

Current-compensated Chokes



- | Rated currents from 16 to 50A
- | Up to 600VAC or 1000VDC
- | 2- and 3-wire configurations
- | Horizontal and vertical PCB mounting types
- | Ruggedized saturation and thermal behavior
- | Open construction for forced and convection cooling
- | Straightforward pin-out for easy PCB design

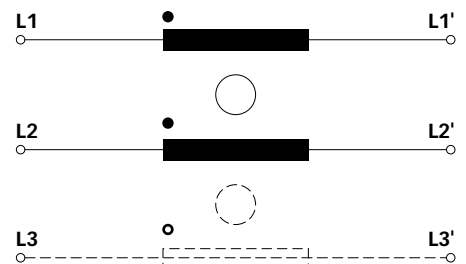
Approvals

RoHS

Technical specifications

| | |
|--|---|
| Maximum continuous operating voltage: | 600VAC / 1000VDC |
| Operating frequency: | DC to 400Hz |
| Rated currents: | 16 to 50A @ 60°C max. convection cooling |
| High potential test voltage winding-to-winding @ 25°C: | 2500VAC, 60 sec, guaranteed, 2 sec factory test |
| Temperature range (operation and storage): | -40°C to +125°C (40/125/21) |
| Flammability corresponding to: | UL 94V-0 |
| Cooling: | convection/forced cooling |
| MTBF @ 40°C / 230V (Mil-HB-217F): | > 5,000,000 hours |

Typical electrical schematic



RB common-mode chokes are mainly used to filter EMI noise on AC power lines up to 600VAC but they are as well applicable in DC power lines of photovoltaic installations or similar applications up to 1000VDC.

EMI noise of electronic equipment can go to the power lines and disturb the proper function of other devices like TV sets or radios.

Thus noise generated by the equipment from switched power electronics or by high slew rates of controllers needs to be filtered.

RB common-mode chokes are used to suppress EMI noise in PCB integrated filter designs with line bypass capacitors or in combination with single phase filters for extra low leakage filter designs.

Features and benefits

- | Cost-effective PCB designs for up to 80A with forced cooling*
- | Compact size and light weight
- | Low magnetic leakage flux
- | Excellent winding insulation
- | Standardized foot print
- | Broad range of inductance ratings
- | Custom-specific versions on request

* See Application Note for forced cooling

Typical applications

- | AC and DC filtering for midsize power range drives, photovoltaic inverters, fast chargers, charging stations, UPS and switch mode power supplies
- | Filter with low leakage current noise or improved immunity against grid disturbances
- | Electronic devices, automation
- | Converters

RB Series

| Selection table | convection cooling nominal current @60° C | *forced cooling 3m/s nominal current @60° C | Inductance L @25°C | Resistance R @25°C | Choke | Ø Pin | Length Pin | Weight |
|-----------------|---|---|--------------------|--------------------|--------|---------|------------|--------|
| | [A] | [A] | [mH/path] | [mΩ/path] | [size] | D [mm] | L [mm] | |
| RB6122-16-1M0 | 16 | 25 | 1.00 | 4.8 | 1 | 2.0±0.1 | 4.5±0.5 | 130 |
| RB6122-25-0M6 | 25 | 39 | 0.64 | 2.7 | 1 | 2.4±0.1 | 4.5±0.5 | 135 |
| RB6122-36-0M5 | 36 | 53 | 0.45 | 1.5 | 2 | 2.2±0.1 | 4.5±0.5 | 180 |
| RB6122-50-0M3 | 50 | 80 | 0.25 | 0.9 | 2 | 2.5±0.1 | 5.0±0.5 | 172 |
| RB6522-16-1M0 | 16 | 25 | 1.00 | 4.6 | 3 | 2.0±0.1 | 4.5±0.5 | 132 |
| RB6522-25-0M6 | 25 | 39 | 0.64 | 2.6 | 3 | 2.4±0.1 | 4.5±0.5 | 126 |
| RB6522-36-0M5 | 36 | 53 | 0.45 | 1.5 | 4 | 2.2±0.1 | 4.5±0.5 | 180 |
| RB6522-50-0M3 | 50 | 80 | 0.25 | 0.9 | 4 | 2.5±0.1 | 5.0±0.5 | 175 |
| RB8522-16-3M0 | 16 | 25 | 3.00 | 8.4 | 4 | 2.0±0.1 | 4.5±0.5 | 172 |
| RB8522-25-2M0 | 25 | 39 | 2.00 | 4.2 | 5 | 2.6±0.1 | 5.0±0.5 | 268 |
| RB8522-36-1M5 | 36 | 58 | 1.50 | 3.0 | 6 | 2.2±0.1 | 4.5±0.5 | 440 |
| RB8522-50-0M8 | 50 | 83 | 0.75 | 1.7 | 6 | 2.5±0.1 | 5.0±0.5 | 430 |
| RB6132-16-0M8 | 16 | 26.5 | 0.80 | 4.6 | 7 | 2.0±0.1 | 4.5±0.5 | 162 |
| RB6132-25-0M5 | 25 | 41 | 0.47 | 2.4 | 7 | 2.5±0.1 | 5.0±0.5 | 175 |
| RB6132-36-0M4 | 36 | 60 | 0.42 | 1.4 | 8 | 2.2±0.1 | 4.5±0.5 | 278 |
| RB6132-50-0M2 | 50 | 81 | 0.18 | 0.9 | 8 | 2.5±0.1 | 5.0±0.5 | 264 |
| RB6532-16-0M8 | 16 | 26.5 | 0.80 | 4.7 | 9 | 2.0±0.1 | 4.5±0.5 | 165 |
| RB6532-25-0M5 | 25 | 41 | 0.47 | 2.4 | 9 | 2.5±0.1 | 5.0±0.5 | 180 |
| RB6532-36-0M4 | 36 | 60 | 0.42 | 1.5 | 10 | 2.2±0.1 | 4.5±0.5 | 280 |
| RB6532-50-0M2 | 50 | 81 | 0.18 | 0.8 | 10 | 2.5±0.1 | 5.0±0.5 | 268 |
| RB8532-16-1M3 | 16 | 27 | 1.30 | 5.7 | 9 | 2.0±0.1 | 4.5±0.5 | 176 |
| RB8532-25-0M9 | 25 | 41 | 0.94 | 3.0 | 11 | 2.6±0.1 | 5.0±0.5 | 282 |
| RB8532-36-0M8 | 36 | 58 | 0.83 | 2.3 | 12 | 2.2±0.1 | 4.5±0.5 | 478 |
| RB8532-50-0M3 | 50 | 82 | 0.33 | 1.2 | 12 | 2.5±0.1 | 5.0±0.5 | 442 |

Test conditions:

Measuring frequency: 1kHz; 500µA > 0.16mH < 1.6mH; 50µA > 1.6mH < 160mH

Inductance tolerance: +50%, -30%

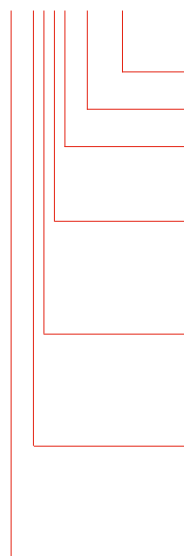
Resistance tolerance: max. ±15% @ 25°C; < 20mΩ 1A

Electrical characteristics @ 25°C: ±2°C

* typical current for forced cooling with 3m/s. Due to the possible turbulences and degradation of the air stream within an equipment please consider thermal validation.

Order Code:

RB xxxx-xx-xmx



Inductance value (e.g. 9M6 = 9.6 mH)

Nominal input current [A] (convection cooling)

Terminal type (2 for PCB pin)

2 = 2-wire choke

3 = 3-wire choke

1 = Horizontal

5 = Vertical

8 = high inductance series

6 = low inductance series

Schaffner standard ring-core choke series RB

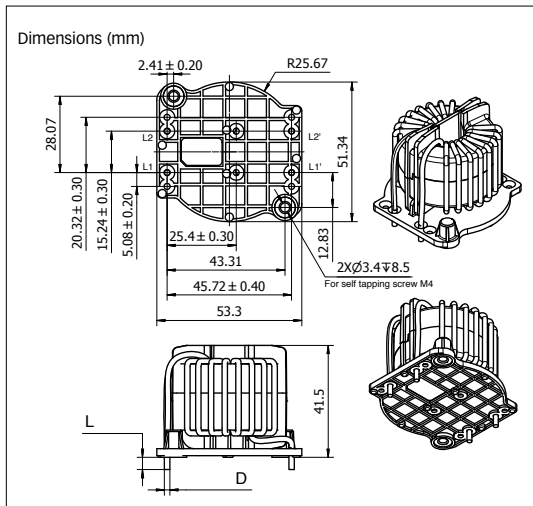
Examples:

RB8532-16-1M3: Vertical 3-wire high inductance choke with PCB pins, for 16A, with 1.3mH

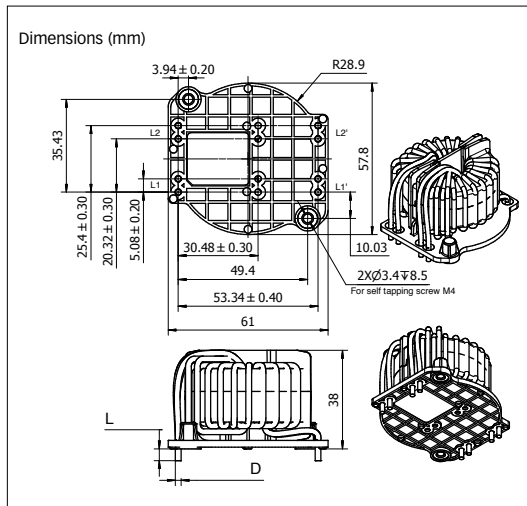
RB6122-50-0M3: Horizontal 2-wire low inductance choke with PCB pins, for 50A, with 0.3mH

1-phase /DC chokes

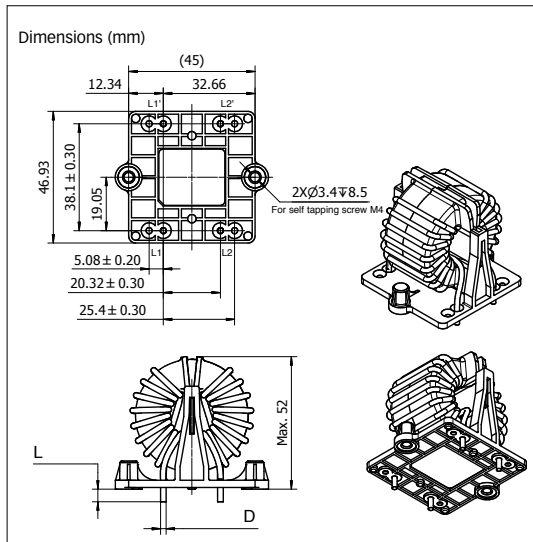
Size 1 (RB6122)



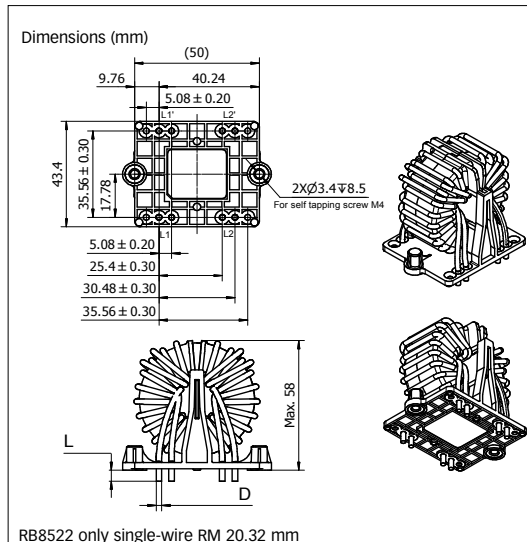
Size 2 (RB6122)



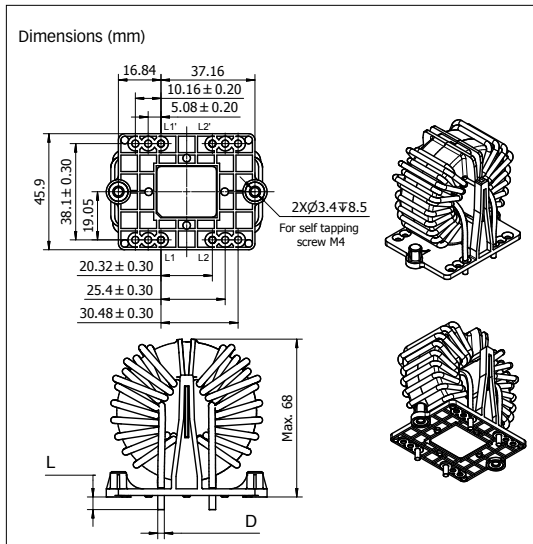
Size 3 (RB6522)



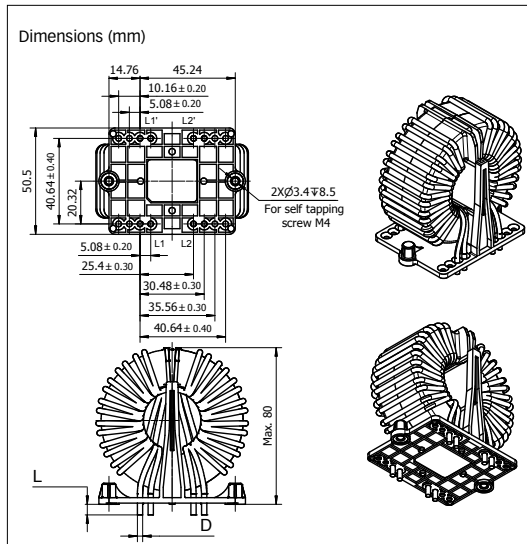
Size 4 (RB6522/RB8522)



Size 5 (RB8522)

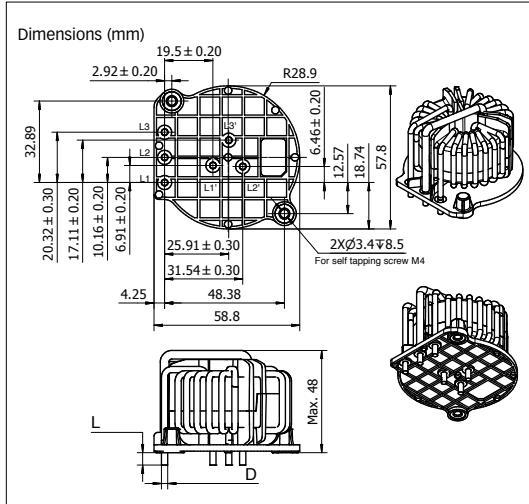


Size 6 (RB8522)

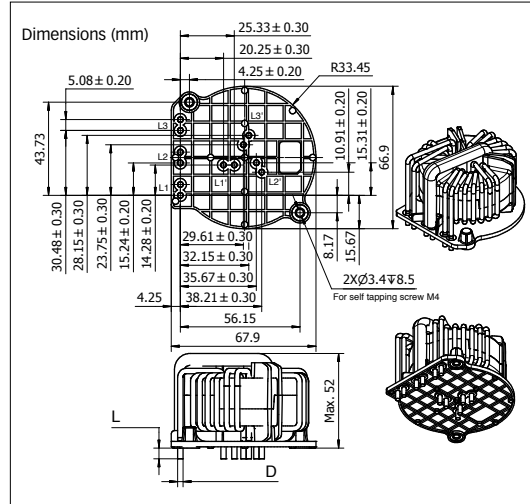


3-phase chokes

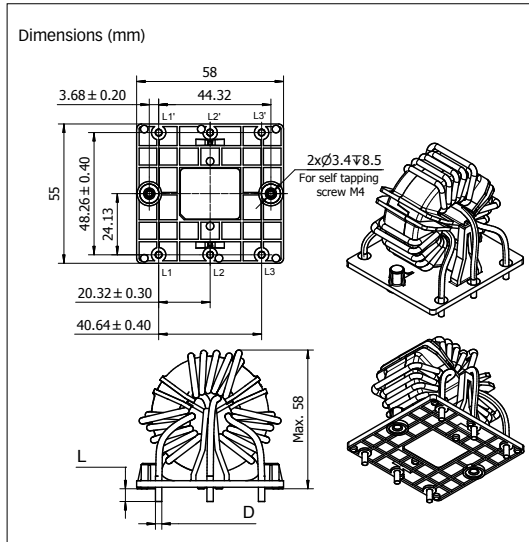
Size 7 (RB6132)



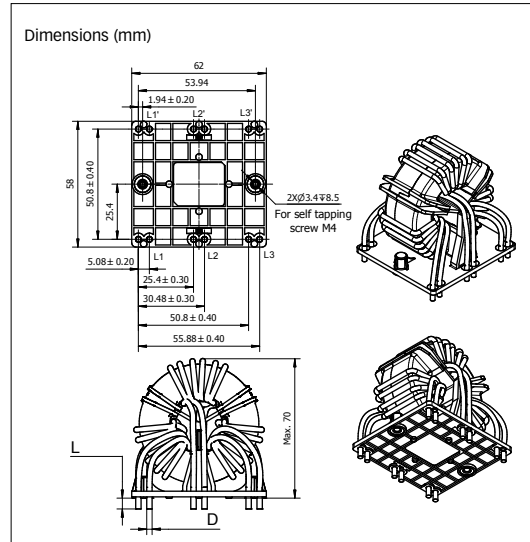
Size 8 (RB6132)



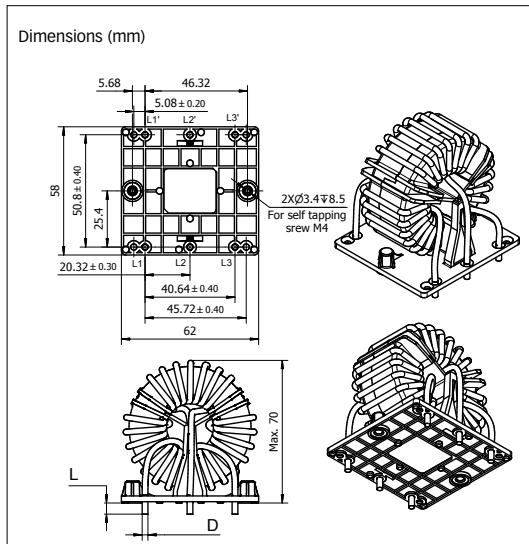
Size 9 (RB6532/RB8532)



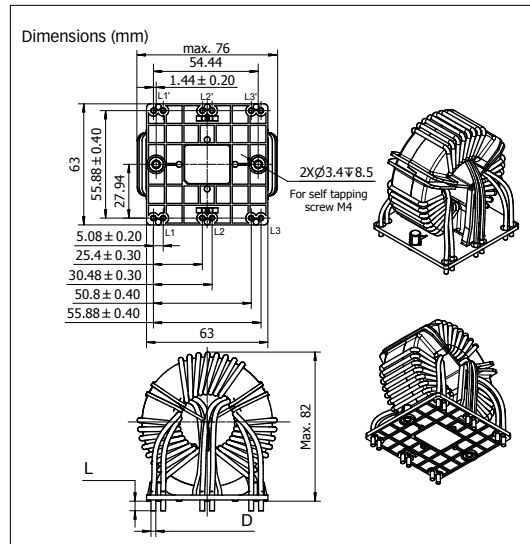
Size 10 (RB6532)



Size 11 (RB8532)



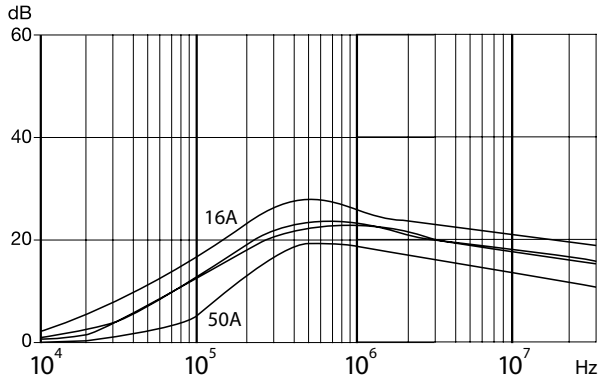
Size 12 (RB8532)



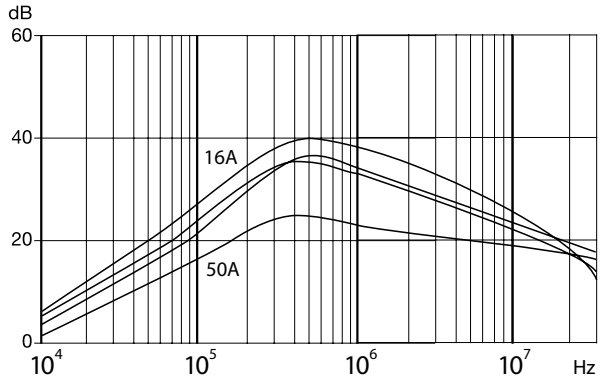
Typical choke attenuation/resonance frequency characteristics

Per CISPR 17; 50Ω/50Ω asym

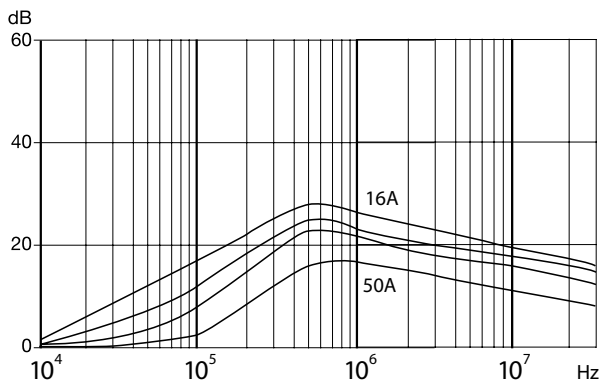
RB6122, RB6522



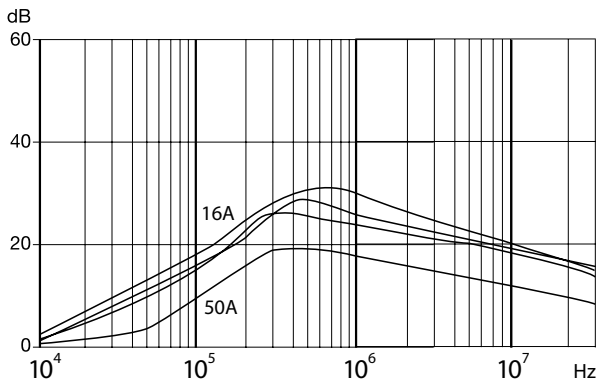
RB8522



RB6132, RB6532



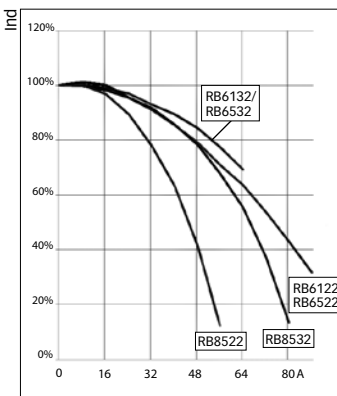
RB8532



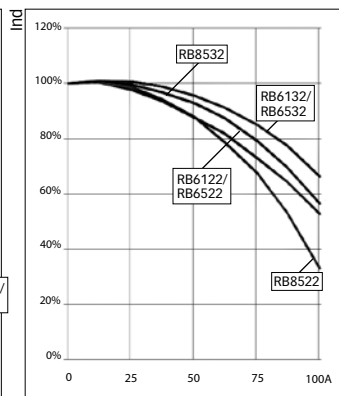
Typical saturation characteristics

Inductance (typical value in %) vs. nominal current (A DC)

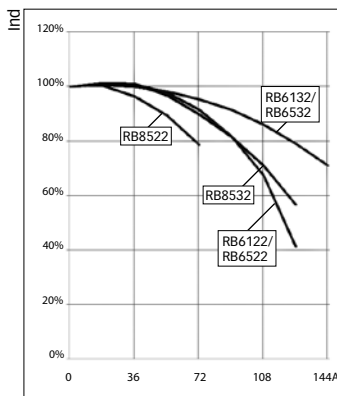
16A



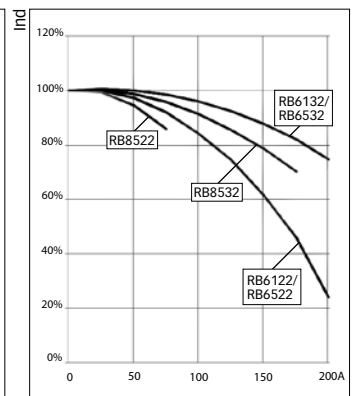
25A



36A



50A



**Headquarters and
global innovation and
development center**

Schaffner Group
Nordstrasse 11
4542 Luterbach
Switzerland
T +41 32 681 66 26
F +41 32 681 66 30
info@schaffner.ch
www.schaffner.com

Sales and application centers

China
Schaffner EMC Ltd. Shanghai
T20-3, No 565 Chuangye Road
Pudong New Area
Shanghai 201201/China
T +86 21 3813 9500
F +86 21 3813 9501/02
cchina@schaffner.com
www.schaffner.com

Finland
Schaffner Oy
Tynninkuja 7
08700 Lohja
T +358 19 35 72 71
F +358 19 32 66 10
finlandsales@schaffner.com

France
Schaffner EMC S.A.S.
112, Quai de Bezons
95103 Argenteuil
T +33 1 34 34 30 60
F +33 1 39 47 02 28
francesales@schaffner.com

Germany
Schaffner Deutschland GmbH
Schoemperlenstrasse 12B
76185 Karlsruhe
T +49 721 56910
F +49 721 569110
germanysales@schaffner.com

Italy
Schaffner EMC S.r.l.
Via Galileo Galilei, 47
20092 Cinisello Balsamo (MI)
T +39 02 66 04 30 45/47
F +39 02 61 23 943
italysales@schaffner.com

Japan
Schaffner EMC K.K.
Mitsui-Seimei Sangenjaya Bldg. 7F
1-32-12, Kamiiuma, Setagaya-ku
Tokyo 154-0011
T +81 3 5712 3650
F +81 3 5712 3651
japansales@schaffner.com
www.schaffner.jp

Singapore
Schaffner EMC Pte Ltd.
Blk 3015A Ubi Road 1
05-09 Kampong Ubi Industrial
Estate
T +65 6377 3283
F +65 6377 3281
singaporesales@schaffner.com

Spain
Schaffner EMC España
Calle Caléndula 93,
Miniparc III, Edificio E
El Soto de la Moraleja,
Alcobendas
28109 Madrid
T +34 618 176 133
spainsales@schaffner.com

Sweden
Schaffner EMC AB
Turebergstorg 1, 6
19147 Sollentuna
T +46 8 5792 1121/22
F +46 8 92 96 90
swedensales@schaffner.com

Switzerland
Schaffner EMV AG
Nordstrasse 11
4542 Luterbach
T +41 32 681 66 26
F +41 32 681 66 41
sales@schaffner.ch

Taiwan
Schaffner EMV Ltd.
6th Floor, No 413
Rui Guang Road
Neihu District
Taipei City 114
T +886 2 87525050
F +886 2 87518086
taiwansales@schaffner.com

Thailand
Schaffner EMC Co. Ltd.
Northern Region Industrial Estate
67 Moo 4 Tambon Ban Klang
Amphur Muang P.O. Box 14
Lamphun 51000
T +66 53 58 11 04
F +66 53 58 10 19
thailandsales@schaffner.com

UK
Schaffner Ltd.
5 Ashville Way
Molly Millars Lane
Wokingham
Berkshire RG41 2PL
T +44 118 9770070
F +44 118 9792969
uksales@schaffner.com
www.schaffner.uk.com

USA
Schaffner EMC Inc.
52 Mayfield Avenue
Edison, New Jersey 08837
T +1 732 225 9533
F +1 732 225 4789
usasales@schaffner.com
www.schaffner.com/us

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February 2012

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