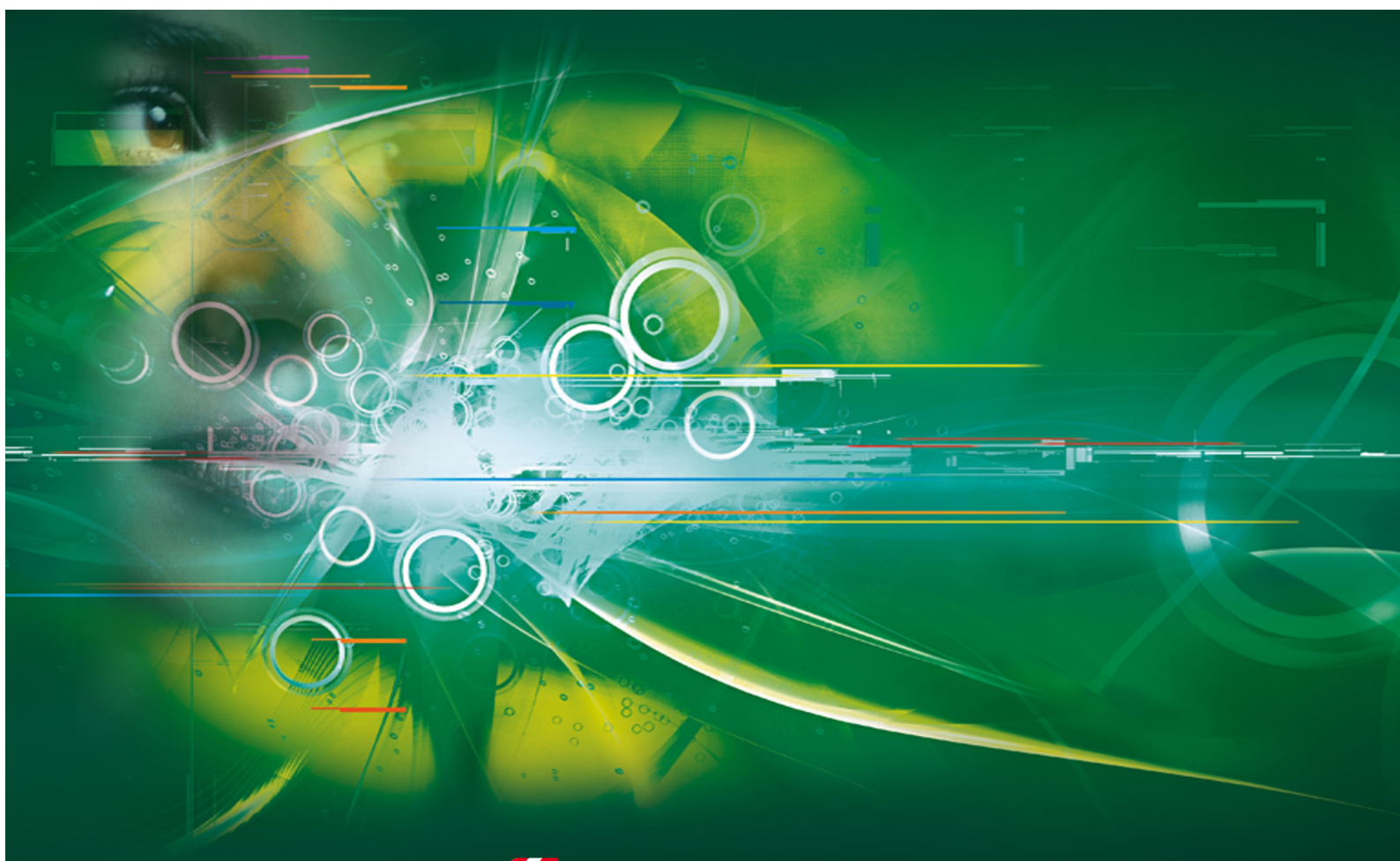
In case of higher ambient temperature use the following formula:  $(\text{Ambient temperature} - 20) \times 0,3 = \text{correction factor in \% of the full load motor current}$

Example:

Ambient temperature 60°C, full load motor current 5A  
 $(60 - 20) \times 0,3 = 12\%$

## Tripping Characteristic





Quality made in



D509E201



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