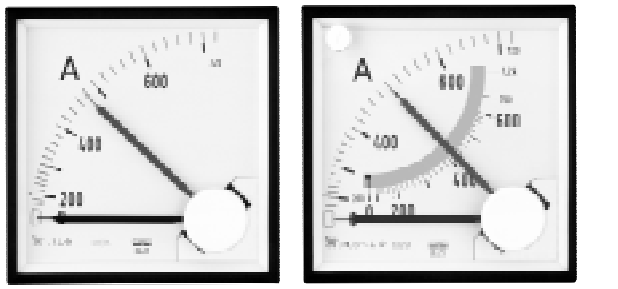
BIMETALLIC AMMETERS WITH MAXIMAL CURRENT INDICATOR

BA27 and BA39 TYPES

COMBINED BIMMETALLIC and MOVING-IRON AMMETERS WITH MAXIMAL CURRENT INDICATOR

BE27 and BE39 TYPES



PRINCIPLE OF OPERATION

BA27 and BA39 types of maximum demand ammeters

In these types, the bimetallic movement responds and indicates the mean rms current loading over a specified period of time.
A black pointer which is attached to the bimetal spiral moves in response to the current (heating) in the bimetal spiral.
A red pointer (slave or memory pointer) is driven by the black pointer. The red pointer remains at its maximum position to which the black pointer has reached during any period of time. Further, when the loading is reduced, the red pointer remains at the maximum value.
This enables the operator to know the maximum loading of the system without continuously watching the meter.
A reset knob is provided on the front of the meter to bring back the red pointer to the position of the black pointer.
A sealing/locking facility is also provided on the reset knob to prevent tampering of the reading at the red pointer.
We can use for locking a 0.5 mm diameter wire.

BE27 and BE39 types of combined ammeters (with bimetallic and moving-iron movements)

In these types, there is additionally a moving-iron movement fitted in the opposite corner of the meter housing to get the instantaneous reading of the load current.

APPLICATION

Bimetallic and combined ammeters are especially intended for thermal monitoring of transformers , cables and other electrical devices which have a slow reaction to current changes.
They indicate the mean rms current value during the measuring period of the meter (8 or 15 min.). These meters do not react to short current pulses essentially. The range of these meters can be enlarged by means of external measuring current transformers which are also offered by LUMEL and can be delivered on request if the meter is ordered in the option enabling a direct assembling on the current transformer.

ACCESSORIES

We deliver together with the meter:
- two snap screw holders to fix the meter,
- a protective terminal cover,
- a quality inspection certificate (if ordered).

TECHNICAL SPECIFICATIONS

Measuring ranges of the bimetallic ammeters

Measuring ranges of the bimetallic movement	Measuring ranges of the electromagnetic movement	Current transformer
0...1/1.2 A	0,,,1/2 A	X/1A
0...5/6 A	0...5/10 A	X/5A

Accuracy class:

- bimetallic movement (BA27, BA39, BE27, BE39)	3
- moving-iron movement (BE27, BE39)	1.5
Additional errors in limits of rated operating conditions	acc. to EN 60051-1
Averaging time of bimetallic movement	8 or 15 min.
Response time of the moving-iron movement	1 sec.
Self consumption:	
- bimetallic movement (BA27, BA39, BE27, BE39)	X/1 A, max 1.2 VA, X/5 A, max 2.5 VA
- moving-iron movement (BE27, BE39)	0.45 VA
Protection degree ensured by:	acc. to E-08106
- housing	IP 50
- terminals	IP 20 (with a protective terminal cover)
Used materials:	
- material of the housing	thermoplastic material (ABS)
- material of the base	thermoplastic material (PPE)
- material of the window	glass
Safety requirements	acc. EN 61010 - 1
- installation category	III
- protection degree	2
- maximal working voltage in relation to the earth	300 V AC
Electromagnetic compatibility	
All ammeters fulfill CE mark requirements.	
- emission	acc. EN 61000-6-4
- immunity	acc. EN 61000-6-2
Weight:	
- BA27	ca 160 g
- BA39	ca 220 g
- BE27	ca 200 g
- BE39	ca 270 g

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Categories of climatic versions

If there is not given in the order, meters are destined to be applied in closed rooms, not air conditioned, in conditions of a moderate climate, acc. to EN 60051 standard. On request, meters can be adapted to be used in a dry or wet tropical climate also in closed, not air conditioned rooms. They are then marked by the TIII symbol.

Working temperature range of meters

These meters operate without damage in the temperature range: from -25°C to +40°C, in accordance with the binding standards.

Matching of meter measuring ranges to current transformer ranges:

Through the dial exchange. The exchange way is shown in the user's manual.

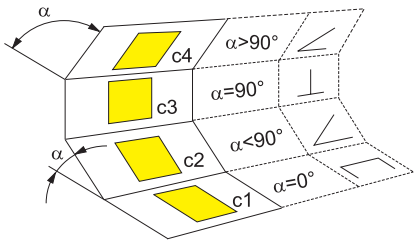
CODING OF THE WORKING POSITION

Table 1

Range code	Range description (measuring range)	Range code	Range description (measuring range)
F201	1.2 A	F366	1920 A 1.6k/1
F205	6 A	F4	1.2XA X/5
F3	1.2XA X/1	F405	6 A 5/5
F301	1.2 A 1/1	F406	7.2 A 6/5
F305	6 A 5/1	F407	12 A 10/5
F306	7.2 A 6/1	F408	18 A 15/5
F307	12 A 10/1	F409	24 A 20/5
F308	18 A 15/1	F411	36 A 30/5
F309	24 A 20/1	F412	48 A 40/5
F311	36 A 30/1	F413	60 A 50/5
F312	48 A 40/1	F414	72 A 60/5
F313	60 A 50/1	F415	96 A 80/5
F314	72 A 60/1	F416	120 A 100/5
F315	96 A 80/1	F417	180 A 150/5
F316	120 A 100/1	F418	240 A 200/5
F317	180 A 150/1	F420	360 A 300/5
F318	240 A 200/1	F421	480 A 400/5
F320	360 A 300/1	F422	600 A 500/5
F321	480 A 400/1	F423	720 A 600/5
F322	600 A 500/1	F424	960 A 800/5
F323	720 A 600/1	F450	1200 A 1k/5
F324	960 A 800/1	F451	1800 A 1.5k/5
F350	1200 A 1k/1	F452	2400 A 2k/5
F351	1800 A 1,5k/1	F454	3600 A 3k/5
F352	2400 A 2k/1	F455	4800 A 4k/5
F354	3600 A 3k/1	F456	6000 A 5k/5
F355	4800 A 4k/1	F457	7200 A 6k/5
F356	6000 A 5k/1	F459	12000 A 10k/5
F357	7200 A 6k/1	F465	1440 A 1.2k/5
F359	12000 A 10k/1	F466	1920 A 1.6k/5
F365	1440 A 1.2k/1		

Table 2

Code	Working position
O	C3, α = 90°
A	C1, α = 0°
B	C2, α = 15°
C	C2, α = 35°
D	C2, α = 45°
E	C2, α = 60°
F	C2, α = 75°
H	C4, α = 105°
K	C4, α = 120°



ORDERING CODES

BIMETALLIC AMMETERS BA27, BA39, BE27, BE39	X	X	XXXX	X	X	X	X

Ammeter version:

catalogue panel fixing version **1**
plug-in version (BA27 only) **2**
custom-made version[1] ..... **X**

Climatic version:

catalogue ..... **N**
TIII climat ..... **T**
custom-made[2] ..... **X**

Current range:

write the code acc. to table 1 (e.g.F205) ..... **XXXX**

Setting time:

15 min. **0**
8 min. **1**

Working position:

acc. to the table 2 ..... **X**

Scale graduation and markings:

catalogue (graduation acc. to the range) **0**
percentage graduation (0...120% graduation for bimetal movement and 0...200% graduation for moving-iron movement) **1**
custom-made dial[2] ..... **X**

Acceptance test:

without additional requirements **8**
with a quality inspection certificate **7**
other requirements[1] ..... **X**

[1] The code number will be given after agreement with LUMEL's Export Dept.
[2] If a current transformer is needed, the customer must give the ratio.

Ordering examples

Code: BE39-1-T-F421-1-A-1-7 means:

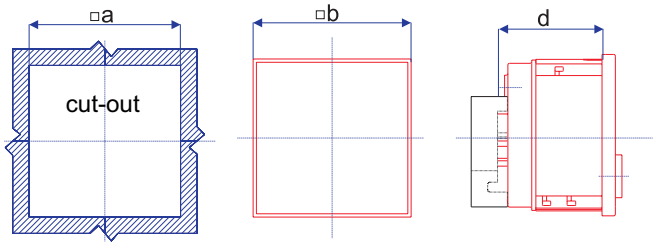
BE39 combined bimetallic and moving-iron ammeter, catalogue panel fixing version, TIII climate version, current range: 400/5 A, setting time: 8 min., working position: C1 (horizontal), percentage graduation 120% and 200%, delivered with a quality inspection certificate.

Code: BA27-1-N-F205-0-O-0-8 means:

BA27 bimetallic moving-iron ammeter, measuring range: 6 A, catalogue climatic version, setting time: 15 min., without additional requirements

EXTERNAL AND CUT-OUT DIMENSIONS

Types	a (mm)	b (mm)	d (mm)
BA27 and BE27	$68^{+0.7}$	72	61.5
BA39 and BE39	$92^{+0.8}$	96	61.5



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