



# SHUNTS

## APPLICATION

Shunts are indispensable accessories for measuring current in DC installations, specially for high amperages. They provide a voltage drop (mV) proportional to the current, which is easily measurable by means of moving-coil ammeters (types PQ y PAQ). They can also be connected to wattmeters (type DQ../1w) and other measuring devices.

Standard voltages drops are 60 mV and 150 mV. Shunts of 150 mV are recommended when the voltage drop across the potential leads is high, due to their length and/or the high consumption of the instrument.

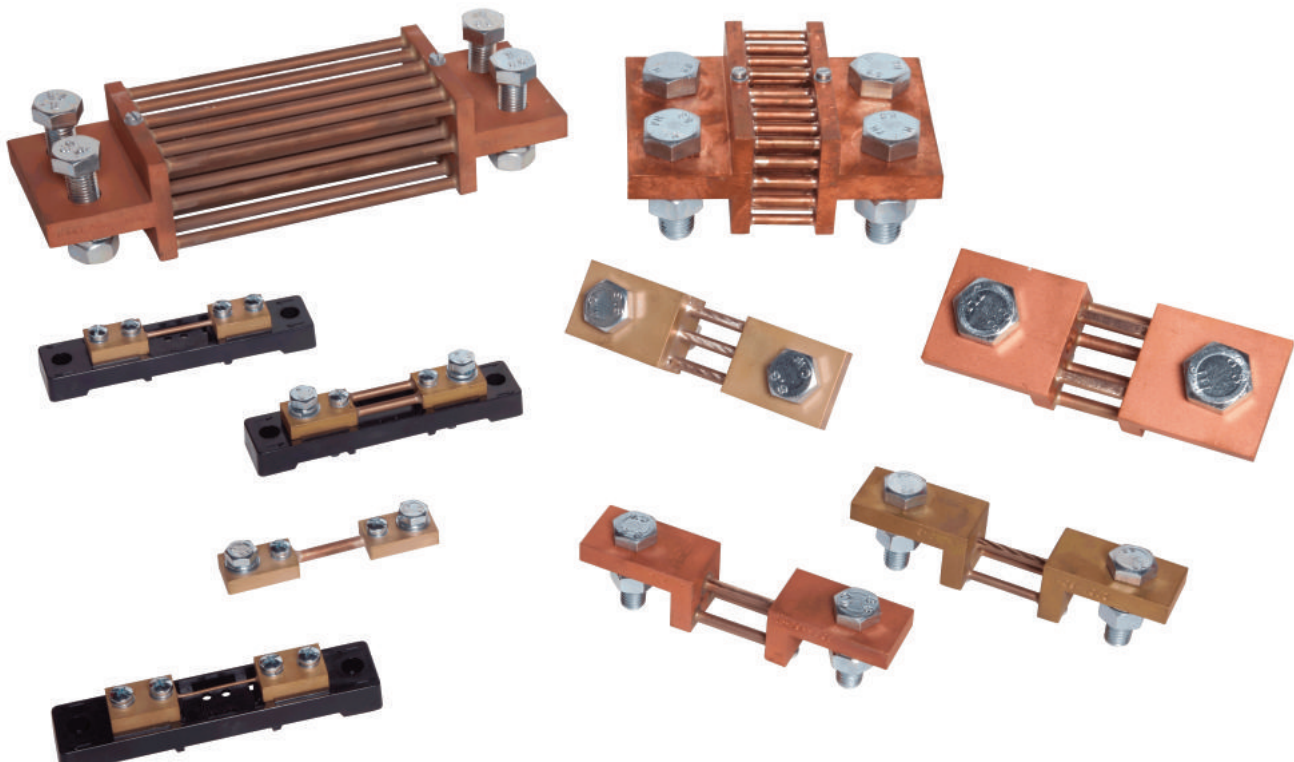
The best performance is guaranteed if the following points are observed:

1. The full connecting area must be in contact with the busbars. For high currents use bras on both faces of the end blocks.
2. Contact surfaces must be clean and if possible with a thin coat of vaseline.
3. Bolts and nuts must be fully tightened.
4. Try to get a good ventilation.
5. Shunts can be mounted horizontally or vertically. Horizontal mounting allows a better heat dissipation.

## OPERATING PRINCIPLE

Shunts are composed of manganin resistance elements of high accuracy. When the current passes through them, produces a proportional voltage drop. The low temperature coefficient of the manganin (0,002%/K) guarantees a steady voltage drop.

- Accuracy class 0.5 / Special executions: 0.2 on request.
- Shunts of 1...25 A ranges (and on request, 60mV 40...150 A) are fixed on an isolating base.
- The isolating base is adapted to be assembled on a 35 mm DIN rail.



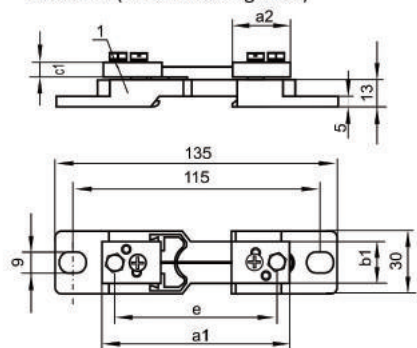
# SHUNTS

## Technical Data

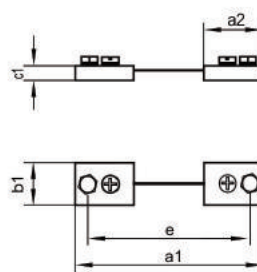
Electromagnetic compatibility	noise immunity	according to EN 61000-6-2
	noise emissions	according to EN 61000-6-4
Overload range	continuously 1.2 times rated current 5 s max. $\leq 2,000$ A 5 times rated current $> 2,000 \dots 10,000$ A 5 times rated current	according to EN 60051-8:2000
Accuracy class	0.5	Special executions class 0.2 / on request
Additional error from ambient temperature	0.5 % / 10 °C	
Climatic suitability	climatic class 3	according to VDE/VDI 3540
Operating temperature	- 10 ... + 55°C	
Storage temperature	- 25 ... + 65°C	
Relative humidity	$\leq 75\%$ annual average, non-condensing	
Shunt calibration	of 1 .. 10 A range	considering the 10 mA current of the meter measuring element
	Shunts 150 mV of 1 .. 4 A ranges	considering the 5 mA current of the meter measuring element
Shunts dimensions	according to DIN 43 703 standard	
Testing voltage of shunts with an isolating base	5 kV	
Resistance of a pair of wires connecting the shunt to meter	35m $\Omega$ or 75 $\Omega$ , wires are not delivered with the shunt	
Long-term overload	120%·I <sub>n</sub>	
Short duration overload up to 5 seconds	for range up to 2kA - 5·I <sub>n</sub> for range 2kA <I <sub>n</sub> <10kA - 2·I <sub>n</sub>	

## Dimensions / Version:

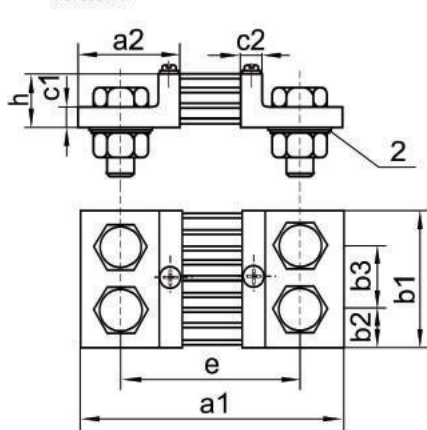
Version A (on an isolating base)



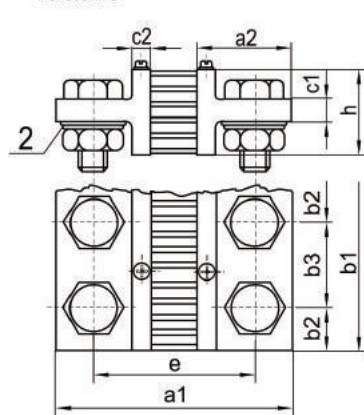
Version D



Version B



Version C



# SHUNTS

Shunts 60 mV												Current terminals			
IN (A)	Version	a1	a2	b1	b2	b3	c1	c2	e	h	Weight (kg)	LZ	Bolt	P	N
1; 1,5; 2,5; 4; 6; 10; 15; 25; 30	A	90	28	20	-	-	8	-	78	-	0.13	2 x 1	M5 x 12	5.5	-
30; 40; 50; 60; 75; 100; 125; 150; 160; 200	A, D	100	33	20	-	-	8	-	80	-	0.13	2 x 1	M8 x 16	8.5	-
200; 250; 300	B	145	55	30	15	-	10	10	105	30	0.60	2 x 1	M12 x 40	13	M12
300; 350; 400; 500	B	145	55	40	20	-	10	10	105	30	0.85	2 x 1	M16 x 45	17	M16
500; 600; 750; 800	B	145	55	40	20	-	10	10	105	30	0.85	2 x 1	M16 x 45	17	M16
750; 800; 1000; 1200	B	165	65	60	30	-	10	10	115	30	1.45	2 x 1	M20 x 50	21	M20
1200; 1500; 2000	B	165	65	90	21	48	10	10	115	30	2.00	2 x 2	M16 x 45	17	M16
2000; 2500; 3000	B	165	65	120	30	60	10	10	115	30	2.90	2 x 2	M20 x 50	21	M20
3000; 4000; 5000	C	165	65	120	30	60	15	10	115	60	4.30	2 x 2	M20 x 60	21	M20
5000; 6000; 8000	C	175	70	154	25	52	25	15	125	130	10.50	2 x 3	M20 x 75	21	M20
8000; 10000	C	185	75	206	25	52	30	20	135	170	21.00	2 x 4	M20 x 80	21	M20
15000	C	185	75	310	25	52	30	20	135	170	32.00	2 x 6	M20 x 80	21	M20

Shunts 150 mV												Current terminals			
IN (A)	Version	a1	a2	b1	b2	b3	c1	c2	e	h	Weight (kg)	LZ	Bolt	P	N
1; 1,5; 2,5; 4; 6; 10; 15; 25	A	90	28	20	-	-	8	-	78	-	0.14	2 x 1	M5 x 12	5.5	-
30; 40; 50; 60; 75; 100; 125; 150; 160; 200	D	225	33	25	-	-	8	-	205	-	0.23	2 x 1	M8 x 16	8.5	-
200; 250; 300	B	270	55	30	15	-	10	50	230	50	0.68	2 x 1	M12 x 40	13	M12
300; 400; 500	B	270	55	40	20	-	10	50	230	50	1.05	2 x 1	M16 x 45	17	M16
500; 600; 750; 800	B	270	55	40	20	-	10	50	230	50	1.16	2 x 1	M16 x 45	17	M16
750; 800; 1000; 1200	B	290	65	70	35	-	10	50	240	50	2.15	2 x 1	M20 x 50	21	M20
1200; 1500; 2000	C	290	65	90	21	48	10	60	240	60	3.10	2 x 2	M16 x 45	17	M16
2000; 2500; 3000	C	290	65	120	30	60	10	60	240	60	5.20	2 x 2	M20 x 50	21	M20
3000; 4000; 5000	C	300	70	120	30	60	15	130	250	130	8.30	2 x 2	M20 x 60	21	M20
5000; 6000; 8000	C	300	70	154	25	52	15	130	250	130	15.00	2 x 3	M20 x 75	21	M20
8000; 10000	C	310	75	206	25	52	20	170	260	170	28.00	2 x 4	M20 x 80	21	M20
15000	C	310	75	310	25	52	20	170	260	170	35.00	2 x 6	M20 x 80	21	M20

Shunts 100 mV												Current terminals			
IN (A)	Version	a1	a2	b1	b2	b3	c1	c2	e	h	Weight (kg)	LZ	Bolt	P	N
1; 1,5; 2,5; 4; 6; 10; 15; 25	A	90	28	20	-	-	8	-	78	-	0.14	2 x 1	M5 x 12	5.5	-
30; 40; 50; 60; 75; 100; 125; 150; 160; 200	D	145	33	25	-	-	8	-	125	-	0.20	2 x 1	M8 x 16	8.5	-
200; 250; 300	B	190	55	30	15	-	10	10	150	30	0.65	2 x 1	M12 x 40	13	M12
300; 400; 500	B	190	55	40	20	-	10	10	150	30	1.00	2 x 1	M16 x 45	17	M16
500; 600; 750; 800	B	190	55	40	20	-	10	10	150	30	1.11	2 x 1	M16 x 45	17	M16
750; 800; 1000; 1200	B	210	65	60	30	-	10	10	160	30	2.00	2 x 1	M20 x 50	21	M20
1200; 1500; 2000	B	210	65	120	30	60	10	10	160	30	2.50	2 x 2	M16 x 45	17	M16
2000; 2500; 3000	C	210	65	120	30	60	15	10	160	60	3.20	2 x 2	M20 x 60	21	M20
3000; 4000; 5000	C	220	70	120	30	60	25	15	170	130	5.80	2 x 2	M20 x 75	21	M20
5000; 6000; 8000	C	220	70	154	25	52	25	15	170	130	12.00	2 x 3	M20 x 75	21	M20
8000; 10000	C	230	75	206	25	52	30	20	180	170	23.00	2 x 4	M20 x 80	21	M20
15000	C	230	75	310	25	52	30	20	180	170	34.00	2 x 6	M20 x 80	21	M20

IN - rated current / LZ - number of terminals / Bolt - hexagon bolt / P - washer / N - nut Voltage terminals



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