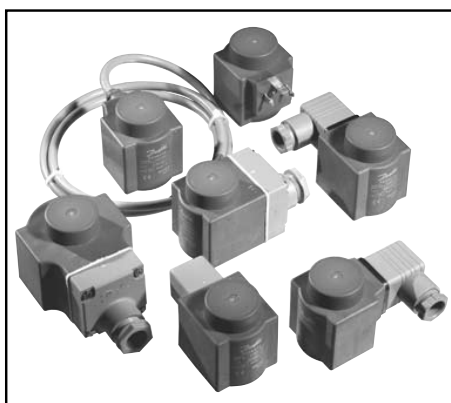


## Data sheet

# Coils for solenoid valves

## Features

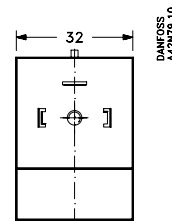
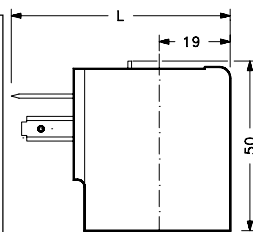

**B and A coils**

- Encapsulated coils with long operating life, even under extreme conditions
- Standard coils for a.c. or d.c.
- Standard coils from 12 V to 400V, 50, 60 or 50/60 Hz
- Standard coils available with 3 core cable, Danfoss terminal box or for DIN plugs
- Coils can be fitted without use of tools
- Coils can only be removed with use of tools

## Contents

Coil type	Enclosure	Power consumption		Page
		ac	dc	
<b>B-series, 13.5 mm system</b>				
BA	IP00-IP65	9 W	15 W	2
BD	IP00-IP65	15 W	-	2
BB	IP00-IP65	10 W	18 W	3
BE/BF	IP67	10 W	18 W	4
BG	IP67	12 W	20 W	5
BN ( hum-free)	IP67	20 W	-	6
BO ( EEx mII T4)	IP67	10 W	10 W	7
BP ( Ex mbII T4)	IP 67	12 W	10.5 W	8
<b>A-series, 9 mm system</b>				
AB	IP00-IP65	4.5 W	5 W	9
AC	IP00-IP65	7 W	10 W	9
AK	IP00-IP65	-	3 W	10
AL	IP00-IP65	4 W	-	10
AM	IP00-IP65	7.5 W	9.5 W	10
<b>Power Connector for coil type AB and AC</b>	IP65			11
<b>Power connector for coil type AK, AL, AM, BA, BD, BB</b>	IP65			12
<b>Power (LED + Varistor) Indicator Connector for coil type AK, AL, AM, BA, BD, BB</b>	IP65			13
<b>Power (LED + Varistor) Indicator Connector for coil type AB and AC</b>	IP65			14
<b>Universal electronic multi-timer Type ET 20 M</b>	IP00-IP65			15

### BA/BD Coils



Weight 0.16 kg	L[mm]
Without cable plug	54
With protective cap	71
With cable plug	79



### Technical data

Design	In accordance with VDE 0580	
Voltage tolerance	220/380V ac coils: +10%, -15%. 230/400V ac coils: +6%, -10%. Other ac coils with NC valve: +10%, -15% Other ac coils with NO valve and all dc coils: ± 10%	
Power consumption, cut in	BA	39 VA ac coils only
	BD	54 VA
Insulation of coil windings	Class H according to IEC 85	
Connection	Spade connector in accordance with DIN 43650 form A	
Enclosure, IEC 529	IP00 with spade connec. IP 20 with protective cap, IP 65 with cable plug	
Ambient temperature	BA	Max. +40°C
	BD	Max. +50°C
Duty rating	Continuous	

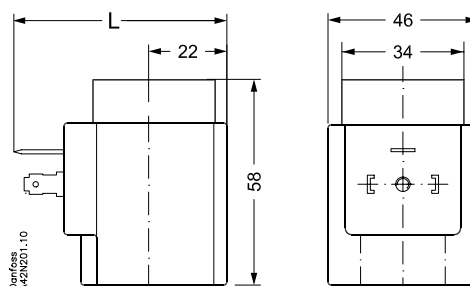
### Ordering BA/BD Coils

Compatibility for Valve type	Coil type	Power consumption holding	Coil type	Supply voltage	Frequency Hz	Code no.
See data sheets for valves	BA	9 W 19VA	BA024A	24 ac	50	<b>042N7508</b>
			BA048A	48 ac		<b>042N7510</b>
			BA115A	115 ac		<b>042N7512</b>
			BA230A	220-230 ac		<b>042N7501</b>
			BA240A	240 ac		<b>042N7502</b>
			BA380A	380-400 ac		<b>042N7504</b>
			BA024B	24 ac		<b>042N7520</b>
			BA115B	115 ac		<b>042N7522</b>
			BA220B	220 ac		<b>042N7523</b>
	BD	15 W 29 VA	BA012D	12 dc	dc	<b>042N7550</b>
			BA024D	24 dc		<b>042N7551</b>
			BD024A	24 ac		<b>042N7597</b>
			BD110A	110 ac		<b>042N7599</b>
			BD230A	230 ac	50	<b>042N7591</b>

Contact Danfoss for delivery of coils for other voltages

Symbol	Description	Enclosure	Code no.
	Protective cap (pack of 100 pcs.)	IP 20	<b>018Z0282</b>
	Cable plug according to DIN 43650-A PG 11	IP65	<b>042N0156<sup>1)</sup></b>

1) Ordering see page 12

**Coils type BB-Clip on version**


Weight 0.24 kg	L[mm]
Without cable plug	62
With protective cap	77
With cable plug	85



**Technical data**

Design	In accordance with VDE 0580
Voltage tolerance	220/380V ac coils: +10%, -15%. 230/400V ac coils: +6%, -10%. Other ac coils with NC valve: +10%, -15% Other ac coils with NO valve and all dc coils: ± 10%
Power consumption, cut in	44 VA ac coils only
Insulation of coil windings	Class H according to IEC 85
Connection	Spade connector in accordance with DIN 43650 form A
Enclosure, IEC 529	IP00 with spade connec. IP 20 with protective cap, IP 65 with cable plug
Ambient temperature	Max. +50°C /+80°C - see table below for details
Duty rating	Continuous

**Ordering BB Coils**

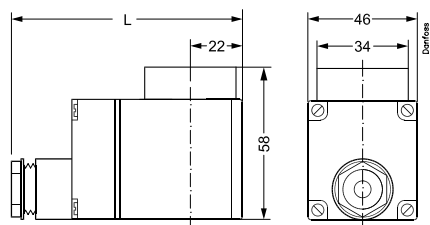
Compatibility for Valve type	Power consumption holding	Coil type	Supply voltage	Frequency Hz	Ambient temperature [°C]	Code no.	
All 2/2-way valves	10 W 21VA	BB024AS	24 ac	50	80	<b>018F7358</b>	
		BB115AS	115 ac			<b>018F7361</b>	
		BB230AS	220-230 ac			<b>018F7351</b>	
		BB240AS	240 ac			<b>018F7352</b>	
		BB380AS	380-400 ac			<b>018F7353</b>	
		BB024BS	24 ac			60	<b>018F7365</b>
	18 W	BB110CS	110 ac	50/60	50	<b>018F7360</b>	
		BB230CS	220-230 ac			<b>018F7363</b>	
		BB012DS	12 dc			dc	<b>018F7396</b>
		BB024DS	24 dc				<b>018F7397</b>

Contact Danfoss for delivery of coils for other voltages

Symbol	Description	Enclosure	Code no.
	Protective cap (pack of 100 pcs.)	IP 20	<b>018Z0282</b>
	Cable plug according to DIN 43650-A PG 11	IP65	<b>042N0156<sup>1)</sup></b>

1) Ordering see page 12

Description	Application	Code no.
O-ring ( pack of 10 pcs.)	Sealing of clip-on coil	<b>018F0094</b>

**Coils type BE/BF-Clip on version**


Weight 0.30 kg	L[mm]
With terminal box	94
With 1 m cable	65

**Technical data**

Design	In accordance with VDE 0580
Voltage tolerance	220/380V ac coils: +10%, -15%. 230/400V ac coils: +6%, -10%. Other ac coils with NC valve: +10%, -15% Other ac coils with NO valve and all dc coils: ± 10%
Power consumption, cut in	44 VA ac coils only
Insulation of coil windings	Class H according to IEC 85
Connection	BE - coils : Terminal box, Pg 13.5; BF - coils : 1 m 3-core flying lead
Enclosure, IEC 529	IP 67
Ambient temperature	Max. +50°C /+80°C - see table below for details
Duty rating	Continuous

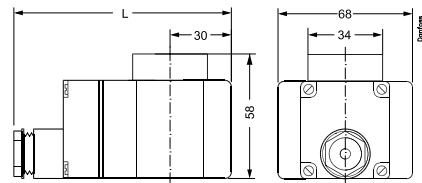
**Ordering BE/BF Coils**

Compatibility for Valve type	Power consumption holding	Coil type	Supply voltage	Frequency Hz	Ambient temperature [°C]	Code no.	
						BE - coils With terminal box	BF - coils With cable
All B - 2/2-way valves.	10 W 21VA	BE024AS	24 ac	50	80	<b>018F6707</b>	<b>018F6257</b>
		BE048AS	48 ac			<b>018F6709</b>	<b>018F6259</b>
		BE115AS	115 ac			<b>018F6711</b>	<b>018F6261</b>
		BE230AS	220-230 ac			<b>018F6701</b>	<b>018F6251</b>
		BE240AS	240 ac			<b>018F6702</b>	<b>018F6252</b>
		BE380AS	380-400 ac			<b>018F6703</b>	<b>018F6253</b>
		BE024BS	24 ac	60		<b>018F6715</b>	<b>018F6265</b>
		BE115BS	115 ac			<b>018F6710</b>	<b>018F6260</b>
		BE220BS	220 ac			<b>018F6714</b>	<b>018F6264</b>
		BE110CS	110 ac			50/60	<b>018F6730</b>
	BE230CS	230 ac	<b>018F6732</b>	<b>018F6282</b>			
	18 W	BE012DS	12 dc	dc	50	<b>018F6756</b>	
		BE024DS	24 dc			<b>018F6757</b>	

Contact Danfoss for delivery of coils for other voltages

	Application	Code no.
O-ring ( pack of 10 pcs.)	Sealing of clip-on coil	<b>018F0094</b>
Danfoss terminal box for type BN, BE and BG coils	IP 67 Enclosure	<b>018Z0081</b>
Danfoss terminal box with LED indication for type BN, BE and BG coils	48-220 V dc 24-250 V ac, 50/60 Hz	<b>018Z0089</b>

### Coils type BG-Clip on version



Weight 0.50 kg	L[mm]
With terminal box	112

### Technical data

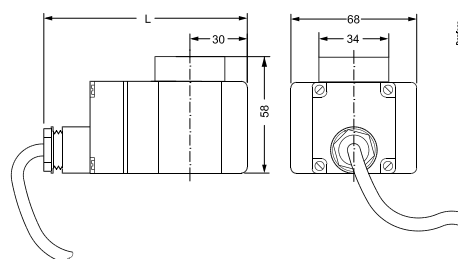
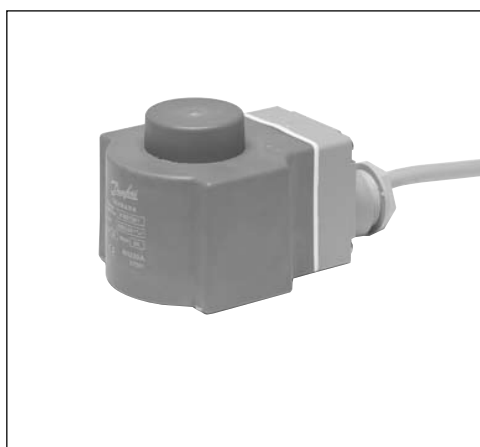
Design	In accordance with VDE 0580
Voltage tolerance	220/380V ac coils: +10%, -15%. 230/400V ac coils: +6%, -10%. Other ac coils with NC valve: +10%, -15% Other ac coils with NO valve and all dc coils: ± 10%
Power consumption, cut in	55VA ac coils only
Insulation of coil windings	Class H according to IEC 85
Connection	Terminal box; Pg 13.5
Enclosure, IEC 529	IP 67
Ambient temperature	Max. +80°C
Duty rating	Continuous

### Ordering BG Coils

Compatibility for Valve type	Power consumption holding	Coil type	Supply voltage	Frequency Hz	Code no.
All 2/2-way valves.	12 W 26VA	BG024AS	24 ac	50	<b>018F6807</b>
		BG110AS	110 ac		<b>018F6811</b>
		BG230AS	220-230 ac		<b>018F6801</b>
		BG240AS	240 ac		<b>018F6802</b>
		BG380AS	380-400 ac		<b>018F6803</b>
		BG024BS	24 ac		60
	BG110BS	110 ac	<b>018F6813</b>		
	BG220BS	220 ac	<b>018F6814</b>		
	20 W	BG012DS	12 dc	dc	<b>018F6856</b>
BG024DS		24 dc	<b>018F6857</b>		

Contact Danfoss for delivery of coils for other voltages

Description	Application	Code no.
O-ring ( pack of 10 pcs.)	Sealing of clip-on coil	<b>018F0094</b>
Danfoss terminal box for type BN and BG coils	IP67 Enclosure	<b>018Z0081</b>
Danfoss terminal box with LED indication	48-220 V dc 24-250 V ac, 50/60 Hz	<b>018Z0089</b>

**Coils type BN-Clip on version  
 Hum-free coil**


Weight 0.60 kg	L[mm]
With 1 m cable	112

**Technical data**

Design	In accordance with VDE 0580
Voltage tolerance	220/380V ac coils: +10%, -15%. 230/400V ac coils: +6%, -10%. Other ac coils with NC valve: +10%, -15% Other ac coils with NO valve and all dc coils: $\pm 10\%$
Power consumption, cut in	24VA
Insulation of coil windings	Class H according to IEC 85
Connection	1 m 3-core flying lead ; Pg 13.5
Enclosure, IEC 529	IP 67
Ambient temperature	Max. +50°C
Duty rating	Continuous

**Ordering BN Coils**

Compatibility for Valve type	Power consumption holding	Coil type	Supply voltage	Frequency Hz	Code no.
All 2/2-way valves.	20 W 26VA	BN230CS	220-230 ac	50/60	<b>018F7301</b>
O-rings ( pack of 10 pcs.)		Sealing of clip-on coil			<b>018F0094</b>

**Coils type BO  
 Ex m II T4**



- For explosion-risk environments, such as where flammable liquids and gases are produced, transported or tapped
- Approvals for use in Zone 1 according to Directive 94/9/EC (ATEX 100A) EN50014 and EN50028
- Medium temperature: Up to +90°C
- Ambient temperature: Up to +40°C
- IP 67 version with 5 m 3-core flying lead
- Seal kit as accessory for extremely wet and aggressive environments (please contact Danfoss)

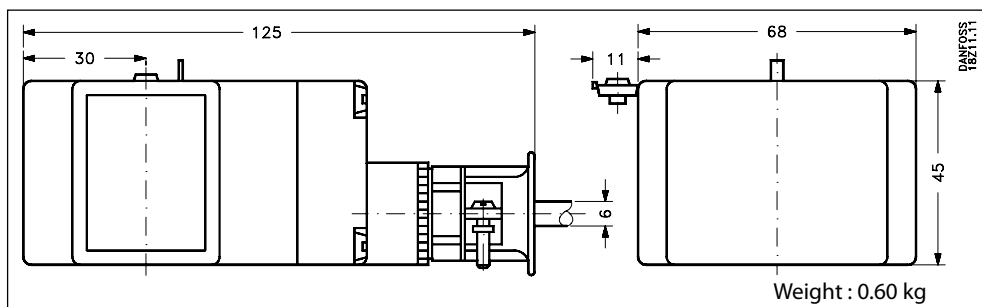
**Technical data**

Voltage tolerance	± 10%
Insulation of coil windings	Class H according to IEC 85
Connection	5 m 3-core flying lead
Enclosure, IEC 529	IP 67
Ambient temperature	Max. +40°C
Duty rating	Continuous
Media temperature	Max. +90°C

**Ordering BO Coils**
**Conformity certification EX DEMKO 99ATEX 128981X**

Compatibility for Valve type	Power consumption holding	Coil type	Supply voltage	Frequency Hz	Code no.
All B-series valves	10 W 21VA	BO024C	24 ac	50/60	<b>018Z6595</b>
		BO048C	48 ac		<b>018Z6594</b>
		BO110C	110 ac		<b>018Z6593</b>
		BO230C	230 ac		<b>018Z6592</b>
		BO240C	240 ac		<b>018Z6591</b>
	10 W	BO024D	24 dc	dc	<b>018Z6596</b>

	Description	Application	Code no.
	Seal kit	Wet environment	<b>018Z0090</b>

**Dimensions and weight**


**Coils type BP  
Ex mb II T4**



- The coils are suitable for use in installations where flammable liquids and gases are produced, transported or tapped
- Approved for use in Zone 1 according to Directive 94/9/EC (ATEX 100A)  
EN60079 - 0 : 2006  
EN60079 - 18 : 2004  
EN50281 - 1 - 1 : 1998
- Grade of enclosure IP 67
- Supplied with 3 m moulded-in 3-core cable

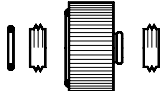
**Technical data**

Voltage tolerance	± 10%
Insulation of coil windings	Class H according to IEC 85
Connection	3 m 3-core cable
Enclosure, IEC 529	IP 67
Ambient temperature	Max. -40°C → +60°C
Duty rating	Continuous
Media temperature	Max. +90°C

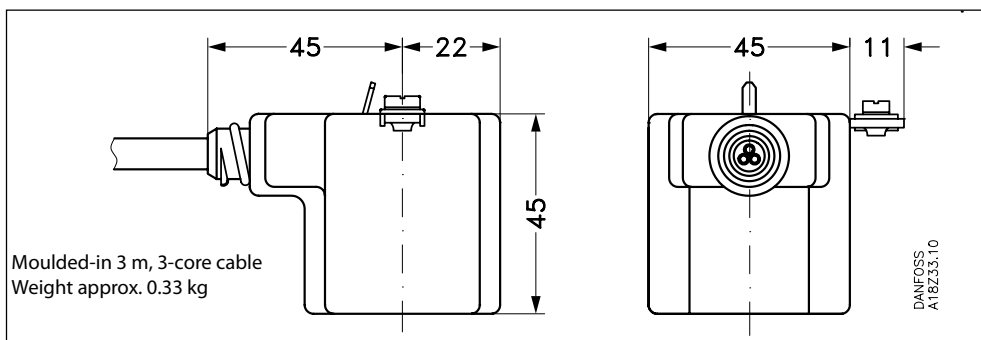
**Ordering BP Coils**

**Conformity certification EX DEMKO 99ATEX 125688X**

Compatibility for Valve type	Power consumption holding	Coil type	Supply voltage	Connection	Code no.
All B-series valves	12 W 12 W 10.5 W	BP024A BP230A BP024D	24 V 50Hz 220V 50Hz 24 V dc	3 m	<b>018Z6643</b> <b>018Z6653</b> <b>018Z6623</b>

	Description	Application	Code no.
	Seal kit	Wet environment	<b>018Z0090</b>

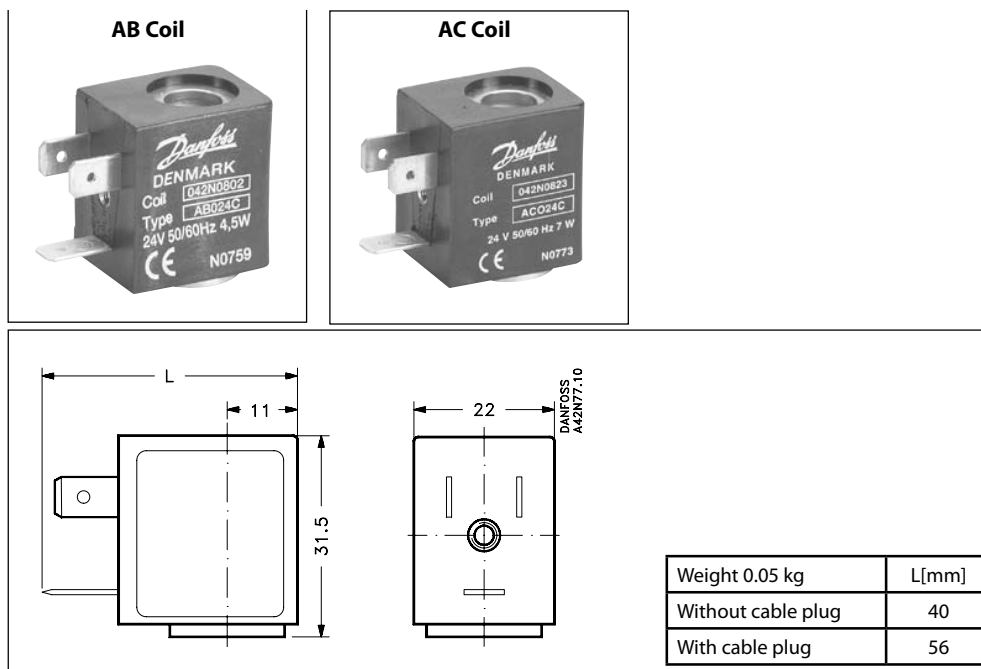
**Dimensions**



**Special requirements:**

The supply must be secured against a too high power consumption in case of a short circuit.




**Coils type AB and AC**

**Technical data**

Design	In accordance with VDE 0580	
Voltage tolerance	± 10%	
Power consumption, cut in	AB	9.5 VA ac coils only
	AC	15.7 VA ac coils only
Insulation of coil windings	Class H according to IEC 85	
Connection	Spade connectors, 6.3 x 0.8 mm	
Enclosure, IEC 529	IP00 with spade connector, IP 65 with cable plug	
Ambient temperature	AB	Max. +50°C
	AC	Max. +50°C
Duty rating	Continuous	

**Ordering AB/AC Coils**

Compatibility for Valve type	Coil type	Power consumption holding	Coil type	Supply voltage	Frequency Hz	Code no.
See data sheets for valves	AB	4.5 W 6.3VA	AB024C	24 ac	50/60	<b>042N0802</b>
			AB110C	110 ac		<b>042N0804</b>
			AB230C	220-230 ac		<b>042N0800</b>
			AB240C	240 ac		<b>042N0801</b>
	AC	5 W	AB012D	12 dc	dc	<b>042N0806</b>
			AB024D	24 dc		<b>042N0803</b>
	AC	7 W 10 VA	AC024C	24 ac	50/60	<b>042N0823</b>
			AC110C	110 ac		<b>042N0825</b>
			AC230C	220-230 ac		<b>042N0821</b>
			AC240C	240 ac		<b>042N0822</b>
		10W	AC024D	24 dc	dc	<b>042N0824</b>

Contact Danfoss for delivery of coils for other voltages

Symbol	Description	Enclosure	Code no.
	Cable plug for 6.3 x 0.8 mm spade connectors	IP65	<b>042N0139<sup>1)</sup></b>

1) Ordering see page 11

**Coils type AK, AL and AM**



**Technical data**

Design	In accordance with VDE 0580	
Voltage tolerance	± 10%	
Power consumption, cut in	AL	10 VA
	AM	22.5 VA ac coils only
Insulation of coil windings	Class H according to IEC 85	
Connection	Spade connector in accordance with DIN 43650 form A	
Enclosure, IEC 529	IP00 with spade connector, IP 65 with cable plug	
Ambient temperature	AL	Max. +50°C
	AM	Max. +50°C
Duty rating	Continuous	

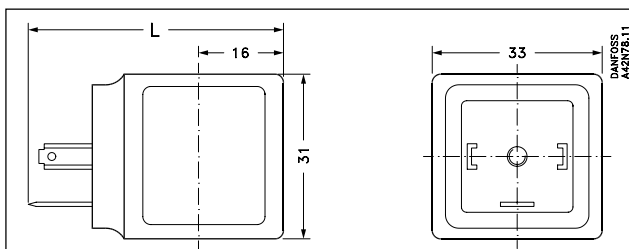
**Ordering AK/AL/AM Coils**

Compatibility for Valve type	Coil type	Power consumption holding	Coil type	Supply voltage	Frequency Hz	Code no.
See data sheets for valves	AM	7.5 W 15 VA	AM024C	24 ac	50/60	<b>042N0842</b>
			AM110C	110 ac		<b>042N0845</b>
			AM230C	220-230 ac		<b>042N0840</b>
			AM240C	240 ac		<b>042N0841</b>
	AM	9.5 W	AM012D	12 dc	dc	<b>042N0848</b>
			AM024D	24 dc		<b>042N0843</b>
	AL	4W	AL230C	230 ac	50/60	<b>042N0864</b>
	AK	3 W	AK024D	24 dc	dc	<b>042N0844</b>

Contact Danfoss for delivery of coils for other voltages

Symbol	Description	Enclosure	Code no.
	Protective cap (pack of 100 pcs.)	IP 20	<b>018Z0282</b>
	Cable plug according to DIN 43650-A PG 11	IP65	<b>042N0156<sup>1)</sup></b>

1) Ordering see page 12

**Dimensions and weight**


Weight 0.10 kg	L[mm]
Without cable plug	48
With protective cap	64
With cable plug	72

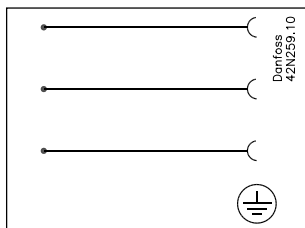
## Features




## Power Connector


- Industrial standard 11 mm
- For use with Danfoss coil type AB and AC
- ac/dc all voltages up to 250 V
- Enclosure: Up to IP65
- Ambient temperature: Up to +80°C

## Technical data

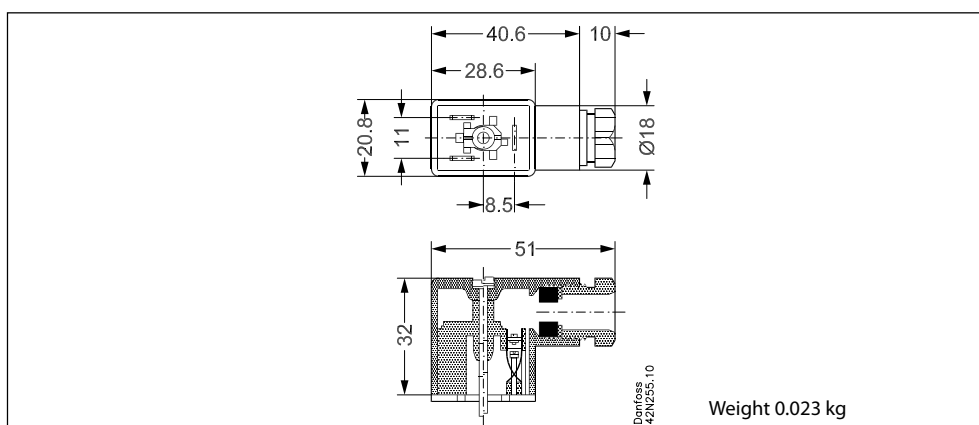


Type	GM 209 N (Black)
Design	DIN 43650-B
Cable gland	PG 9
Poles	2 + I
Max. voltage	250 V ac/dc
Approvals	 US CSA
Protection class	IP65 (IEC 60529)
Max. operating current	16A
Contact resistance	≤ 4m Ω
Cable diameter	4,5 to 7 mm
Wire cross section	Max. 1,5mm <sup>2</sup>
Ambient temperature	-25 to + 80°C
Materials	Contacts: CuZn (Tin plated) Terminal block: PA Flat gasket: NBR Housing: PA

## Ordering

Symbol	Description	Code no.
	Cable plug for 6.3 x 0.8 mm spade connectors Suitable for coil types AB + AC	<b>042N0139</b>

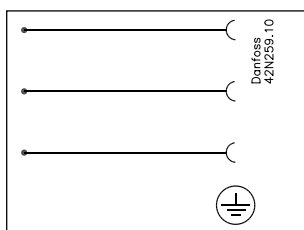
## Dimensions and weight



**Features**


**Power Connector**

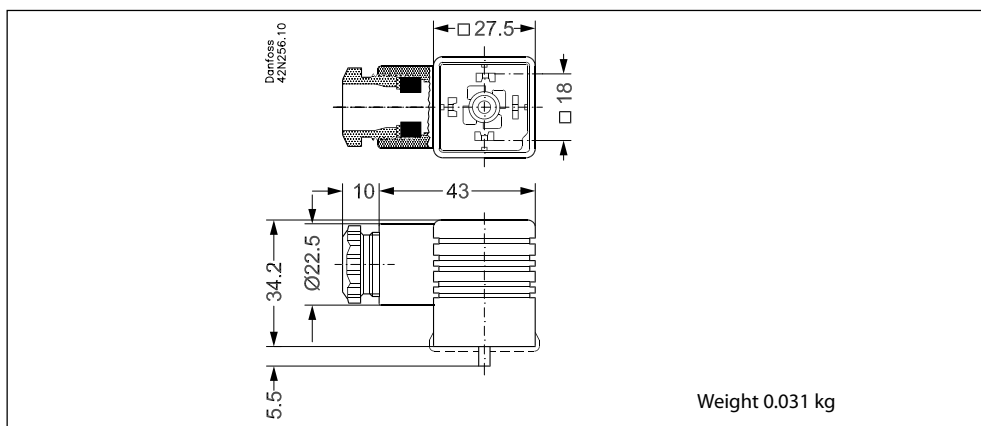
- For use with Danfoss coils type AK, AL, AM, BA, BD and BB
- AC/DC all voltages up to 250 V
- Enclosure: Up to IP65
- Ambient temperature: Up to +125°C

**Technical data**


Type	GDM 2011 J (Grey)
Design	DIN 43650-A
Cable gland	PG 11
Poles	2,3 + PE
Max. voltage	250 V ac/dc
Approvals	UL, CSA
Protection class	IP65 (IEC 60529)
Max. operating current	16A
Contact resistance	≤ 4m Ω
Cable diameter	6 to 9 mm
Wire cross section	Max. 1,5mm <sup>2</sup>
Ambient temperature	-40 to + 125°C
Materials	Contacts: CuSn (Tin plated) Terminal block: PA Profiled gasket: NBR Housing: PA

**Ordering**

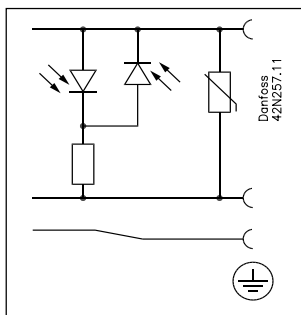
Symbol	Description	Code no.
	Cabel plug according to DIN 43650-A PG 11 Suitable for coil types AK, AL, AM, BA, BD, BB	<b>042N0156</b>

**Dimensions and weight**


**Features**

**Power (LED + Varistor) Indicator Connector**

- For use with Danfoss coils type AK, AL, AM, BA, BD and BB
- 24 V ac/dc and 230 V ac versions
- Enclosure: Up to IP65
- Ambient temperature: Up to +60°C

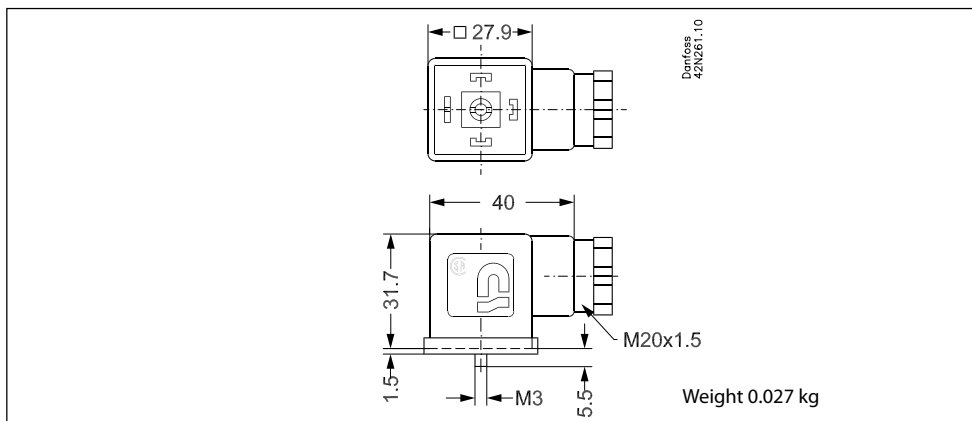
**Technical data**


Design	EN 175301-803 A
Supply voltage tolerance	± 10%
Power consumption	Max. 5 mA
Protection class	IP65 (IEC 60 529)
Max. operating current	1,5A clamping contact
Contact resistance	≤ 4m Ω
Protection against wrong polarity	yes
Cable diameter	6 to 8 mm and 8 to 10 mm
Wire cross section	Max. 1,5mm <sup>2</sup>
Ambient temperature	-25 to + 60°C
Materials	Contacts: CuZn, Cu/Sn-plated Terminal block: PA6 + 30% FG, black Flat gasket: NBR LABS-free Housing (translucent) : PA6 Wire holder: PA6.6 + 50% FG P7,5 black

**Ordering**

Voltage	LED colour	Build in VDR <sup>1)</sup> resistor	Code no.	Suitable for coil types
24 V ac/dc	Red	Yes	<b>042N0263</b>	AK, AL, AM,BA, BD, BB
230 V ac	Red	Yes	<b>042N0265</b>	

<sup>1)</sup>Protects against voltage peaks

**Dimensions and weight**


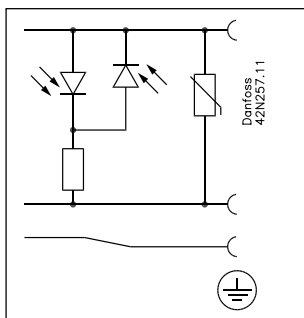
**Features**



**Power (LED + Varistor) Indicator Connector**

- For use with Danfoss coil type AB and AC
- 24 V ac/dc and 230 V ac versions
- Enclosure: Up to IP65
- Ambient temperature: Up to +60°C

**Technical data**



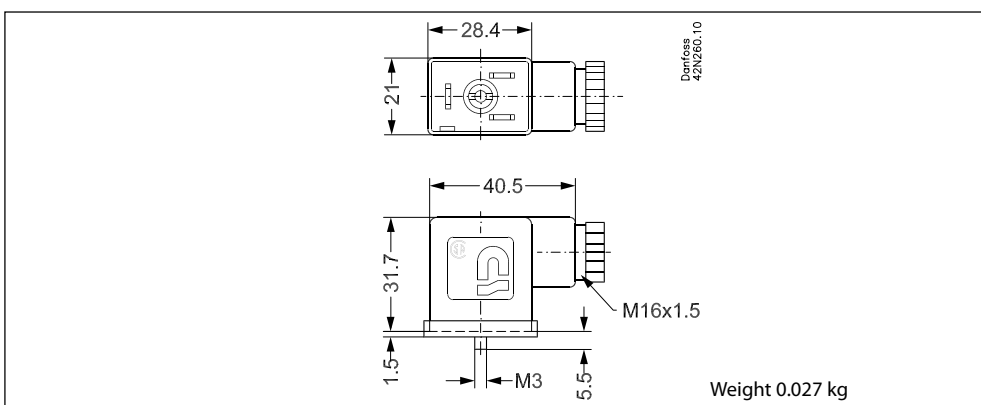
Design	Industrial form
Supply voltage tolerance	± 10%
Power consumption	Max. 5 mA
Protection class	IP65 (IEC 60 529)
Max. operating current	1,5A clamping contact
Contact resistance	≤ 4m Ω
Protection against wrong polarity	yes
Cable diameter	5 to 6 mm and 6 to 9 mm
Wire cross section	Max. 1mm <sup>2</sup>
Ambient temperature	-25 to + 60°C
Materials	Contacts: CuZn, Cu/Sn plated Terminal block: PA6 + 30% FG, black Flat gasket: NBR LABS-free Housing (translucent) : PA6 Wire holder: PA6.6 + 50% FG P7,5 black

**Ordering**

Voltage	LED colour	Build in VDR <sup>1)</sup> resistor	Code no.	Suitable for coil types
24 V ac/dc	Red	Yes	<b>042N0267</b>	AB, AC
230 V ac	Red	Yes	<b>042N0269</b>	

<sup>1)</sup>Protects against voltage peaks

**Dimensions and weight**



## Features



## Universal electronic multi-timer Type ET 20 M

- Outside adjustments
- Light weight and small size
- External adjustable timing from 1 minute to 45 minutes with 1 to 15 seconds drain open
- One solid state timer fits all coil voltages from 24-240V a.c
- Light diodes for indication
- All in one unit
- Manual override (test button).

## Technical data

Type	ET 20 M
Voltage	24-240 Va.c/ 50-60 Hz.
Power rating	Max. 20Watt
Enclosure	IP00, IP65 with cable plug
Electrical connection	DIN connector ( DIN 43650-A)
Ambient operating temperature range	-10°C to +50°C
Function	Start with pulse
Interval timer	0-45 min.
"On" timer	0-15 Sec.

## Ordering

Voltage	<b>Code no.</b>	Suitable for coil types
24-240 Va.c.	<b>042N0185</b>	AK, AL, AM, BA, BD, BB

**Dimensions and weight**

