

EGIL200

Circuit breaker analyser

Megger[®]



- Mid-range circuit breaker analyser providing a new level of accuracy to your standard measurements
- Intuitive operation offers final measurement results with a minimum of user interaction
- Measurement performance inherited from market leader Megger TM series circuit breaker analysers
- Instrument and accessories designed for the most demanding field conditions
- Easy-to-use and intuitive interface

DESCRIPTION

EGIL200 is the first incarnation in a new range of circuit breaker analysers from Megger. It has been designed in close cooperation with global industry reference groups drawing experience from the market leading and hugely successful Megger TM series of circuit breaker analysers.

The emphasis in the development of the EGIL200 has been on ease of use, ensuring that the time spent on setting up measurements is kept to a minimum. As such, with the EGIL200, you can get your test results done in no time.

Connection to the test object has also been streamlined and with only one hook-up, all following operations or measurements can be made:

1. Timing of main and PIR contacts
2. Coil current analysis of close, open 1 and 2 coils
3. Station voltage measurements
4. Motion measurements
5. Motor current measurement
6. Minimum pickup voltage test for close, open 1 and open 2

The patented DualGround™ timing using the DCM module makes the testing safe and time saving by keeping the circuit breaker grounded on both sides throughout the test. The DCM module uses a measuring technology called Dynamic Capacitive Measurement.

With both main instrument and accessories designed for the most demanding field conditions, EGIL200 is your complete toolbox for daily, hassle-free circuit breaker condition assessments.

BENEFITS

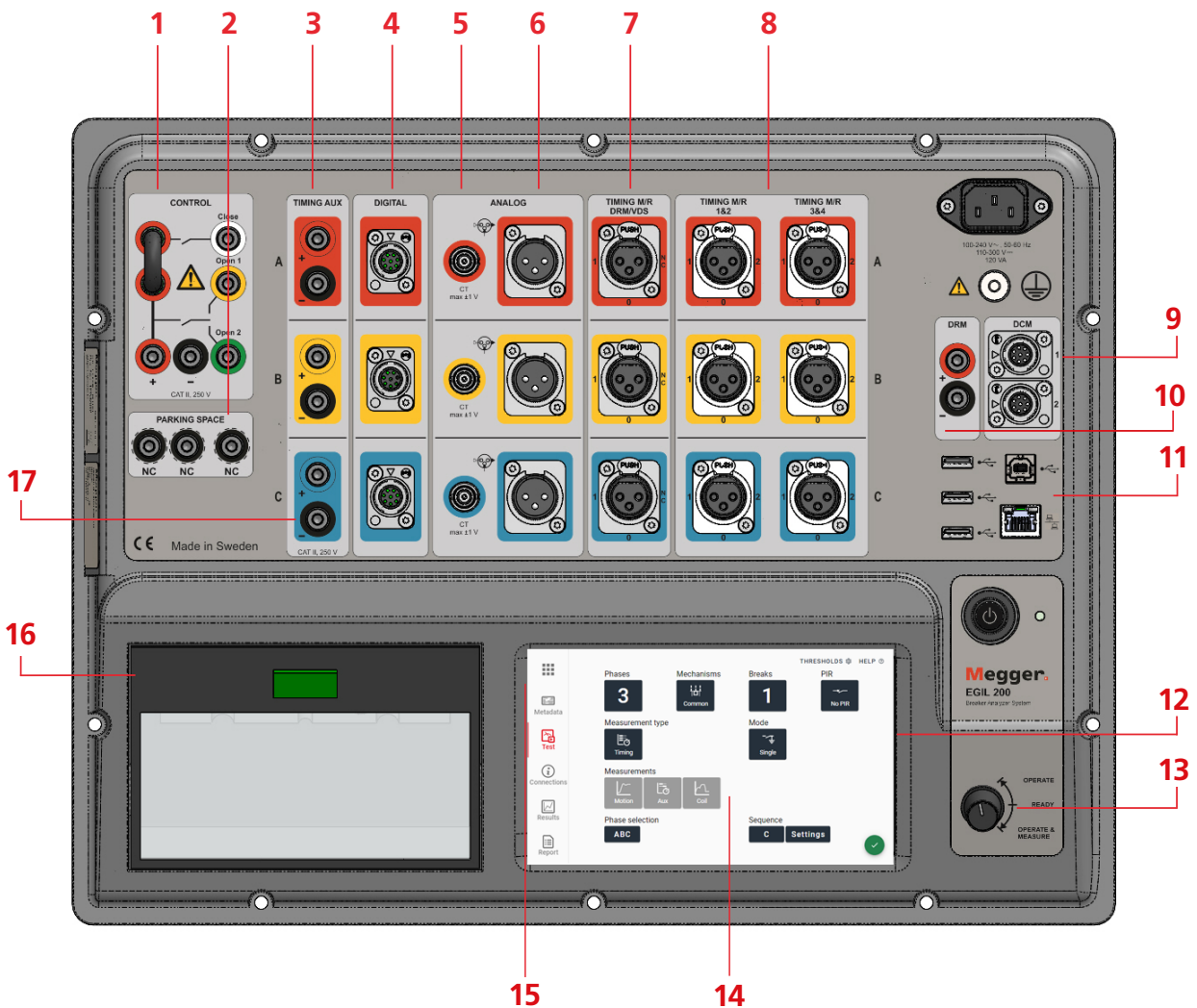
EGIL200 offers all standard measurements from IEEE C37 and IEC 62271 standards and brings high-end features from the TM series into the affordable mid-range segment:

- Offers all standard measurements based on international standards
- Intuitive and user-friendly operation – a minimum of user interventions needed from power-up of instrument to documented measurement result
- Instrument fitted in rugged IP67 rated case and accessories in easy-to-carry backpack
- Designed for medium to high voltage circuit breakers
- One-click reporting to pdf or printed on optional, integrated printer
- Dedicated control output for open coil 2
- Multi-functional control channels that, with only one connection, manage control pulses and can measure station voltages and coil currents
- Galvanically insulated and polarity independent auxiliary contact timing channels, automatically adapted for dry and wet contacts
- Accurate pre-insertion resistor contact timing and resistance value measurement thanks to patented Active Interference Suppression technology
- Static and dynamic resistance measurement on up to three contacts simultaneously (model depending).

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FEATURES AND BENEFITS

- 1. CONTROL**
Breaker control (close, open 1 and open 2) and external trig inputs
Station voltage and coil current measurement
- 2. PARKING SPACE**
For safe disconnection of coil circuits
- 3. TIMING AUX**
3 channels for auxiliary contact timing and external trig
- 4. DIGITAL**
3 digital inputs for incremental motion transducers
- 5. 1-3 BNC INPUTS**
1-3 BNC inputs dedicated for current clamps
- 6. MULTI-PURPOSE CHANNELS**
1-3 multi-purpose analog channels
- 7. TIMING M/R, DRM/VDS**
Timing of main and resistor contacts, DRM, SRM and CT / VDS-timing on 1 break per phase (Only EGIL211, EGIL213)
- 8. TIMING M/R**
Timing of main and resistor contacts on up to 4 breaks per phase (Only EGIL221, EGIL223, EGIL241, EGIL243)
- 9. DCM DualGround™**
Input for 1-2 DCM200 (opt. accessory), for main contact timing with both sides grounded
- 10. DRM**
DRM control output (opt. accessory)
- 11. USB AND ETHERNET PORT**
3 × USB A, 1 × USB B and 1 × RJ45
- 12. LCD SCREEN**
7" high visibility touch screen
- 13. OPERATE / MEASURE ROTARY SWITCH**
- 14. ICONOGRAPHY**
Contrast rich iconography for best visibility and understanding
- 15. USER INTERFACE**
Workflow based (Nameplate, test settings, connections, results, report)
- 16. PRINTER**
Optional 4" thermal printer
- 17. COLOUR CODED CONNECTORS AND LEADS**
For easy verification of connections



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SPECIFICATIONS EGIL200

Specifications are valid after 30 minutes warm up time.
System time base drift 0.001 % per year.
Specifications are subject to change without notice.

Environment

Application field For use in medium and high voltage substations and industrial environments

Temperature

Operating -20 °C to +55 °C (-4 °F to +131 °F)

Storage & transport -30 °C to +70 °C (-40 °F to +158 °F)

Humidity

5 % – 95 % RH, non-condensing

Altitude

Operating Up to 2000 m (6562 ft) max. 240 V AC / 250 V DC on mains, max. 250 V AC / 300 V DC on CONTROL and TIMING AUX inputs.
Between 2000 m (6562 ft) and 5000 m (16404 ft) max. 150 V AC / DC on mains, CONTROL and TIMING AUX inputs

CE-marking

LVD 2014/35/EU

EMC 2014/30/EU

RoHS 2011/65/EU

General

Mains input (nominal) 100 – 240 V AC, 50 / 60 Hz, 110 – 250 V DC

Power consumption 200 VA (max.)

Dimensions 474 x 415 x 214 mm (18.7" 16.3" 8.4")

Weight 12 kg (26.5 lbs)

IP-rating (IEC 60529):

Closed case IP67

Open case IP20

Data memory capacity 1.4 GB, corresponding to up to 6000 basic recordings or up to 1500 advanced recordings

Display

7" (17.8 cm) LCD, Capacitive touch screen

Available languages English, French, German, Spanish and Swedish

Communication interfaces



3 USB A, 1 USB B for connection to external PC



RJ45 for connection to external PC

Keyboard On-screen and optional USB keyboard

External outputs

Trig output for SDRM20X

Output voltage 12 V DC ± 10 %

Short circuit protection PTC 250 mA

Switching current <250 mA, resistive load

Control section

General

Control pulse outputs Close, open 1 and open 2 (Galvanically insulated from earth and each other)

Time base inaccuracy ± 0.01 % of reading ± 1 sample interval

Max. sample rate 40 kHz

Measurement time Up to 10 s

Non-bouncing switch

Max. current 60 A AC / DC, pulse ≤ 20 ms

Max. continuous current 5 A

Duration User configurable in steps of 1 ms

Delay User configurable in steps of 1 ms

¹With standard 5 m test leads and floating test object

Current measurement

Measurement range ± 80 A

Resolution 16 bits

Inaccuracy ± 2 % of reading ± 0.1 % of range

Voltage measurement

Max. voltage 250 V AC, ± 300 V DC

Measurement range ± 400 V

Resolution 16 bit

Inaccuracy ± 1 % of reading ± 0.1 % of range

Timing M/R section

General

No. of channels 3, 6 or 12 selectable at ordering

Time base inaccuracy ± 0.01 % of reading ± 1 sample interval

Min. detected contact bounce 0.05 ms

Max. sample rate 40 kHz

Measurement time Up to 10 s

Timing of main and resistor contacts

Open circuit voltage Toggling ± 12 V ± 10 %

Short circuit current 22 mA ± 10 %

50/60 Hz interference suppression

Active Interference Suppression, Megger patent

Transient disturbance suppression

Smart digital filter

Status threshold

User configurable thresholds

Main Closed < 10 Ω < Open (Factory default)

Main and resistor Main < 10 Ω < PIR < 2 k Ω < Open (Factory default)

PIR resistance measurement

Supported PIR types Linear PIR

Measurement range 10 Ω – 10 k Ω

Inaccuracy ± 5 % of reading ± 0.1 % of range¹

Voltage measurement (Only TIMING M/R, DRM/VDS inputs)

Measurement ranges ± 50 V and ± 2.5 V

Resolution 16 bits

Inaccuracy ± 1 % of reading ± 0.1 % of range

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Analog section

General

No. of channels	1 or 3 isolated channels
Time base inaccuracy	± 0.01 % of reading ± 1 sample interval
Max. sample rate	40 kHz
Measurement time	Up to 10 s
Transducer resistance	500 Ω – 5 k Ω

Output

Voltage	10 V DC ± 5 %
Max. output current	30 mA

Voltage measurement

Max. voltage	$\pm 10 V_{\text{peak}}$
Measurement ranges	± 1 V and ± 10 V
Resolution	16 bits

Inaccuracy

1 V range	± 0.1 % of reading ± 0.1 % of range
10 V range	± 1 % of reading ± 0.1 % of range

External current measurement

Max. input	$\pm 1 V_{\text{peak}}$
Scaling	Selectable in software

Digital section

General

No. of channels	3
Supported types	Incremental transducers, RS422
Time base inaccuracy	± 0.01 % of reading ± 1 sample interval
Max. sample rate	40 kHz
Measurement time	Up to 10 s

Output

Voltage	12 V DC ± 5 %
Max. output current	300 mA

Digital input

Range	± 32000 pulses
Resolution	1 pulse
Inaccuracy	± 1 pulse

Timing Aux section

General

No. of channels	3 isolated channels
Time base inaccuracy	± 0.01 % of reading ± 1 sample interval
Max. sample rate	40 kHz
Measurement time	Up to 10 s
Max. voltage	250 V AC, ± 300 V DC

Contact mode

Open circuit voltage	24 V DC ± 5 %
Short circuit current	10 mA DC ± 5 %
User configurable status threshold	Open < -10 V < Closed < 10 V < Open (Factory default)

Printer (optional)

Type	Thermal printer
Paper width	112 mm, 114 mm (4.41", 4.48")
Operating temperature	0 °C to +60 °C (32 °F to +140 °F)
Storage & transport	-20 °C to +70 °C (-4 °F to +158 °F)

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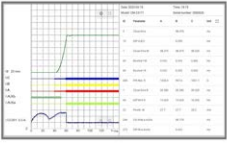


Included cables

Each model is delivered with the necessary number of timing cables to fit the amount of timing channels available

		2 and 4 breaks per phase	1 break per phase	
		High voltage lead kit	Medium voltage lead kit	High voltage lead kit
<p>GA-00850</p>  <p>Timing M/R cable For 2 breaks/phase</p> <ul style="list-style-type: none"> XLR3 male to banana connector, 5 m (16.4 ft) Length of the split portion (retractable sock), 2.4 m (8 ft) to 3.8 m (12 ft) 		✓		
<p>GA-00851</p>  <p>Timing M/R extension cable</p> <ul style="list-style-type: none"> XLR3 male to XLR3 female, 10 m (32.8 ft) 		✓		✓
<p>GA-00853</p>  <p>Timing M/R medium voltage cable</p> <ul style="list-style-type: none"> 3 x XLR3 male to banana, 3 m (9.8 ft) Length of the split portion 0.5 m (1.6 ft) 			✓	
<p>GA-00854</p>  <p>Timing M/R high voltage cable For 1 break/phase</p> <ul style="list-style-type: none"> XLR3 male to banana, 5 m (16.4 ft) Length of the split portion (retractable sock), 2.4 m (8 ft) to 3.8 m (12.5 ft) 				✓
<p>GA-00871</p>  <p>Timing AUX cable</p> <ul style="list-style-type: none"> 6 banana test leads in a common sleeve, 5 m (16.4 ft) Length of the split portion, 0.5 m (1.6 ft) Includes connection adapters 		✓	✓	✓
<p>GA-90002</p>  <p>Control cable kit</p> <ul style="list-style-type: none"> 5 banana test leads in a common sleeve, 5 m (16.4 ft) Length of the split portion (retractable sock), 0.5 m (1.6 ft) to 1.5 m (4.9 ft). Includes connection adapters 		✓	✓	✓

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Included accessories

		2 and 4 breaks per phase	1 break per phase	
		High voltage lead kit	Medium voltage lead kit	High voltage lead kit
KD-03040 	Timing M/R clamp <ul style="list-style-type: none"> Banana connector and strain relief 	✓	✓	✓
GA-01005 	Analog cable <ul style="list-style-type: none"> Screened cable XLR3 female to XLR3 male, 10 m (32,8 ft) 	✓	✓	✓
CM-8200X 	EGIL200 Viewer <ul style="list-style-type: none"> The PC software EGIL200 Viewer is used to analyze results and create pdf reports The installation file is preloaded on the supplied USB memory 	✓	✓	✓
2012-180 	Lead and accessory bag <ul style="list-style-type: none"> Lead and accessory bag with backpack straps and hand straps. Variable height through zipper solution. Dimensions 580x355x165/228 mm (23" x 14" x 6.5"/9") 	✓	✓	✓
GC-00100 	Thermal printing paper <ul style="list-style-type: none"> Only for models with printer 			
Other material included in delivering <ul style="list-style-type: none"> Protective earth (PE) cable 5 m (16.4 ft) Ethernet cable 5 m (16.4 ft) USB cable 3 m (9.8 ft) USB memory stick Lead ties Power cable User Guide 		✓	✓	✓

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Optional accessories

<p>XB-51020</p> 	<p>Universal transducer mounting kit</p> <ul style="list-style-type: none"> ■ Fits linear and rotary travel transducers 	<p>GA-00874</p> 	<p>SDRM voltage sense adapter</p> <ul style="list-style-type: none"> ■ SDRM voltage sense adapter for EGIL200 Analog input. ■ XLR3 female / XLR3 male, 0.3 m (1 ft) ■ For EGIL223 and EGIL243
<p>XB-39131</p> 	<p>Rotary digital transducer kit</p> <ul style="list-style-type: none"> ■ With 10 m (33 ft) cable and flexible coupling ■ Fits with transducer mounting kit XB-51020 	<p>CG-90260/CG-90263</p> 	<p>SDRM201</p> <ul style="list-style-type: none"> ■ SRM/DRM on one contact at a time (CG-90260) ■ Three-phase SRM/DRM on breakers with 1 break/phase (CG-90263) ■ Requires software license CM-8003X
<p>GA-00891</p> 	<p>■ Fits with transducer mounting kit XB-51020</p> <ul style="list-style-type: none"> ■ neutriCON female to neutriCON male, 10 m (33 ft) 	<p>BL-90700/BL-90710</p> 	<p>First trip kits</p> <ul style="list-style-type: none"> ■ For analysis of first trip behaviour ■ For single operating mechanism, 1 + 3 clamps (BL-90700) ■ For three operating mechanisms, 3 + 3 clamp (BL-90710)
<p>GA-00886</p> 	<p>Cable adapter</p> <ul style="list-style-type: none"> ■ EGIL200 digital to TM17/1800 transducers ■ neutriCON male to DSUB15 female, 0.3 m (1 ft) 	<p>GA-00873</p> 	<p>Current clamp adapter</p> <ul style="list-style-type: none"> ■ EGIL200 Timing M/R, DRM/VDS input ■ XLR3 male / BNC female, 0.3 m (1 ft)
<p>XB-30017</p> 	<p>Linear analog transducer TLH-225</p> <ul style="list-style-type: none"> ■ 225 mm (8.8") travel ■ Fits with transducer mounting kit XB-51020 	<p>XA-11620</p> 	<p>Current clamp</p> <ul style="list-style-type: none"> ■ With BNC connector ■ Ranges: 30/300 A DC/AC, 10/1 mV / A ■ Cable length 2 m (6.6 ft)
<p>CM-09290/ CM-09292</p>  <p>DualGround™ method</p> 	<p>DCM200 DualGround™ timing</p> <ul style="list-style-type: none"> ■ DCM200 3-channels (CM-09290) ■ DCM200 6-channels (CM-09292) ■ Test cables, 11 m (35 ft) ■ Requires software license CM-8002X ■ Safe testing with both sides grounded 	<p>GD-31070</p> 	<p>Soft Carrying transport case</p> <ul style="list-style-type: none"> ■ Fits EGIL200 and one lead bag ■ Dimensions: 66 x 46 x 46 cm (26" x 18" x 18")
<p>GD-31055</p> 	<p>Soft cable case</p> <ul style="list-style-type: none"> ■ With 11 compartments, shoulder strap and two handles ■ Made from sturdy nylon fabric. ■ Dimensions: 74 x 27 x 42 cm (29" x 11" x 17") <p>Note: No cables included</p>		

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RECOMMENDED CONFIGURATIONS

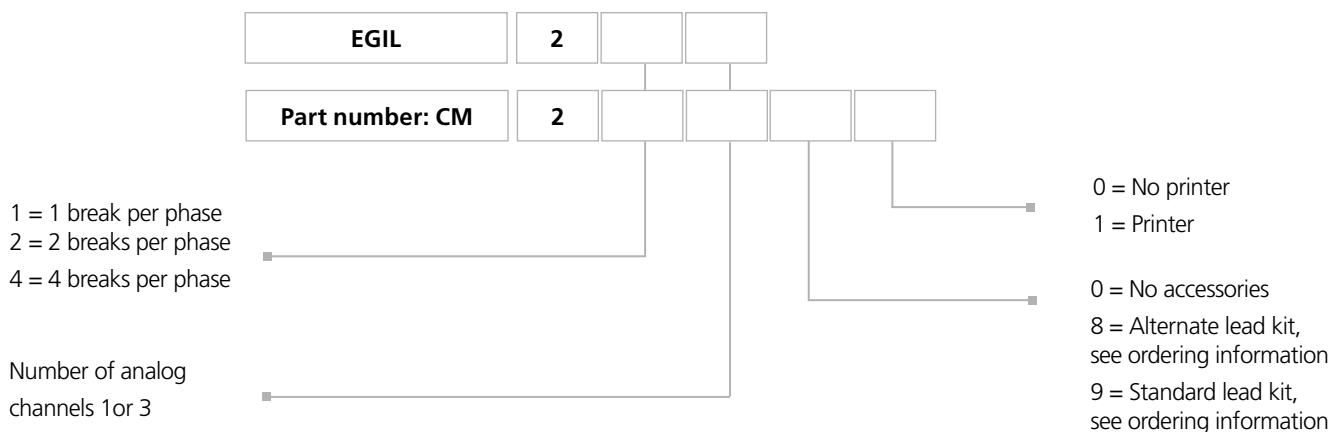
Circuit breaker type	Medium voltage	High voltage, 1 break/phase	High voltage, 2 break/phase	High voltage, 4 break/phase	High voltage, 4 break/phase
Product name	EGIL211	EGIL213	EGIL223	EGIL241	EGIL243
Application	Configured for basic tests of medium voltage circuit breakers. Compatible with the option VDS timing.	Tests gang and independent pole operated medium and high voltage circuit breakers of live and dead tank type. Compatible with the options VDS timing and three-phase DRM.	Base model which performs all standard tests of modern high voltage circuit breakers	Standard tests for circuit breakers with more than two breaks per phase, including integrated thermal printer.	Max configuration for circuit breakers with more than two breaks per phase, including integrated thermal printer.
Break per phase	1	1	2	4	4
Analog input	1	3	3	1	3
Printer option	✓			✓	✓
Part number	CM-21191	CM-21380	CM-22390	CM-24191	CM-24391

Note! Only Circuit breaker standard software package is included in these configurations. Additional software packages or features need to be ordered separately, see section "Software" below.

CUSTOM CONFIGURATIONS

EGIL200 can be ordered either in preconfigured, standard configurations including main unit and accessories or in fully customizable configurations.

EGIL200 naming and part number structure



EGIL200

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EGIL200 SOFTWARE PACKAGES AND FEATURES

Select your own EGIL Software. Standard software package (CM-8010X) included in all EGIL200 versions.		Software packages		Single feature add-ons			
		Standard	Plus	Online	DualGround	SDRM	Under-voltage release coil
Types							
Timing	Conventional	✓	✓				
	Dual-Ground™		✓		✓		
	VDS		✓	✓			
Contact resistance	Manual	✓	✓				
	SDRM		✓			✓	
Motor current and voltage		✓	✓				
Minimum pick-up voltage		✓	✓				
Dynamic resistance			✓			✓	
First trip			✓	✓			
Undervoltage release coil			✓				✓
Measurements							
Motion	Analog	✓	✓				
	Digital	✓	✓				
	Absolute	✓	✓				
	Relative	✓	✓				
Auxiliary contacts	Timing	✓	✓				
	External trig	✓	✓				
Coil currents		✓	✓				
Other functions							
Files and reporting	PDF export	✓	✓				
	XML export		✓				
	Backup/restore breaker file	✓	✓				
	CABA Win compatible ¹		✓				
	Templates	✓	✓				
	Printing	Activated if printer option available					
Part number		CM-8010X	CM-8002X	CM-8006X	CM-8002X	CM-8003X	CM-8005X

¹ See the User Guide for details

Circuit breaker testing accessories

Megger carries an uniquely complete assortment of various accessories, leads, transducers and mounting kits.

- For a complete list of accessories, see the circuit breaker accessory catalog. Use QR code to download



ORDERING INFORMATION	
Item	Part no
EGIL211	
1 brk/ph, 1 analog ch, no accessories	CM-21100
1 brk/ph, 1 analog ch, printer, no accessories	CM-21101
1 brk/ph, 1 analog ch, high voltage lead kit	CM-21180
1 brk/ph, 1 analog ch, printer, high voltage lead kit	CM-21181
1 brk/ph, 1 analog ch, medium voltage lead kit	CM-21190
1 brk/ph, 1 analog ch, printer, medium voltage lead kit	CM-21191
EGIL213	
1 brk/ph, 3 analog ch, no accessories	CM-21300
1 brk/ph, 3 analog ch, printer, no accessories	CM-21301
1 brk/ph, 3 analog ch, high voltage lead kit	CM-21380
1 brk/ph, 3 analog ch, printer, high voltage lead kit	CM-21381
1 brk/ph, 3 analog ch, medium voltage lead kit	CM-21390
1 brk/ph, 3 analog ch, printer, medium voltage lead kit	CM-21391

ORDERING INFORMATION	
Item	Part no
EGIL221	
2 brk/ph, 1 analog ch, no accessories	CM-22100
2 brk/ph, 1 analog ch, printer, no accessories	CM-22101
2 brk/ph, 1 analog ch, high voltage lead kit	CM-22190
2 brk/ph, 1 analog ch, printer, high voltage lead kit	CM-22191
EGIL223	
2 brk/ph, 3 analog ch, no accessories	CM-22300
2 brk/ph, 3 analog ch, printer, no accessories	CM-22301
2 brk/ph, 3 analog ch, high voltage lead kit	CM-22390
2 brk/ph, 3 analog ch, printer, high voltage lead kit	CM-22391
EGIL241	
4 brk/ph, 1 analog ch, no accessories	CM-24100
4 brk/ph, 1 analog ch, printer, no accessories	CM-24101
4 brk/ph, 1 analog ch, high voltage lead kit	CM-24190
4 brk/ph, 1 analog ch, printer, high voltage lead kit	CM-24191
EGIL243	
4 brk/ph, 3 analog ch, no accessories	CM-24300
4 brk/ph, 3 analog ch, printer, no accessories	CM-24301
4 brk/ph, 3 analog ch, high voltage lead kit	CM-24390
4 brk/ph, 3 analog ch, printer, high voltage lead kit	CM-24391
Software package	
Standard (included)	CM-8010X
Plus (includes all below)	CM-8020X
Single feature add-ons	
Online	
<ul style="list-style-type: none"> ■ Includes VDS and First trip ■ First trip test requires First trip kit, optional accessory ■ HW requirement for VDS and CT-timing is EGIL21x ■ HW requirement for First trip coil current analysis on three coils simultaneously is EGIL2x3 	
	CM-8006X
DualGround™	
<ul style="list-style-type: none"> ■ Requires DCM200, optional accessory ■ Fits all EGIL200 models 	
	CM-8002X
SDRM	
<ul style="list-style-type: none"> ■ Requires SDRM201, optional accessory ■ HW requirement for SRM/DRM on three contacts simultaneously is EGIL213. ■ Minimum HW requirement for SRM/DRM on one contact at a time is EGIL211, EGIL223 or EGIL243 	
	CM-8003X
Undervoltage release	CM-8005X

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EGIL200_DS_en_V05

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