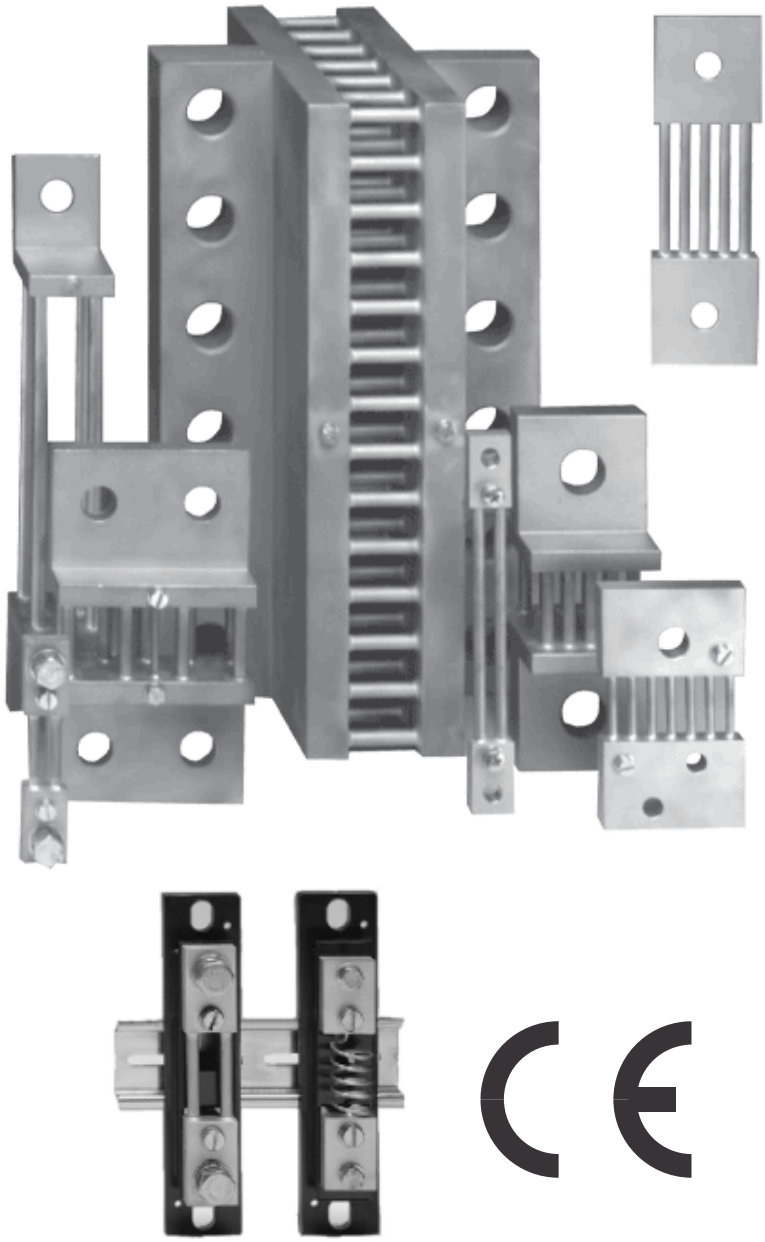
50 mV
60 mV
75 mV
100 mV
150 mV

Data Sheet

Shunts
Class 0.5, 1.0



Measuring Shunts

Features:

1 A ... 15kA

Class 0.5

DIN 35 mm

Input:

I DC

Outputs:

50 mV

60 mV

75 mV

100 mV

150 mV

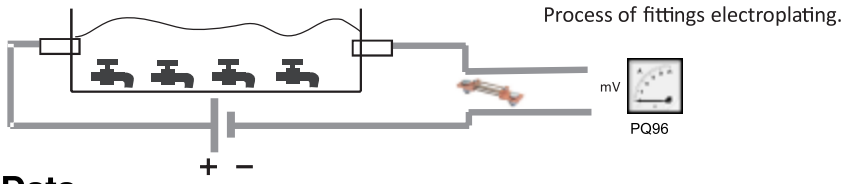
Application

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 43 703 and IS 1248-8 standard shunts are available from 1 A upto 15,000 A with an accuracy of 0.5% and 1%. Standard voltage drop is 60 mV or 150mV. 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.

Example of Application



General Data

Formate versions :-

A,D	Insulating base mounted shunts clamping to DIN mounting (up to 25 A / 50, 60, 75,100 150 mV); without insulating base (30 ... 150 A)
B	Lprofile end blocks
C	Tprofile end blocks

Material resistance bars :- Manganin

End blocks :-

Format version A,D	high conductivity brass
Format version B	high conductivity brass/solid copper
Format version C	solid copper

Kind Of Version

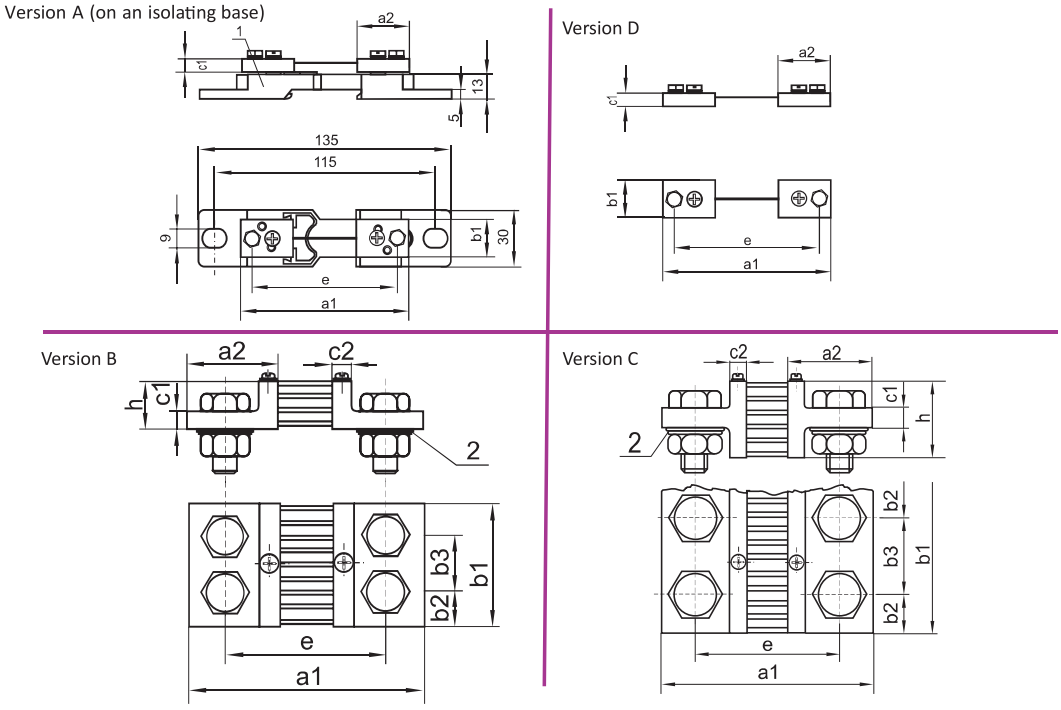


Fig.1. Fixing dimensions of shunts (1 - isolating base, 2 - round spring washer)

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 (60mV, 150mV or other).

Features

- Rating 1A to 15000A
- Riveted and brazed construction
- In-line bus bar mounting
- Very low temperature coefficient
- high overload withstand
- Shock and vibration proof
- Long term stability
- DIN shunts of 1...25 A with base.
- IS shunts of 1...30 A with base.
- The isolation base is adapted to be assembled on a 35 mm DIN rail.

CE

Rules and Standards

DIN 43 703	Shunts
IS 1248-8	Shunts
DIN EN 60 051	Direct acting indicating analogue electrical measuring instruments and their accessories
1	Part 1: Definitions and general requirements common to all parts
8	Part 8: Special requirements for accessories
9	Part 9: Recommended test methods
DIN EN 60 715	Dimensions of low voltage switching devices: standardized DIN rails for mechanical fixation of electrical devices in switchgears

Technical Data

Electromagnetic compatibility	Noise immunity	acc. to EN 61000-6-2
	Noise emissions	acc. to EN 61000-6-4
Accuracy class	0.5% & 1%	
5 Seconds withstand	10 times for 1 A to 500 A 5 times for 600 A to 2000 A 2 times for 2500 A to 15000 A	
Shunts dimensions	acc. to DIN 43 703 and IS 1248-8 standard	
Testing voltage of shunts with an isolating base	5 kV	
Resistance of a pair of wires connecting the shunt to the meter	35 mΩ or 75 Ω , wires are not delivered with the shunt.	
Maximum Load	The load should not exceed 0.1% or the nominal current rating for specified accuracy.	
Continuous Over Load	20% rated current	
Temperature Coefficient	0.002% per°C	
Ambient Temperature	Calibration at 23°C	
Operating Temperature	- 10°C to 50°C	
Storage Temperature	- 20°C to 70°C	
Millivolt	50 mV, 60 mV, 75 mV, 100 mV, 150 mV.	

DIN 43703 STANDARD

60 mV											Current Terminals			
IN (A)	Version	a1 max.	a2	b1	b2	b3	c1	c2	e	h	T	Bolt	P	N
1, 1.5, 2.5, 4, 6, 10, 15, 25	A	90	28	20	....	....	8	....	78	....	2 x 1	M5 x 12	5.5	....
40, 60, 100, 150	D	100	33	20	....	....	8		80	....	2 x 1	M8 x 16	8.5	....
250	B	145	55	30	15	....	10	10	105	30	2 x 1	M12 x 40	13	M12
400	B	145	55	40	20	....	10	10	105	30	2 x 1	M16 x 45	17	M16
600	B	145	55	40	20	....	10	10	105	30	2 x 1	M16 x 45	17	M16
1000	B	165	65	60	30	....	10	10	115	30	2 x 1	M20 x 50	21	M16
1500	B	165	65	90	21	48	10	10	115	30	2 x 2	M16 x 45	17	M16
2500	B	165	65	120	30	60	10	10	115	30	2 x 2	M20 x 50	21	M20
4000	C	165	65	120	30	60	15	10	115	60	2 x 2	M20 x 60	21	M20
6000	C	175	70	154	25	52	25	15	125	130	2 x 3	M20 x 75	21	M20
10000	C	185	75	206	25	52	30	20	135	170	2 x 4	M20 x 80	21	M20
15000	C	185	75	310	25	52	30	20	135	170	2 x 6	M20 x 80	21	M20

150 mV											Current Terminals			
IN (A)	Version	a1	a2	b1	b2	b3	c1	c2	e	h	T	Bolt	P	N
1, 1.5, 2.5, 4, 6, 10, 15, 25	A	90	28	20	....	....	8	....	78	....	2 x 1	M5 x 12	5.5	....
40, 60, 100, 150	D	225	33	25	....	....	8		205	....	2 x 1	M8 x 16	8.5	....
250	B	270	55	30	15	....	10	10	230	50	2 x 1	M12 x 40	13	M12
400	B	270	55	40	20	....	10	10	230	50	2 x 1	M16 x 45	17	M16
600	B	270	55	40	20	....	10	10	230	50	2 x 1	M16 x 45	17	M16
1000	B	290	65	70	35	....	10	10	240	60	2 x 1	M20 x 50	21	M16
1500	B	290	65	90	21	48	15	10	240	60	2 x 2	M16 x 60	17	M16
2500	B	290	65	120	30	60	15	10	240	60	2 x 2	M20 x 60	21	M20
4000	C	300	70	120	30	60	25	15	250	130	2 x 2	M20 x 75	21	M20
6000	C	300	70	154	25	52	25	15	250	130	2 x 3	M20 x 75	21	M20
10000	C	310	75	206	25	52	30	20	260	170	2 x 4	M20 x 80	21	M20
15000	C	310	75	310	25	52	30	20	260	170	2 x 6	M20 x 80	21	M20

IN - rated current
T - number of terminals
Bolt - hexagon bolt
P – washer
N – nut
Voltage terminals – Two M5 x 8 cylinder-head bolts with a cruciform cavity + 5.5 washers for 151 A - 15kA
– Two M4 x 8 cylinder-head bolts with a cruciform cavity + 4.7 washers for 1 A - 150 A

IS 1248-8 STANDARD

60 mV											Current Terminals			
IN (A)	Version	a1 max.	a2	b1	b2	b3	c1	c2	e	h	T	Bolt	P	N
1-30	A	90	28	20	....	....	8	....	70	....	2 x 1	M5 x 12	5.5	....
31-150	D	110	33	20	....	....	8		80	....	2 x 1	M8 x 16	8.5	....
151-300	B	155	55	30	15	....	10	10	105	30	2 x 1	M12 x 40	13	M12
301-750	B	155	55	40	20	....	10	10	105	30	2 x 1	M16 x 45	17	M16
751-1000	B	175	65	60	30	....	10	10	115	30	2 x 1	M20 x 50	21	M16
1001-1500	B	175	65	90	21	48	10	10	115	30	2 x 2	M16 x 45	17	M16
1501-3000	B	175	65	120	30	60	10	10	115	30	2 x 2	M20 x 50	21	M20
3001-5000	C	175	65	120	30	60	15	15	115	60	2 x 2	M20 x 60	21	M20
5001-7500	C	185	70	154	25	52	25	15	125	130	2 x 3	M20 x 75	21	M20
7501-10000	C	195	75	206	25	52	30	20	135	170	2 x 4	M20 x 80	21	M20
10001-15000	C	195	75	310	25	52	30	20	135	170	2 x 6	M20 x 80	21	M20

75 mV											Current Terminals			
IN (A)	Version	a1 max.	a2	b1	b2	b3	c1	c2	e	h	T	Bolt	P	N
1-30	A	100	28	20	....	....	8	....	88	....	2 x 1	M5 x 12	5.5	....
31-150	D	120	33	20	....	....	8		100	....	2 x 1	M8 x 16	8.5	....
151-300	B	165	55	30	15	....	10	10	125	30	2 x 1	M12 x 40	13	M12
301-750	B	165	55	40	20	....	10	10	125	30	2 x 1	M16 x 45	17	M16
751-1000	B	185	65	60	30	....	10	10	135	30	2 x 1	M20 x 50	21	M16
1001-1500	B	185	65	90	21	48	10	10	135	30	2 x 2	M16 x 45	17	M16
1501-3000	B	185	65	120	30	60	10	10	135	30	2 x 2	M20 x 50	21	M20
3001-5000	C	185	65	120	30	60	15	15	135	60	2 x 2	M20 x 60	21	M20
5001-7500	C	195	70	154	25	52	25	15	145	130	2 x 3	M20 x 75	21	M20
7501-10000	C	205	75	206	25	52	30	20	155	170	2 x 4	M20 x 80	21	M20
10001-15000	C	205	75	310	25	52	30	20	155	170	2 x 6	M20 x 80	21	M20

150 mV											Current Terminals			
IN (A)	Version	a1 max.	a2	b1	b2	b3	c1	c2	e	h	T	Bolt	P	N
1-30	A	100	28	20	....	....	8	....	88	....	2 x 1	M5 x 12	5.5	....
31-150	D	225	33	25	....	....	8		205	....	2 x 1	M8 x 16	8.5	....
151-300	B	270	55	30	15	....	10	10	230	50	2 x 1	M12 x 40	13	M12
301-750	B	270	55	40	20	....	10	10	230	50	2 x 1	M16 x 45	17	M16
751-1000	B	290	65	70	35	....	10	10	240	60	2 x 1	M20 x 50	21	M16
1001-1500	B	290	65	90	21	48	15	10	240	60	2 x 2	M16 x 60	17	M16
1501-3000	B	290	65	120	30	60	15	10	240	60	2 x 2	M20 x 60	21	M20
3001-5000	C	300	70	120	30	60	25	15	250	130	2 x 2	M20 x 60	21	M20
5001-7500	C	300	70	154	25	52	25	15	250	130	2 x 3	M20 x 75	21	M20
7501-10000	C	310	75	206	25	52	30	20	260	170	2 x 4	M20 x 80	21	M20
10001-15000	C	310	75	310	25	52	30	20	260	170	2 x 6	M20 x 80	21	M20

IN - rated current
T - number of terminals
Bolt - hexagon bolt
P – washer
N – nut
Voltage terminals – Two M5 x 8 cylinder-head bolts with a cruciform cavity + 5.5 washers for 151 A - 15kA
– Two M4 x 8 cylinder-head bolts with a cruciform cavity + 4.7 washers for 1 A - 150 A

Additonal mV Drop*

50 mV											Current Terminals			
IN (A)	Version	a1 max.	a2	b1	b2	b3	c1	c2	e	h	T	Bolt	P	N
1, 1.5, 2.5, 4, 6, 10, 15, 25	A	90	28	20	....	....	8	....	70	....	2 x 1	M5 x 12	5.5	....
40, 60, 100, 150	D	110	33	20	....	....	8		80	....	2 x 1	M8 x 16	8.5	....
250	B	155	55	30	15	....	10	10	105	30	2 x 1	M12 x 40	13	M12
400	B	155	55	40	20	....	10	10	105	30	2 x 1	M16 x 45	17	M16
600	B	155	55	40	20	....	10	10	105	30	2 x 1	M16 x 45	17	M16
1000	B	175	65	60	30	....	10	10	115	30	2 x 1	M20 x 50	21	M16
1500	B	175	65	90	21	48	10	10	115	30	2 x 2	M16 x 45	17	M16
2500	B	175	65	120	30	60	10	10	115	30	2 x 2	M20 x 50	21	M20
4000	C	175	65	120	30	60	15	15	115	60	2 x 2	M20 x 60	21	M20
6000	C	185	70	154	25	52	25	15	125	130	2 x 3	M20 x 75	21	M20
10000	C	195	75	206	25	52	30	20	135	170	2 x 4	M20 x 80	21	M20
15000	C	195	75	310	25	52	30	20	135	170	2 x 6	M20 x 80	21	M20

100 mV											Current Terminals			
IN (A)	Version	a1 max.	a2	b1	b2	b3	c1	c2	e	h	T	Bolt	P	N
1, 1.5, 2.5, 4, 6, 10, 15, 25	A	90	28	20	....	....	8	....	78	....	2 x 1	M5 x 12	5.5	....
40, 60, 100, 150	D	145	33	25	....	....	8		125	....	2 x 1	M8 x 16	8.5	....
250	B	190	55	30	15	....	10	10	150	30	2 x 1	M12 x 40	13	M12
400	B	190	55	40	20	....	10	10	150	30	2 x 1	M16 x 45	17	M16
600	B	190	55	40	20	....	10	10	150	30	2 x 1	M16 x 45	17	M16
1000	B	210	65	60	30	....	10	10	160	30	2 x 1	M20 x 50	21	M16
1500	B	210	65	120	30	60	10	10	160	30	2 x 2	M16 x 60	17	M16
2500	B	210	65	120	30	60	15	10	160	60	2 x 2	M20 x 60	21	M20
4000	C	220	70	120	30	60	25	15	170	130	2 x 2	M20 x 75	21	M20
6000	C	220	70	154	25	52	25	15	170	130	2 x 3	M20 x 75	21	M20
10000	C	230	75	206	25	52	30	20	180	170	2 x 4	M20 x 80	21	M20
15000	C	230	75	310	25	52	30	20	180	170	2 x 6	M20 x 80	21	M20

IN - rated current
T - number of terminals
Bolt - hexagon bolt
P – washer
N – nut
Voltage terminals – Two M5 x 8 cylinder-head bolts with a cruciform cavity + 5.5 washers for 151 A - 15kA
– Two M4 x 8 cylinder-head bolts with a cruciform cavity + 4.7 washers for 1 A - 150 A

* Deviating From Standard

Installation Guidelines for Shunts

1) It is recommended to use a flat copper busbar with 1.55 A/mm2 current density or lower considering application.
2) Utilize the full end block surface area of shunt Primary Terminals..
3) Ensure to maintain the minimum contact resistance between the bus bar & primary terminal of the shunt.
4) Bus bar should be adequately rated, cleaned & coated with a thin layer of silicon grease between the contact surfaces.
5) Bolts and nuts must be carefully tightened.
6) Sufficient ventilation shall be provided so as to keep manganin rods temperature below 140 deg C.

⚠ Caution : Shunts are not insulated & protection against accidental contact may be necessary in order to comply with Health & Safety regulations.

Odering Information

type	shunt
rated voltage drop	50 mV *) 60 mV *) DIN , 60 mV *) IS 75 mV *) 100 mV *) 150 mV *) DIN , 150 mV *) IS
rated current	please refer to table inside purpose built on request **)
accuracy	class 0.5 *) class 1 *)
insulating base	included (up to 25 A) *) for DIN 43703 shunts included (up to 30 A) *) for IS 1248-8 shunts
cover	none *) for shunts with insulating base

*) standard
**) Please clearly add the desired specifications.

ordering example
Shunt, rated voltage drop 60 mV DIN, rated current 1,000 A, accuracy class 0.5

RISHABH

All specifications are subject to change without notice

Measure Control Record Analyze

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