



**48DA, 72DA, 96DA, 144DA,
48DV, 72DV, 96DV 144 DV**

For measuring DC current respective voltage.
Types 48D..72D.. and 96D.. are with interchangeable scale

Technical data:

Movement: Magnet core, moving-coil movement with pivot spring-type bearing

Instrument case: non-flammable plastic according to UL94-V1 or metal on request.

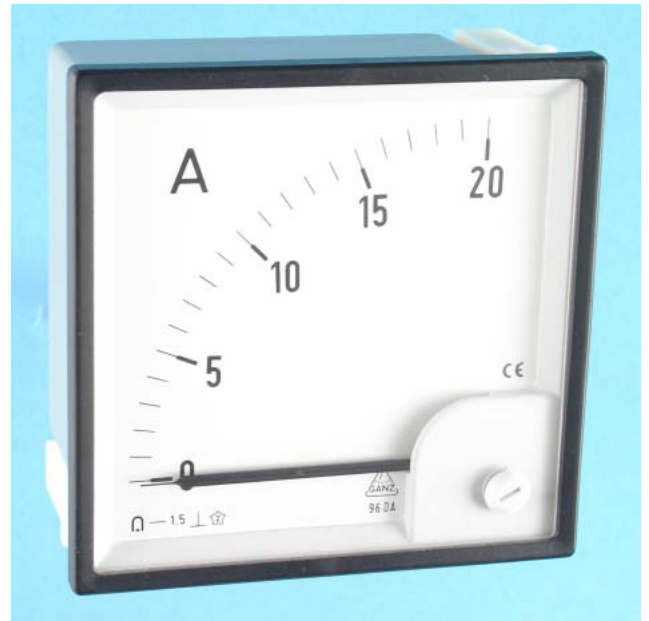
Scale length: 40 mm (48D...), 62 mm (72D...), 102 mm (96D...), 152 mm (144D...)

Permanent overloading: 1.2 -fold current res. voltage

Class of accuracy: 1.5

Weight: 0.15 kg (48D...), 0.2 kg (72D...), 0.35 kg (96D...) 0.8 kg (144D...)

Fixing elements: plastic clips or two spring type fastening clips for metal case instruments



AMMFTFRS		Plastic case				Metal case		
Frame dimensions		48x48 mm	72x72 mm	96x96 mm	144x144 mm	72x72 mm	96x96 mm	144x144 mm
Measuring range	Cat. No.	Type 48 DA	Type 72 DA	Type 96 DA	Type 144 DA	Type 72 DA	Type 96 DA	Type 144 DA
		2014-12-...	1639-12-...	1638-12-...	2557-12-...	1563-12-...	1564-12-...	2303-12-...
		Int. resist. (Ω)	Int. resist. (Ω)	Int. resist. (Ω)	Int. resist. (Ω)	Int. resist. (Ω)	Int. resist. (Ω)	Int. resist. (Ω)
50 μA	002	4000	4000	4000	4500	4000	4000	4500
100 μA	001	900	1400	1400	4000	1400	1400	4000
250 μA	005	400	950	950	1400	950	950	1400
500 μA	008	200	290	290	350	290	290	350
1 mA	011	47	60	60	90	60	60	90
5 mA	018	4	5.5	5.5	8	5.5	5.5	8
10 mA	021	3	3	3	3.5	3	3	3.5
20 mA	024	2.2	2.3	2.3	2.5	2.3	2.3	2.5
25 mA	025	2.4	2.4	2.4	2.4	2.4	2.4	2.4
100 mA	031	0.6	0.6	0.6	0.6	0.6	0.6	0.6
500 mA	038	0.12	0.12	0.12	0.12	0.12	0.12	0.12
1 A	041	0.06	0.06	0.06	0.06	0.06	0.06	0.06
1.5 A	043	0.04	0.04	0.04	0.04	0.04	0.04	0.04
2.5 A	045	0.024	0.024	0.024	0.024	0.024	0.024	0.024
4 A	047	0.015	0.015	0.015	0.015	0.015	0.015	0.015
5 A	048	0.012	0.012	0.012	0.012	0.012	0.012	0.012
6 A	049	0.01	0.01	0.01	0.01	0.01	0.01	0.01
10 A	051	0.006	0.006	0.006	0.006	0.006	0.006	0.006
15 A	053	0.004	0.004	0.004	0.004	0.004	0.004	0.004
20 A	054	0.003	0.003	0.003	0.003	0.003	0.003	0.003
25 A	055	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024
30 A	056	0.002	0.002	0.002	0.002	0.002	0.002	0.002
40 A	057	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
50 A	058	-----	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012
60 A	059	-----	0.001	0.001	0.001	0.001	0.001	0.001
80 A	060	-----	0.00075	0.00075	0.00075	0.00075	0.00075	0.00075
100 A	061	-----	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
4...20 mA	501	2.3	2.3	2.3	2.3	2.3	2.3	2.3
*...A/ 50mV	C01	10	10	10	10	10	10	10
*...A/ 60mV	C02	12	12	12	12	12	12	12
*...A/ 100mV	C03	20	20	20	20	20	20	20
*...A/ 150mV	C04	30	30	30	30	30	30	30
*...A/ 300mV	C05	60	60	60	60	60	60	60

* For connection to separate shunt. The calibration of the instruments 0.035 Ω wire (=2x1 m Ø1 mm²) resistance is taken into consideration.
The tolerance of the internal resistance is generally ±20%

Note: on request types different from tables are accepted



MOVING COIL INSTRUMENTS WITH INTERCHANGEABLE SCALES



VOLTMETERS		Plastic case				Metal case		
Frame dimensions		48x48 mm	72x72 mm	96x96 mm	144x144 mm	72x72 mm	96x96 mm	144x144 mm
Measurin g range	Cat. No.	Type 48 DV	Type 72 DV	Type 96 DV	Type 144 DV	Type 72 DV	Type 96 DV	Type 144 DV
		2014-12-...	1639-12-...	1638-12-...	2557-12-...	1563-12-...	1564-12-...	2303-12-...
		Int. resist.	Int. resist.	Int. resist.	Int. resist.	Int. resist.	Int. resist.	Int. resist.
1 V	101	1000 Ω/V	1000 Ω/V	1000 Ω/V	1000 Ω/V	1000 Ω/V	1000 Ω/V	1000 Ω/V
1.5 V	103	↓	↓	↓	↓	↓	↓	↓
2.5 V	105							
4 V	107							
6 V	109							
10 V	111							
15 V	113							
20 V	114							
25 V	115							
30 V	116							
40 V	117							
50 V	118							
60 V	119							
80 V	120							
100 V	121							
150 V	123							
200 V	124							
250 V	125							
300 V	126							
400 V	127							
500 V	128							
600 V	129							

Note: on request types different from tables are accepted

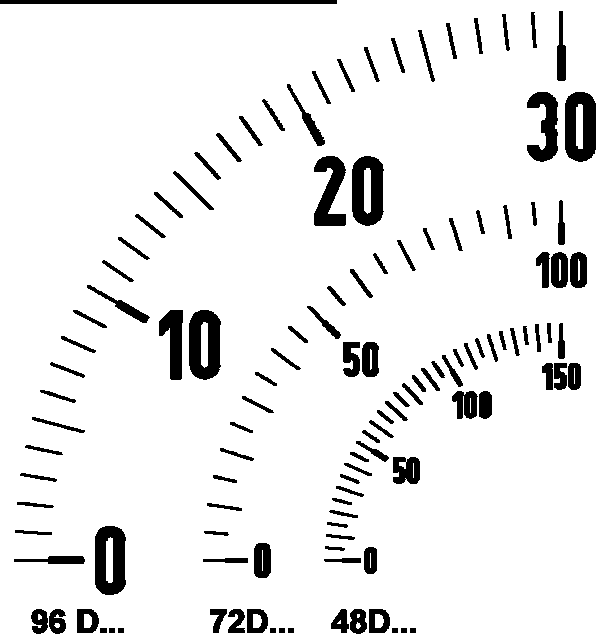
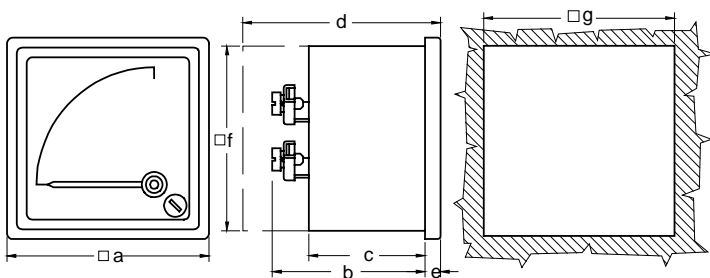
Type\Dim. (mm)	a	b1	b2	c1	c2	*d	e	f	g
48DV 48DA 50 μA – 6 A 48DA 10A	48	52.5 67.5	----	41.5	----	62.5	5.5	44	45 ^{+0.6}
72DV 72DA 50 μA – 6 A 72DA 10A -60A	72	52.5 67.5	62 75	41.5	51	c+25 ----	5.5	66	68 ^{+0.7}
96DV 96DA 50 μA – 6 A 96DA 10A - 100A	96	52.5 67.5	62 87	41.5	51	c+25 ----	5.5	90	92 ^{+0.8}
144DV 144DA 50 μA – 6 A 144DA 10A - 100A	144	----	59 70		47	----	7	137	138 ⁺¹

b1, c1
refers to plastic case instrument

b2, c2
refers to metal case instrument

* case with terminal cover

Outline drawing



Order specification:

- Moving coil ammeter
- Frame size: 72x72 mm
- Case: plastic
- Range: 1 mA
- Scale: 0...100%

Ordering data:

- Moving coil ammeter
- Type: 72DA
- Cat. No.: 1639-12-011
- Scale: 0...100%