

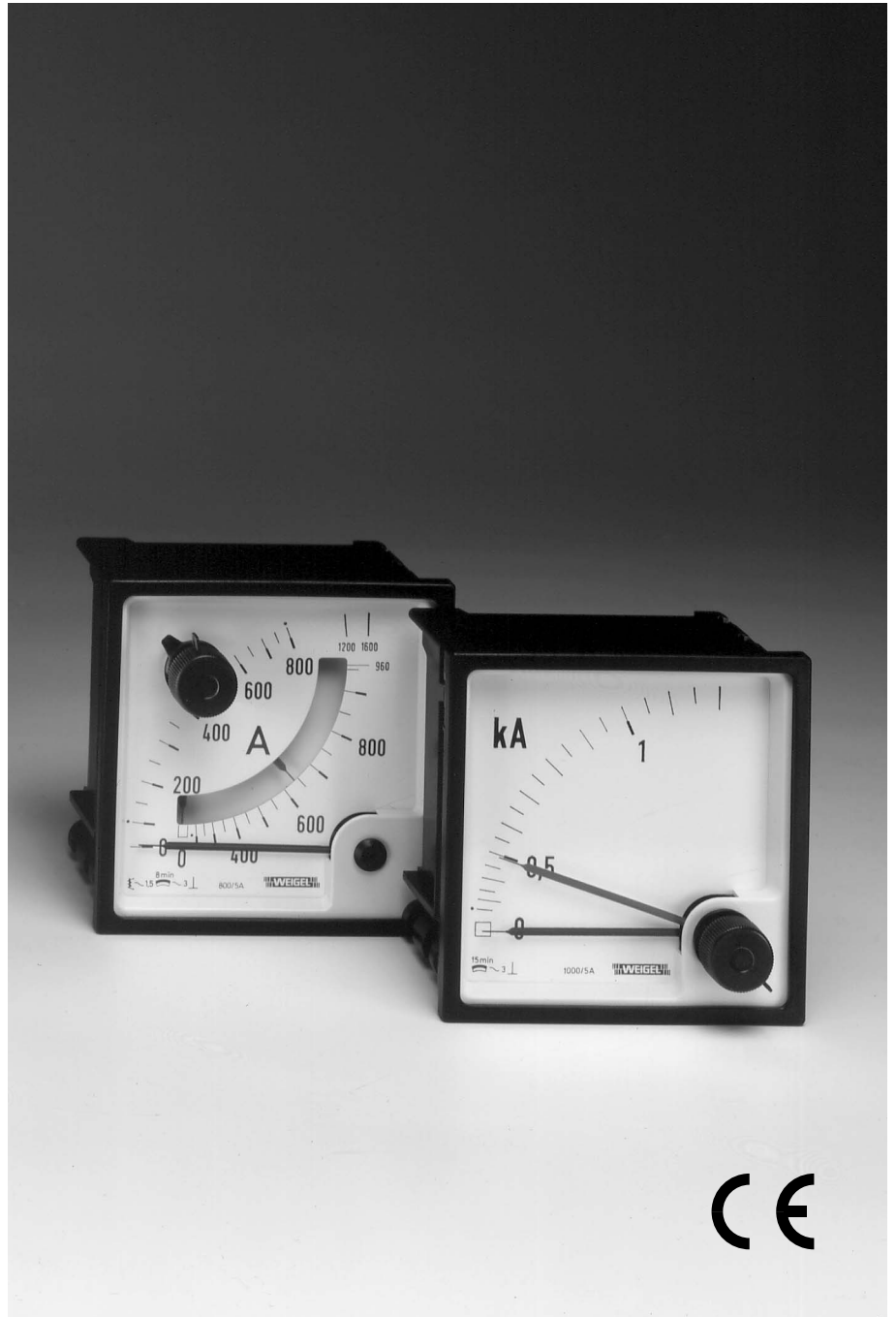
Data Sheet

K Series
450.D.101.09

Analog Meters Maximum Demand Indicators with Bimetallic Movement, Combined M.D.I. and Moving-Iron Ammeter

BIQ 48 K
BIEQ 72 K
BIQ 72 K
BIEQ 96 K
BIQ 96 K

with Slide-In-Dial



WEIGEL

Application

Bimetallic maximum demand indicators monitor the most economic use of transformer stations and L.T. distribution feeders by indicating the thermal/time characteristics of the load.

The bimetallic movements are thermally inert. They indicate the mean rms-value over 15 or 8 minute periods enabling to evaluate continuous loads rather than short-time current peaks.

The high torque of the thermal movement offers the possibility to drive a red slave pointer linked to the instrument pointer. Thereby, the highest current reached in the circuit can be read off at any time. The slave pointer is reset to the position of the indicator pointer by means of a sealable reset knob.

Where the instantaneous and maximum demand currents are required, the **BIEQ 72/96 K** instruments combine a thermal bimetallic and a moving-iron movement installed diametrically in one case.

The maximum demand indicators are suitable to be installed in switchboards, mosaic grid panels (except model BIQ 48 K) or machine tool consoles. The bezel, the glass window and the dial can easily be exchanged on-site.

Functional Principle

Bimetallic movement with resettable red slave pointer and a thermally delayed indication enabling to measure the mean rms-value within a time lag of 8 min or 15 min.

Moving iron movement with shell-type system, silicon oil damping, pivot and spring-loaded jewel bearings (response time approx. 1 s).

Mechanical Data

case details	square case suitable to be mounted in control / switchgear panels or mosaic grid panels (except model BIQ 48 K), stackable		
material of case	polycarbonate thermoplastics, self-extinguishing with UL rating of 94 V – 0		
material of window	glass ▶		
colour of bezel	black (similar to RAL 9005) ▶		
position of use	vertical ±5° ▶		
panel fixing	swivel screw clamps or plate springs on top and bottom (except BIEQ 72 K ▶)		
mounting terminals	stackable next to each other hexagon studs, M4 screws and wire clamps E3 terminal safety protection ▶		
dimensions (in mm)	BIQ 48 K	BIQ 72 K	BIEQ 72 K
bezel	□ 48 mm	□ 72	□ 72
case	□ 45	□ 66	□ 66
mounting depth	48	53	53
panel cutout	□ 45.2+0.3	□ 68+0.7	□ 68+0.7
panel thickness	1 ... 15	≤ 40	≤ 40
weight approx.	0.1 kg	0.2 kg	0.2 kg
dimensions (in mm)		BIQ 96 K	BIEQ 96 K
bezel		□ 96	□ 96
case		□ 90	□ 90
mounting depth		60	60
panel cutout		□ 92+0.8	□ 92+0.8
panel thickness		≤ 40	≤ 40
weight approx.		0.26 kg	0.3 kg

Electrical Data

measuring unit	AC current				
frequency range	50 ... 100 Hz				
power consumption	BIQ		BIEQ		
VA ratings	48 K	72 K	96 K	72 K	96 K
at 1 A rated current	<0.5	<1	<1	<1.6	<1.6
at 5 A rated current	<2.2	<2.5	<2.5	<2.7	<3.4
overload capacity (acc. to DIN EN 60 051 - 1)					
continuously	1.2 times rated current				
1 s max.	10 times rated current				
Saturating current transformers shall be used to protect the movements against overloads exceeding specified overload ratings.					
measurement category	CAT III				
operating voltage	BIQ		BIEQ		
	48 K	72 K	96 K	72 K	96 K
	600 V	600 V	150 V	150 V	150 V
pollution level	2				
enclosure code	IP 52 case front side IP 00 for terminals without protection against accidental contact IP 20 for terminals protected against accidental contact ▶				

Measuring Ranges

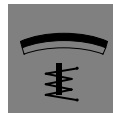
measuring ranges AC current

bimetallic	0 ... 1 / 1.2 A		or	0 ... 5 / 6 A	
moving iron	0 ... 1 / 2 A			0 ... 5 / 10 A	
for use on current transformer (scaling to DIN series)					
bimetallic	0 ... N/1 / 1.2 A		or	0 ... N/5 / 6 A	
moving iron	0 ... N/1 / 2 A			0 ... N/5 / 10 A	
(with overload scaling)					
movements available	BIQ				BIEQ
	48 K	72 K	96 K	72 K	96 K
bimetallic 1 A	●	●	●	●	●
moving iron 1 A	–	–	–	●	●
bimetallic 5 A	●	●	●	●	●
moving iron 5 A	–	–	–	●	●

Scaling

pointer	bar / knife-edge pointer				
pointer deflection	0 ... 90°				
scale characteristics	bimetallic		moving-iron		
	quadratic;		practically linear;		
	scales are calibrated down to 1/5 th rated current.				
overload scaling	bimetallic ▶		moving-iron		
	1.2 times rated current		2 times rated current		
scale division	coarse-fine				
scale length	BIQ		BIEQ		
	48 K	72 K	96 K	72 K	96 K
bimetallic	44 mm	62 mm	98 mm	44 mm	71 mm
moving-iron –	–	–	62 mm	98 mm	–
thermal time delay ▶	BIQ		BIEQ		
bimetallic movem.	48 K	72 K	96 K	72 K	96 K
response time	15 min	15 min	15 min	15 min	15 min
moving iron movem.	–	–	–	approx. 1 s	

▶ also refer to "Options"



Analog Meters Maximum Demand Indicators with Bimetallic Movement, Combined M.D.I. and Moving-Iron Ammeter

Accuracy at Reference Conditions

accuracy class 3 (bimetallic movement
acc. to DIN EN 60 051 -1 referred to slave pointer)
1.5 (moving-iron movement)

reference conditions

ambient temperature 23 °C
position of use nominal position ±1 °
input rated measuring value
others DIN EN 60 051 - 1

influences

ambient temperature 23 °C ±2K
position of use nominal position ±5 °
stray magnetic field 0.5 mT

Environmental

climatic suitability climatic class 3 acc. to VDE/VDI 3540 sheet 2
operating temperature range -10 ... +55 °C
storage temperature range -25 ... +65 °C
relative humidity ≤ 75% annual average, non-condensing
shock resistance 15 g, 11 ms
vibration resistance 2.5 g, 5 ... 55 Hz

Rules and Standards

DIN 43 718 Measurement and control; front-frames and frontpanels of measurement and control equipment; principal dimensions
DIN 43 802 Line scales and pointers for indicating electrical measuring instruments; general requirements
DIN 16 257 Nominal positions and position symbols used for measuring instruments
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
-2 Part 2: Special requirements for ammeters and voltmeters
-9 Part 9: Recommended test methods
DIN EN 60 529 Enclosure codes by housings (IP-code)
DIN EN 61 010 - 1 Safety requirements for electrical measuring, control and laboratory equipment
Part 1: General requirements
DIN EN 61 326 - 1 Electrical equipment for measurement, control and laboratory use – EMC requirements
Part 1: General requirements
DIN IEC 61 554 Panel mounted equipment – Electrical measuring instruments – Dimensions for panel mounting
VDE/VDI 3540 sheet 2 reliability of measuring and control equipment (classification of climates)

Options

case

window non-glaring glass
colour of bezel gray (similar to RAL 7037)
position of use to be specified 15...165 °
marine application non-certified
panel fixing plate springs for BIEQ 72 K on request

dial

blank dial pencil-marked initial and end values
scale division 0 ... 100%
and figuring
additional lettering to be specified e.g. "generator"
additional figuring to be specified
coloured marks red, green or blue for important scale values
coloured sector red, green or blue within scale division
overload scaling no overload range
bimetallic or overload range 1.5 times rated current
logo on the dial none or to be specified

others

calibration for a definite frequency 100 ... 1000 Hz
thermal time delay 8 min

terminal protection against accidental contact

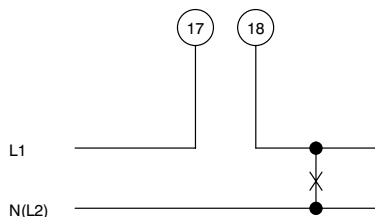
full-sized rear cover (except model BIQ 48 K) or protective sleeves

saturating current transformer

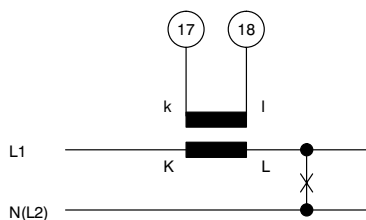
saturating transformer accuracy class 3, 50 Hz to protect the movements against overloads up to 100 times rated current (1 s max).
with base fixing attachment for panel projection mounting
ESW 1/5 A, 4.25 VA
ESW 5/5 A, 4.25 VA

Connections

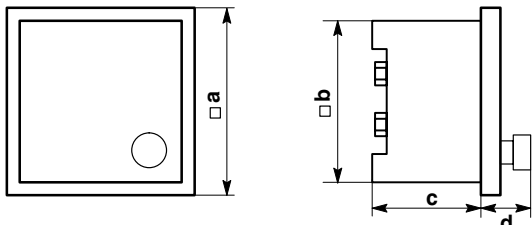
direct-connected



for use on current transformer



Dimensions



dimensions (in mm)	BIQ 48 K	BIQ/BIEQ 72 K	BIQ/BIEQ 96 K
a	48	72	96
b	45	66	90
c	48	53	60
d	11	11 (BIQ 72 K) 20 (BIEQ 72 K)	20

Ordering Information

type BIQ	maximum demand indicator with bimetallic movement
BIEQ	combined M.D.I. & moving-iron ammeter
front dimensions 48 K 72 K 96 K	48 mm x 48 mm 72 mm x 72 mm 96 mm x 96 mm
measuring ranges	refer to table inside
window	glass ¹⁾ non-glaring glass
colour of bezel	black (similar to RAL 9005) ¹⁾ gray (similar to RAL 7037)
position of use	vertical ¹⁾ to be specified 15 ... 165° ²⁾
marine application	none ¹⁾ non-certified
dial	scale division & measuring range alike resp. acc. to DIN series if used on C.T. ¹⁾ no dial blank dial scale division and figuring 0 ... 100% additional lettering to be specified ²⁾ additional figuring to be specified ²⁾ coloured marks red, green or blue ²⁾ coloured sector red, green or blue ²⁾
overload scaling bimetallic	no overload range 1.2 times rated current ¹⁾ 1.5 times rated current
calibration	50 Hz ¹⁾ for a definite frequency 100 ... 1000 Hz ²⁾
thermal time delay	8 min 15 min ¹⁾
logo	WEIGEL ¹⁾ none to be specified ²⁾
terminal safety protection	none ¹⁾ full-sized rear cover protective sleeves
saturating current transformer	none ¹⁾ ESW 1/5 A, 4.25 VA ESW 5/5 A, 4.25 VA

¹⁾ Standard

²⁾ Please clearly add the desired specifications.

ordering example

BIQ 96 K for use on current transformer 300/5 A,
thermal time delay 15 min, WEIGEL logo

Weigel Meßgeräte GmbH

Postfach 720 154 • 90241 Nürnberg • Phone: 0911/42347-0
Erlenstraße 14 • 90441 Nürnberg • Fax: 0911/42347-39
Sales: Phone: 0911/42347-94
Internet: <http://www.weigel-messgeraete.de>
e-mail: vertrieb@weigel-messgeraete.de

– specifications subject to change without notice; date of issue 12/10 –

