

Application

Shunts provide an accurate DC millivolt signal to drive ammeter indicators, overload protection and control devices, especially for higher amperage. They supply a voltage drop proportional to the DC current which is measured and indicated by a moving-coil meter with the dial calibrated in amps.

In accordance with DIN standard 43 703 shunts are available from 1 A up to 15,000 A with an accuracy of 0.5%. Standard voltage drop is 60 mV or 150 mV. Intermediate current ratings, other voltage outputs, better accuracy and purpose-built shunts can be supplied.

Shunts are manufactured in three different format versions depending on current ratings.

Operating Principle

The current passing through the shunt produces a proportional voltage drop. A moving coil instrument connected to the shunt measures the voltage drop across the shunt terminals.

Shunts are calibrated in such a way that they produce an accurately defined voltage drop (60 mV, 150 mV or other).

General Data

format version A	insulating base mounted shunts clamping to DIN mounting rail or wall mounting (up to 25 A / 60, 100, 150 or 300 mV); without insulating base (30 ... 150 A) \blacktriangleright
format version B	L-profile end blocks
format version C	T-profile end blocks
material	
resistance bars	manganin
end blocks	
format version A	high conductivity brass
format version B	high conductivity brass/solid copper
format version C	solid copper
base material	Lexan, black
format version A	self-extinguishing to UL rating 94 V-0
connections	thread screws
current	please refer to "Dimensions"
voltage	M5x8
mounting	screw mounting (M8 max.) or clamping to DIN mounting rail
format version A	(to DIN EN 50 022 - 35)
enclosure code	IP 00
dimensions	please refer to "Dimensions"
weight	please refer to table below
rated current \blacktriangleright	weight approx. for rated voltage drop \blacktriangleright
	60 mV 100 mV¹⁾ 150 mV 300 mV¹⁾

1 A	0.12 kg	0.12 kg	0.12 kg	0.14 kg
1.5 A	0.13 kg	0.12 kg	0.12 kg	0.14 kg
2 A ^{1) 2)}	0.13 kg	0.12 kg	0.12 kg	0.14 kg
2.5 A	0.12 kg	0.12 kg	0.12 kg	0.14 kg
3 A ^{1) 2)}	0.12 kg	0.12 kg	0.12 kg	0.14 kg
4 A	0.13 kg	0.12 kg	0.12 kg	0.14 kg
5 A ^{1) 2)}	0.12 kg	0.12 kg	0.12 kg	0.14 kg
6 A	0.12 kg	0.12 kg	0.13 kg	0.14 kg
8 A ^{1) 2)}	0.13 kg	0.13 kg	0.13 kg	0.15 kg
10 A	0.13 kg	0.13 kg	0.13 kg	0.15 kg
12 A ^{1) 2)}	0.13 kg	0.13 kg	0.13 kg	0.15 kg
15 A	0.13 kg	0.13 kg	0.13 kg	0.15 kg
20 A ^{1) 2)}	0.13 kg	0.14 kg	0.14 kg	0.16 kg
25 A	0.13 kg	0.14 kg	0.14 kg	0.16 kg
30 A ^{1) 2)}	0.12 kg	0.13 kg	0.15 kg	0.20 kg
40 A	0.12 kg	0.14 kg	0.16 kg	0.20 kg
50 A ^{1) 2)}	0.12 kg	0.14 kg	0.16 kg	0.20 kg

rated current \blacktriangleright	weight approx. for rated voltage drop \blacktriangleright			
	60 mV	100 mV¹⁾	150 mV	300 mV¹⁾
60 A	0.12 kg	0.14 kg	0.17 kg	0.20 kg
80 A ^{1) 2)}	0.12 kg	0.15 kg	0.18 kg	0.20 kg
100 A	0.12 kg	0.17 kg	0.20 kg	0.25 kg
150 A	0.13 kg	0.20 kg	0.23 kg	0.30 kg
200 A ^{1) 2)}	0.61 kg	0.65 kg	0.68 kg	0.80 kg
250 A	0.61 kg	0.65 kg	0.68 kg	0.80 kg
300 A ^{1) 2)}	0.61 kg	0.68 kg	0.72 kg	0.90 kg
400 A	0.83 kg	1.00 kg	1.05 kg	1.30 kg
500 A ^{1) 2)}	0.83 kg	1.10 kg	1.15 kg	1.40 kg
600 A	0.85 kg	1.11 kg	1.16 kg	1.60 kg
800 A ^{1) 3)}	0.90 kg	1.12 kg	1.30 kg	1.80 kg
1,000 A	1.45 kg	2.00 kg	2.15 kg	2.80 kg
1,200 A ^{1) 2)}	1.45 kg	2.10 kg	2.25 kg	3.10 kg
1,500 A	1.96 kg	2.50 kg	3.10 kg	3.70 kg
2,000 A ¹⁾	2.30 kg ³⁾	2.80 kg ³⁾	5.10 kg ²⁾	6.40 kg ²⁾
2,500 A	2.90 kg	3.20 kg	5.20 kg	6.00 kg
3,000 A ¹⁾	3.00 kg ³⁾	3.50 kg ³⁾	9.80 kg ²⁾	11.7 kg ²⁾
4,000 A	4.25 kg	5.80 kg	10.5 kg	13.1 kg
5,000 A ¹⁾	4.30 kg ³⁾	7.30 kg ³⁾	13.4 kg ²⁾	16.8 kg ²⁾
6,000 A	10.5 kg	12.0 kg	15.0 kg	17.7 kg
8,000 A ¹⁾	12.0 kg ³⁾	—	25.4 kg ²⁾	—
10,000 A	21.0 kg	—	28.0 kg	—
15,000 A	32.0 kg	—	—	—
20,000 A ¹⁾	44.0 kg	—	—	—

¹⁾ ratings deviating from DIN standard

²⁾ dimensions equal to next higher current rating

³⁾ dimensions equal to next lower current rating

overload range (according to DIN EN 60 051)

continuously 1.2 times rated current

5 s max. \leq 2,000 A 5 times rated current

$>$ 2,000 ... 10,000 A 2 times rated current

Accuracy at Reference Conditions

accuracy class 0.5 \blacktriangleright

reference conditions

ambient temperature 23°C \pm 1K

Environmental

climatic suitability climatic class 3 acc. to VDE/VDI 3540

operating temperature range -10 ... +55°C

temperature range

storage temperature range -25 ... +65°C

temperature range

relative humidity \leq 75% annual average, non-condensing

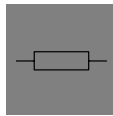
Rules and Standards

DIN 43 703	Shunts
DIN EN 60 051	direct acting indicating electrical measuring instruments and their accessories
DIN EN 50 022-35	mounting rails

Options

rated voltage drop	on request
rated current	on request
accuracy	class 0.2
insulating base	suitable for shunts 30 ... 150 A / 60 mV others on request
purpose built shunts	on request

\blacktriangleright for other ratings refer to "Options"



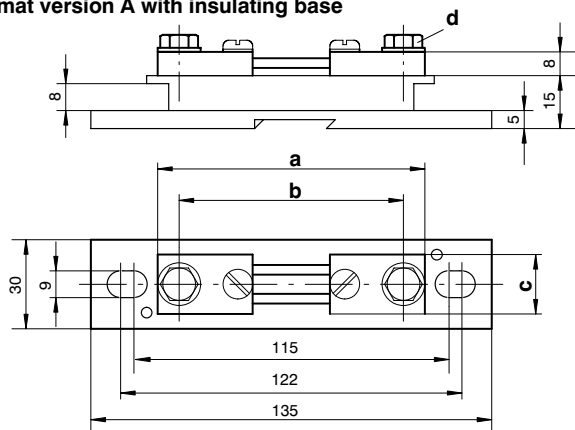
Shunts Class 0.5

Accessory

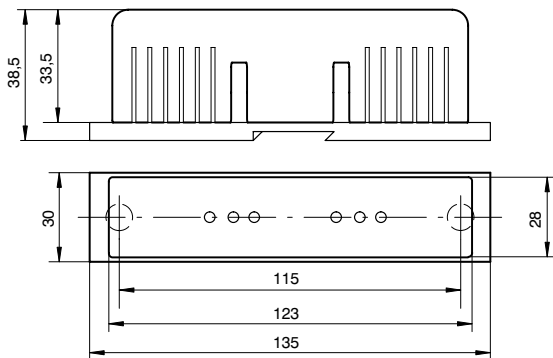
cover for shunts with insulating base
1 ... 25 A / 60 mV – 100 mV – 150 mV
30 ... 150 A / 60 mV

Dimensions

format version A with insulating base

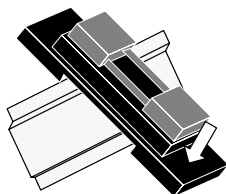


format version A with insulating base and cover

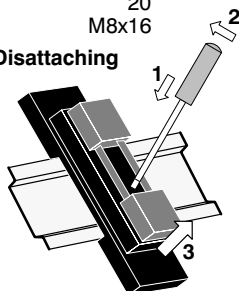


rated voltage drop	60 ... 300 mV	60 mV
dimensions (in mm)	1 ... 25 A	30 ... 150 A
a	90	100
b	78	80
c	20	20
d	M5x12	M8x16

Attaching



Disattaching

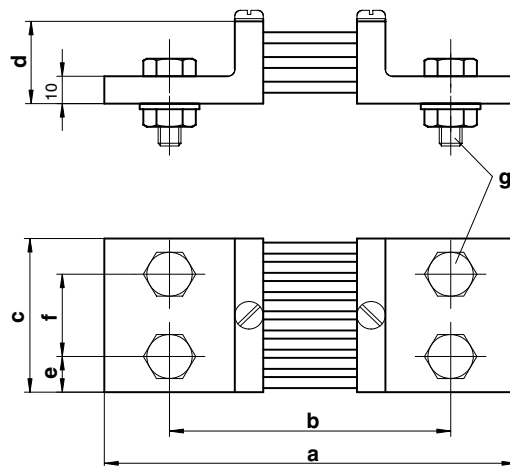


format version A without insulating base

rated voltage drop	100 mV	150 mV	300 mV
dimensions (in mm)	30 ... 150 A	30 ... 150 A	30 ... 150 A
a	145	225	384
b	125	205	364
c	25	25	25
d	M8x16	M8x16	M8x16

Dimensions

format version B



rated voltage drop 60 mV

dimensions (in mm)	200 A 250 A	400 A 600 A	1.000 A	1.500 A	2.500 A
a	145	145	165	165	165
b	105	105	115	115	115
c	30	40	60	90	120
d	30	30	30	30	30
e	15	20	30	21	30
f	–	–	–	48	60
g	M12x40	M16x45	M20x50	M16x45	M20x50
number of current connections	2x 1	2x 1	2x 1	2x 2	2x 2

rated voltage drop 100 mV

a	190	190	210	210
b	150	150	160	160
c	30	40	60	120
d	30	30	30	30
e	15	20	30	30
f	–	–	–	60
g	M12x40	M16x45	M20x50	M20x50
number of current connections	2x 1	2x 1	2x 1	2x 2

rated voltage drop 150 mV

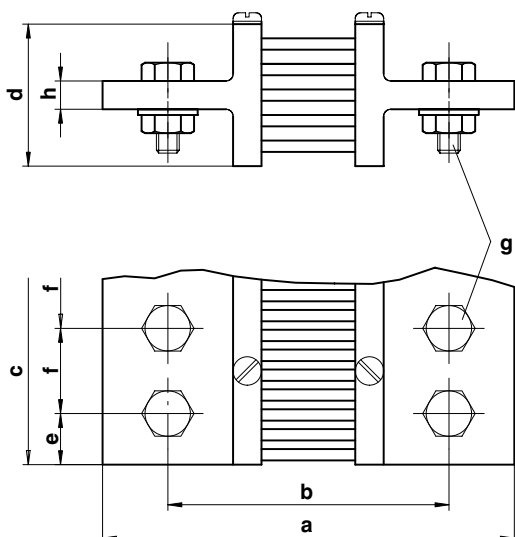
a	270	270	290
b	230	230	240
c	30	40	70
d	50	50	60
e	15	20	35
g	M12x40	M16x45	M20x50
number of current connections	2x 1	2x 1	2x 1

rated voltage drop 300 mV

a	429	429	449
b	389	389	399
c	30	40	70
d	50	50	60
e	15	20	35
g	M12x40	M16x45	M20x50
number of current connections	2x 1	2x 1	2x 1

Dimensions

format version C



rated voltage drop 60 mV

dimensions (in mm)	4.000 A	6.000 A	10.000 A	15.000A	20.000A
a	165	175	185	185	185
b	115	125	135	135	135
c	120	154	206	310	362
d	60	130	170	170	170
e	30	25	25	25	25
f	60	52	52	52	52
g	M20x50	M20x75	M20x80	M20x80	M20x80
h	15	25	30	30	30
number of current connections	2x 2	2x 3	2x 4	2x 6	2x 7

rated voltage drop 100 mV

dimensions (in mm)	2,500 A	4,000 A	6,000 A
a	210	220	220
b	160	170	170
c	120	120	154
d	60	130	130
e	30	30	25
f	60	60	52
g	M20x50	M20x50	M20x75
h	15	25	25
number of current connections	2x 2	2x 2	2x 3

rated voltage drop 150 mV

dimensions (in mm)	1,500 A	2,500 A	4,000 A	6,000 A	10,000A
a	290	290	300	300	310
b	240	240	250	250	260
c	90	120	120	154	206
d	60	60	130	130	170
e	21	30	30	25	25
f	48	60	60	52	52
g	M16x60	M20x60	M20x75	M20x75	M20x80
h	15	15	25	25	30
number of current connections	2x 2	2x 2	2x 2	2x 3	2x 4

rated voltage drop 300 mV

dimensions (in mm)	1,500 A	2,500 A	4,000 A	6,000 A
a	449	449	459	459
b	399	399	409	409
c	90	120	120	154
d	60	60	130	130
e	21	30	30	25
f	48	60	60	52
g	M16x60	M20x60	M20x75	M20x75
h	15	15	25	25
number of current connections	2x 2	2x 2	2x 2	2x 3

Ordering Information

type	shunt
rated voltage drop	60 mV 100 mV 150 mV 300 mV purpose built on request **)
rated current	please refer to table inside purpose built on request **)
accuracy	class 0.5 *) class 0.2
insulating base	included (up to 25 A *) not included (more than 25 A *) included (more than 25 A)
cover	none *) for shunts with insulating base
purpose built	on request **)

*) standard

**) Please clearly add the desired specifications.

ordering example

shunt, rated voltage drop 60 mV, rated current 1,000 A, accuracy class 0.5

WEIGEL – MESSGERÄTE GmbH

P.O.B. 720 154 • D-90241 Nürnberg • Telephone: 0911 / 423 47-0
Erlenstraße 14 • D-90441 Nürnberg • Fax: 0911 / 423 47-39
Internet: <http://www.weigel-messgeraete.de>
e-mail: vertrieb@weigel-messgeraete.de

– specifications subject to change without notice; date of issue 06/07 –

