EMC FILTERS
FOR MAXIMUM SAFETY

- **Meets EMC guidelines**
- **Increases interference protection**
- **Decreases interference emissions**

KEEP IT SAFE – EVEN IN THE CONTROL CABINETS

Mains filters are used to reduce interference without affecting the supply. Murrelektronik's filters decrease incoming interference, which can affect sensitive equipment, and also decrease outgoing interference from the equipment they are connected to, which could damage the mains supply. Typical sources of continuous interference are switch mode power supplies, motors and phase controllers.

These sources are made up of inductive and capacitive components and work the best when their impedance is matched to the source of the interference. In regards to grounding, it's important to have a low impedance. Ideally, the filter should be as close as possible to the point where the cable enters the cabinet. If that's not possible, then shielded cables should be used between the filter and the entry point. Ground straps should be as short as possible and connection surfaces should be free from paint, etc.

Single-phase

MEF 1/1 – one-stage
- Operating voltage: max. 250 V AC/DC, 0...60 Hz
- Nominal current: 10...20 A

Page 1.8.1

MEF 1/2 SY and MEF 1/2 AS – two-stage
- Operating voltage: max. 250 V AC/DC, 0...60 Hz
- Nominal current: 10...16 A

Page 1.8.2

Three-phase

MEF 3/1 N – one-stage
- Operating voltage: max. 3 x 440 V AC
- Nominal current: 3...20 A

Page 1.8.4

MEF 3/1 N HD – one-stage
- Operating voltage: max. 3 x 500 V AC
- Nominal current: 10...135 A

Page 1.8.5

MEF 3/1 and MEF 3/2 – one and two-stage
- Operating voltage: max. 3 x 500 V AC / 3 x 600 V AC
- Nominal current: 8...180 A

Page 1.8.6

MURR ELEKTRONIK
stay connected

1-phase, 1-stage

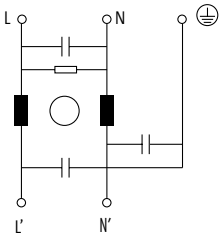
– DIN-rail mountable

Approvals: cULus PCT

MEF 1/1

for universal applications

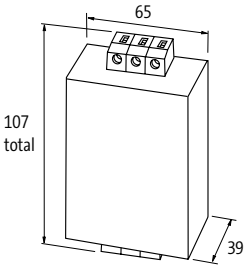
Circuit diagram



Order Data	Art-No.
10 A	**10415**
20 A	**10416**

Technical Data	
Operating voltage	max. 250 V AC/300 V DC
Operating frequency	50...60 Hz
Consumption at 250 V AC	max. 5 mA
Overload current	18 × (IN t) max. 0.5 ms; 1.5 × (IN t) max. 1 min. (1 × per hour)
General data	
Climatic category	25/085/21 (EN 60068-1)
Test isolation voltage	L - N: 2.7 kV DC, 2 s; L - L: 2.1 kV DC, 2 s (EN 60939-2)
Connection	Screw connection, touch protected
Mounting method	DIN-rail mountable TH35 (EN 60715)

Dimension drawing



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Notes

EMC FILTERS

1-phase, 2-stage

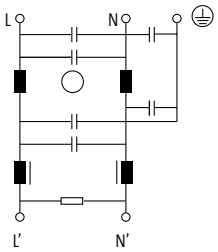
– DIN-rail mountable

Approvals:

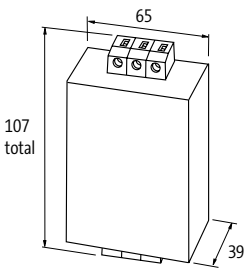
MEF 1/2 SY

against symmetrical interferences

Circuit diagram



Order Data		Art-No.
1 A		**10460**
2 A		**10461**
3 A		**10462**
4 A		**10463**
6 A		**10464**
16 A		**10466**
Technical Data		
Operating voltage	max. 250 V AC/300 V DC	
Operating frequency	50...60 Hz	
Overload current	18 × (IN t) max. 0.5 ms; 1.5 × (IN t) max. 1 min. (1 × per hour)	
Consumption at 250 V AC	max. 5 mA	
General data		
Climatic category	25/085/21 (EN 60068-1)	
Test isolation voltage	L - N: 2.7 kV DC, 2 s; L - L: 2.1 kV DC, 2 s (EN 60939-2)	
Connection	Screw connection, touch protected	
Mounting method	DIN-rail mountable TH35 (EN 60715)	
Description		
Functional description	The single phase 2-stage EMC filters MEF 1/2 are used in the range 0.1...30 MHz to suppress cable carried interference on mains and control cables. The best filter performance is achieved by using short connection wires (suggestion: earth connection < 10 cm) and the largest possible diameter. The EMC filters work bi-directionally (in both directions). The filters are for demanding applications. The filters are designed for use with fixed modules. One step of the filter is always for the suppression of asymmetrical interferences (magnetically compensated suppression). The second step is, dependant on application for symmetrical or asymmetrical interferences.	
Application	symmetrical interferences: units with high repetitions of the switching processes, - switch mode P.S.U.s, - phase angle controller, - supply of universal motors, - behind transformers	
Dimension drawing		



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Notes

MURR ELEKTRONIK
stay connected

1-phase, 2-stage

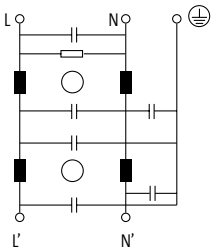
– DIN-rail mountable

Approvals: cULus

MEF 1/2 AS

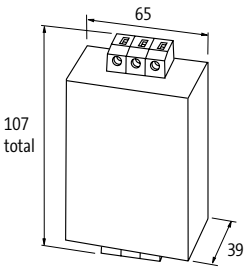
against asymmetrical interferences

Circuit diagram



Order Data		**Art-No.**
3 A		**10470**
6 A		**10471**
10 A		**10472**
Technical Data		
Operating voltage	max. 250 V AC/300 V DC	
Operating frequency	50...60 Hz	
Consumption at 250 V AC	max. 5 mA	
Overload current	18 × (IN t) max. 0.5 ms; 1.5 × (IN t) max. 1 min. (1 × per hour)	
General data		
Climatic category	25/085/21 (EN 60068-1)	
Test isolation voltage	L - N: 2.7 kV DC, 2 s; L - L: 2.1 kV DC, 2 s (EN 60939-2)	
Connection	Screw connection, touch protected	
Mounting method	DIN-rail mountable TH35 (EN 60715)	
Description		
Functional description	The single phase 2-stage EMC filters MEF 1/2 are used in the range 0.1...30 MHz to suppress cable carried interference on mains and control cables. The best filter performance is achieved by using short connection wires (suggestion: earth connection < 10 cm) and the largest possible diameter. The EMC filters work bi-directionally (in both directions). The filters are for demanding applications. The filters are designed for use with fixed modules. One step of the filter is always for the suppression of asymmetrical interferences (magnetically compensated suppression). The second step is, dependant on application for symmetrical or asymmetrical interferences.	
Application	asymmetrical interferences: - units with high switching frequency and repetition, - switch mode P.S.U.s, - in DC mains, - in front of transformers, - for frequency inverters	

Dimension drawing



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Notes

EMC FILTERS

3-phase, 1-stage

– DIN-rail mountable

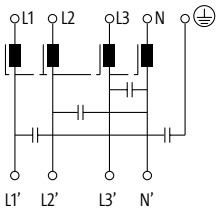
– with neutral

Approvals:

MEF 3/1 N

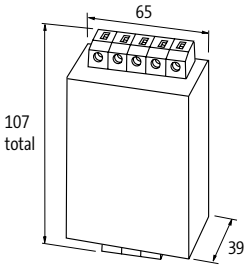
for universal applications

Circuit diagram



Order Data		Art-No.
3 A		**10510**
6 A		**10511**
10 A		**10512**
20 A		**10513**
Technical Data		
Operating voltage	max. 4 × 440 V AC	
Operating frequency	50...60 Hz	
Consumption at 250 V AC	max. 3 mA	
Overload current	18 × (IN t) max. 0.5 ms; 1.5 × (IN t) max. 1 min. (1 × per hour)	
General data		
Climatic category	25/085/21 (EN 60068-1)	
Test isolation voltage	L - N: 2.7 kV DC, 2 s; L - L: 2.1 kV DC, 2 s (EN 60939-2)	
Connection	Screw connection, touch protected	
Mounting method	DIN-rail mountable TH35 (EN 60715)	
Description		
Functional description	The 3-phase and one-stage EMC filters MEF 3/1 are used in the range 0.1...30 MHz and dampen interferences found in cables from the mains, supply units and control systems. They are suitable for TN-S, TN-C-S, and TT networks. The best results are obtained with short connection cables (suggestion: earth connection < 10 cm) of the largest possible cross-section. The EMC filters are bi-directional. They reduce symmetrical and asymmetrical interferences that regularly appear with electronically controlled three phase units through mains influences.	

Dimension drawing



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Notes

MURR ELEKTRONIK
stay connected

3-phase, 1-stage

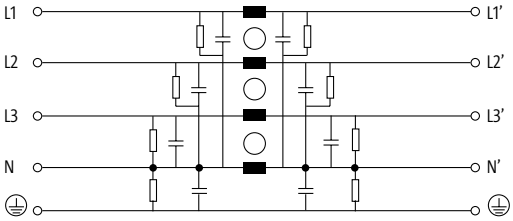
– with neutral

MEF 3/1 N HD

with increased damping

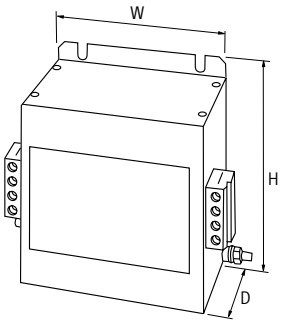
Approvals:

Circuit diagram



Order Data	**H×W×D/kg**	**Art-No.**
10 A	153×130×100/1.0	**10571**
18 A	153×130×100/1.0	**10572**
36 A	153×130×100/1.1	**10574**
72 A	153×118×125/1.6	**10575**
100 A	170×180×140/3.4	**10577**
135 A	170×180×140/4.5	**10578**
Accessories		**Art-No.**
Ground strap 16 mm²		**4000-71001-1620006**
Ground strap 35 mm²		**4000-71001-3520006**
Technical Data		
Operating voltage	max. 3 × 500 V AC	
Operating frequency	50...60 Hz	
Consumption at 250 V AC	max. 15 mA	
Overload current	18 × (IN t) max. 0.5 ms; 1.5 × (IN t) max. 1 min. (1 × per hour)	
General data		
Climatic category	25/085/21 (EN 60068-1)	
Test isolation voltage	L - N: 3.3 kV DC, 2 s; L - L: 3.1 kV DC, 2 s	
Mounting method	screw fixing, M6	
Description		
Functional description	The 3-phase and one-stage EMC filters MEF 3/1 are used in the range 0.1...30 MHz and dampen interferences found in cables from the mains, supply units and control systems. They are suitable for TN-S, TN-C-S, and TT networks. The best results are obtained with short connection cables (suggestion: earth connection < 10 cm) of the largest possible cross-section. The EMC filters are bi-directional. They reduce symmetrical and asymmetrical interferences that regularly appear with electronically controlled three phase units through mains influences.	

Dimension drawing



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Notes

EMC FILTERS

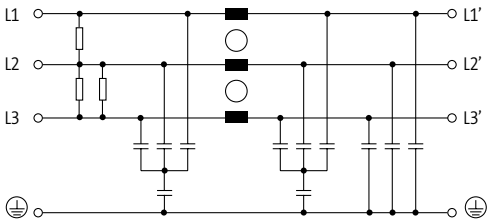
3-phase, 1-stage

– Space saving book form

MEF 3/1

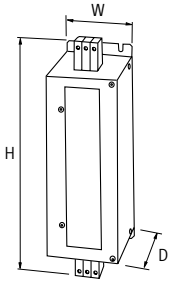
Approvals: cULus

Circuit diagram



Order Data	H×W×D/kg	Art-No.
8 A	250×90×100/1.3 – GOST	**10531**
16 A	250×90×100/1.3 – GOST	**10532**
25 A	250×90×100/1.3 – GOST	**10533**
36 A	250×90×100/1.5	**10534**
50 A	250×90×100/1.7 – GOST	**10535**
80 A	270×85×135/2.2 – GOST	**10537**
110 A	270×90×150/3.2 – GOST	**10538**
180 A	380×120×170/5.1 – GOST	**10539**
Accessories		**Art-No.**
Ground strap 16 mm²		**4000-71001-1620006**
Ground strap 35 mm²		**4000-71001-3520006**
Technical Data		
Operating voltage	max. 3 × 600 V AC	
Operating frequency	50...60 Hz	
Overload current	18 × (IN t) max. 0.5 ms; 1.5 × (IN t) max. 1 min. (1 × per hour)	
Consumption at 250 V AC	max. 10 mA	
General data		
Climatic category	25/085/21 (EN 60068-1)	
Test isolation voltage	L - N: 3.3 kV DC, 2 s; L - L: 3.1 kV DC, 2 s	
Connection	Screw connection, touch protected	
Mounting method	screw fixing	
Description		
Functional description	The 3-phase and 1-/2-stage EMC filters MEF 3/1-3/2 are used in the range 0.1...30 MHz and dampen interferences found in cables from the mains, supply units and control systems. They are suitable for TN-C- and IT mains. The best results are obtained with short connection cables (suggestion: earth connection < 10 cm) of the largest possible cross-section. The EMC filters are bi-directional. They reduce symmetrical and asymmetrical interferences that often occur with frequency converters and switch mode power supplies.	

Dimension drawing



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Notes

MURR ELEKTRONIK
stay connected

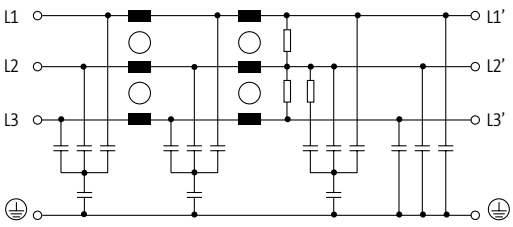
3-phase, 2-stage

– Space saving book form

MEF 3/2

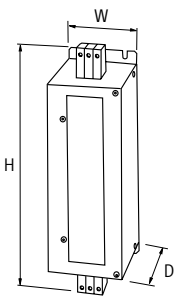
Approvals:

Circuit diagram



Order Data	H×W×D/kg	Art-No.
8 A	226×50×140/1.7	**10550**
12 A	226×50×140/1.7	**10551**
16 A	226×50×140/1.7	**10552**
25 A	226×50×140/1.7	**10553**
36 A	226×50×140/1.7	**10554**
50 A	295×70×177/3.7	**10555**
80 A	295×70×177/5.1	**10556**
Accessories		**Art-No.**
Ground strap 16 mm²		**4000-71001-1620006**
Ground strap 35 mm²		**4000-71001-3520006**
Technical Data		
Operating voltage	max. 3 × 500 V AC	
Operating frequency	50...60 Hz	
Overload current	18 × (IN t) max. 0.5 ms; 1.5 × (IN t) max. 1 min. (1 × per hour)	
Consumption at 250 V AC	max. 15 mA	
General data		
Climatic category	25/085/21 (EN 60068-1)	
Test isolation voltage	L - N: 3.3 kV DC, 2 s; L - L: 3.1 kV DC, 2 s	
Connection	Screw connection, touch protected	
Mounting method	screw fixing	
Description		
Functional description	The 3-phase and 1-/2-stage EMC filters MEF 3/1-3/2 are used in the range 0.1...30 MHz and dampen interferences found in cables from the mains, supply units and control systems. They are suitable for TN-C- and IT mains. The best results are obtained with short connection cables (suggestion: earth connection < 10 cm) of the largest possible cross-section. The EMC filters are bi-directional. They reduce symmetrical and asymmetrical interferences that often occur with frequency converters and switch mode power supplies.	

Dimension drawing



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Notes