

EGIL Circuit breaker analyzer



- Suitable for testing timing and travel on all circuit breakers with single interrupter per phase
- Extremely easy-to-use and reliable
- Two separate timing channels for measurement of auxiliary contacts
- Analog measurement channels for travel transducers or general voltage/current measurements
- Static and dynamic resistance measurements along with the SDRM201 optional accessory

Description

EGIL[™], which incorporates benefits gained from experience with our larger instrument, is intended for circuit breakers with one contact per phase. Smaller and simpler, EGIL is equally versatile – and EGIL's price makes it attractive to small power plants. Moreover, it provides an ideal supplementary instrument for maintenance departments at large power companies.

EGIL is designed to test circuit breakers having one main contact per phase. Its three time channels are connected together on one side. Events at parallel contacts equipped with pre-insertion resistors are recorded and displayed simultaneously. There are two separate time channels for measurement of auxiliary contacts. To simplify on-site hookup, EGIL comes with ready-made multi-cable sets for both main and auxiliary contacts.

Coil currents are measured automatically and presented together with other readings immediately after testing on the display window or via the built-in printer. EGIL is easy to use – a built-in sequencer (program unit) sets the instrument automatically for the next sequential breaker operation.

Intended primarily for measuring travel (motion), the optional analog input channel finds many other uses as well. If this channel is not installed, all associated menu commands are hidden.

EGIL with the SDRM option together with the SDRM accessory enables static and dynamic resistance measurements.

EGIL can also be equipped with an optional USB interface for communication with a PC and the CABA Win™ Circuit Breaker Analysis Software.

EGIL Circuit breaker analyzer

Features and benefits

- 1. Mains voltage changeover switch, 115/230 V AC.
- SDRM (optional) Static and dynamic resistance mesurement. Interface for the SDRM201 accessory.
- Built-in coil current measurement. Readings are presented on autoscaled graphs.
- 4. Sequencer for coil signals permits delays to be introduced for coil impulses that differ relative to each other.
- Three timing channels. Both main contacts and preinsertion resistor contacts can be timed on the same channel. Results are presented both graphically and numerically.
- 6. Two galvanically isolated timing channels. Can be used for timing of dry or wet auxiliary contacts.
- 7. **Optional analog input channel,** intended for measuring travel (motion) or any other analog voltage.

- 8. **USB (optional)** interface for PC. Supports communication with the CABA breaker analysis software.
- Built-in printer features autoscaling, 114 mm (4,5") wide paper can be changed quickly and easily.
- 10.Galvanically isolated sockets ensure safe, reliable disconnection of operating coil cables before working in or on the breaker.
- 11. Breaker state indicator. Egil measures the state (open or closed) of the breaker, whereupon the sequencer sets the instrument automatically for the next sequential operation.
- 12. Buttons for sequence (C, O, C-O, O-C or O-C-O) settings and to run a print out of measurement results.
- 13.Switch used to set the breaker to the desired state without activating the measurement channels.
- 14. Menu-driven procedures automatically invoke default

settings to eliminate time consuming presetting. All menu lines associated with uninstalled optional equipment are hidden to enhance simplicity. For the basic egil unit you simply connect the multi-cable sets and turn the MEASURE knob.

- 15.**MEASURE knob**. Runs a breaker operation sequence, measuring and recording the results.
- 16.**AUX 1 & 2 buttons** used for time channels that measure timing of auxiliary contacts. Contact sensing or voltage sensing can be selected.



	1. BREAKER DATA		
ace for your	Station:	L	ine/Compartment:
port data	Breaker ID: Manufacturer:	5	ierial number: breaker type:
	2. TEST DATA		
	Type of test:		Iperator:
	Company name:	1	teference:
	3. COMMENTS		
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mments — —			
arameters you			
ave selected for	4. GENERAL TEST CUMPITIUNS Sequence: CO		
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	Pulse Open	Length 8.38s	Delay 0.20s
	Close	8.14s	
arameters you	Open		
ave selected for	5. MOTION TEST CONDIT	IONS	
avel (motion) —	Nominal stroke leng	th: 135.0mm	
easurement	Closing speed calcula	tion points	
	Lower point: 18.8ms	before upper point	
	Opening speed calcula	tion points	
	Upper point: at ope	n of main contact	
ltering you have	Lower point: 10.8ms	after upper point	
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bular printout			
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Application

EGIL is intended primarily for testing high-voltage circuit breakers at medium-level voltages. There must not, however, be more than one break per phase since the time channels are not galvanically isolated. Contact times are recorded for main contacts, pre-insertion resistor contacts and auxiliary contacts. Coil currents are also recorded.

Besides the actual measurement values several parameters according to IEC standards are calculated and shown in the report, e.g. closing and opening time, difference between phases, over-travel, CO and OC time (and others).

Application example

IMPORTANT

Read the User's manual before using the instrument.

- 1. Ground EGIL using the included ground cable. Make certain that the circuit breaker is closed and grounded on both sides.
- **2.** Connect the main contact cable set to EGIL and the circuit breaker.
- **3.** Connect the auxiliary contact cable set to the a- and b- contacts on the operating mechanism.
- **4.** Connect the EGIL sequencer to the close- and trip-coils and to the auxiliary voltage.
- 5. Remove the breaker's ground connection on one side.
- **6.** You are now ready to proceed with the test. Simply turn the MEASURE rotary switch and read the results.

Specifications

Specifications are valid at nominal input voltage and an ambient temperature of +25°C, (77°F). Specifications are subject to change without notice.

Environment

Application field

Temperature Operating Storage & transport Humidity

CE-marking EMC

LVD

General

Mains voltage Power consumption Dimensions Instrument

Transport case

Weight

Display Available languages

Measurement section

Time measurement

Measurement time Resolution Number of channels Time base inaccuracy Status thresholds Closed Resistor Open Open circuit voltage Short circuit current AUX 1&2

Number of channels

Contact-sensing (Dry)

Status thresholds Closed Open Open circuit voltage Short circuit current

Voltage sensing (Wet)

Status thresholds Open indication Close indication Working voltage

Current measurement

Range Resolution Inaccuracy Working voltage The instrument is intended for use in medium-voltage substations and industrial environments.

0°C to +50°C (32°F to +122°F) -40°C to +70°C (-40°F to +158°F) 5% – 95% RH, non-condensing

2004/108/EC 2006/95/EC

115/230 V AC (switchable), 50/60 Hz 100 VA (max)

360 x 210 x 190 mm (14.2" x 8.3" x 7.5") 420 x 300 x 230 mm (16.5" x 11.8" x 9.0") 6.3 kg (14 lbs). 10 kg (22 lbs) with accessories and transport case LCD English, German, French, Spanish, Swedish

1 to 100 s 0.1 to 10 ms 3 with common ground 0.05% of the reading ± resolution

< 10 Ω ±20% 10 Ω ±20% to 3 kΩ ±20% > 3 kΩ ±20% 24 V ±20% 100 mA ±20%

2, galvanically isolated

< 600 Ω ±30% > 600 Ω ±30% 20 V ±20% DC 25 mA ±20%

< 8 V (polarity insensitive) > 13 V (polarity insensitive) 250 V AC/DC

±25 A per channel 25 mA 1% of the reading ±100 mA 250 V AC/DC

Breaker operation

Sequences Continuous current Max current Contact function Contact characteristics

Make/Break capacity

Start breaker operation Pulse length Pulse delay Working voltage

Motion (optional)

Number of channels Max cable length

Input

Range Resolution Inaccuracy Transducer resistance Input impedance

Output Open circuit voltage

Short circuit current

Printout Type of printout

Printer Graphic resolution Paper width

C, O, C-O, O-C, O-C-O 5 A

25 A during 300 ms, rest time 1 min Two independent control functions Non bouncing, closing time max. 0.1 ms

25 A, 250 V (AC or DC) per contact function By rotary switch

Adjustable in steps of 10 ms Adjustable in steps of 10 ms 250 V AC/DC

1 independent 10 m (33 ft)

-4 V to +4 V 2 mV 1% of the measurement range

1 kΩ to 5 kΩ 150 kΩ

4,095 V ±4 mV 115 mA

Graphic and numeric Thermal printer with fixed print head 8 dots/mm – 203 dpi 114 mm (4.5")

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Optional Accessories



The SDRM201 is intended to use for both static and dynamic resistance measurements (SRM and DRM) on high voltage circuit breakers or other low resistive devices



The SDRM Cable



Cable reels, 20 m (65.5 ft), 4 mm stack-able safety plugs



Multicable sets GA-00160 and GA-00170 and cable set GA-00082



Transducer cables GA-00041 and GA-00042



Current cables for SDRM201, the red cable is 3.0 m (9.8 ft) and the black one is 0.5 m (1.6 ft)



Extension cable XLR, GA-01005



Extension cable XL, GA-00150

EGIL Circuit breaker analyzer



Linear transducer, TLH 225



Linear transducer, LWG 150



Universal support



Rotary transducer mounting kit



Voltage divider, VD401



Linear transducer, TS 25



Rotary transducer, Novotechnic IP6501 (analog)



Switch magnetic base

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Ordering information

Item		Art. No.
EGIL Basic unit		BM-19090
Incl:		
Time measurement cables	GA-00160, GA-00170	_
Cable set for sequencer	GA-00082	-
Transport case	GD-00190	
EGIL with USB port		BM-19092
Incl:		
CABA Win	BL-8206X	_
Cable set for sequencer	GA-00160, GA-00170	-
Transport case	GD-00190	-
Eail with analog input	t channel and	
USB port	c chamier and	BM-19093
Incl:		
CABA Win	BL-8206X	_
Time measurement cables	GA-00160, GA-00170	-
Cable set for sequencer	GA-00082	-
1 m (3.2 ft)	GA-00041	
Transducer cable XLR-XLR 7.5 m (24.6 ft)	GA-00042	_
Transport case	GD-00190	-
Egil with SDRM option	n and USB port	BM-19095
Incl:		
CABA Win	BL-8206X	_
Time measurement cables	GA-00160, GA-00170	_
Transducer cable XLR-open	GA-00082 GA-00041	_
Transducer cable XLR-XLR	GA-00042	_
7.5 m (24.6 ft) Transport case	GD-00190	-
Upgrade		
Upgrade of EGIL can be do	one, please contact your	
nearest distributor for part	number and price.	
Optional accessories		
CABA Win		
Circuit breaker analysis sof	tware	DI 007
Incl. USB cable		BL-8206X
SDRM201		CG-90250
Extension cables for SDR	RM201	
10 m (33 ft) extension		GA-12810
7.5 m (24.6 ft) extension		GA-12815
Transducers – Linear		
TLH 500		XB-30020
LWG 225		XB-30117
TS 150		XB-30030
TS 25		XB-30033
Transducers – Rotary		
Novotechnic IP6501		XR_31010
Fiex coupling for IP6501		XB-39030

Circuit breaker analyzer
Art No

EGIL

Item	Art. No.
Transducer mounting kits	
Universal kits	
Rotary transducer mounting kit For transducers XB-31010 and XB-39130	XB-51010
Universal transducer mounting kit for linear and rotary transducers	XB-51020
Ready-to-use-kits – Rotary	
Incl. transducer XB-31010, mounting kit XB-51010	XB-71010
Transducer mounting accessories	
Universal support	XB-39029
Switch magnetic base	XB-39013
Cables	
Cable reel 20 m (65.5 ft), 4 mm stackable safety plugs	
Black	GA-00840
Red	GA-00842
Yellow	GA-00844
Green	GA-00845
Blue	GA-00846
Cable sets The cable sets consist of 8 cables with clamps and 4 mm stackable safety plugs	
8 x 5 m, (16.4 ft)	GA-00231
8 x 10 m, (32.8 ft)	GA-00241
8 x 15 m, (49.2 ft)	GA-00251
Extension cables, XLR female to male	
For analog input, 10 m (32.8 ft)	GA-01005
For time measurement of main contacts, 10 m (32.8 ft)	GA-00150
Open analog cable For customized analog transducer connection	GA-01000
XLR to 4 mm safety plugs For customized analog transducer connection	GA-00040
Other	
VD401 Voltage divider, ratio 400/1 (for TM1600 and EGIL with analog channel)	BL-90070
Thermopaper, 114 mm, 30 m	GC-00030
Cable organizer, Hook and loop fastener, 10 pcs	AA-00100

Registered to ISO 9001 and 14001
Megger is a registered trademark

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Postal address	Visiting address
Megger Sweden AB	Megger Sweden AB
Box 724	Rinkebyvägen 19
SE-182 17 DANDERYD	SE-182 36 DANDERYD
SWEDEN	SWEDEN
T +46 8 510 195 00	seinfo@megger.com
F +46 8 510 195 95	www.moggor.com
	www.meggei.com