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

EGIL200
Circuit breaker analyser

Megger.

FEATURES AND BENEFITS

1. **CONTROL**
   Breaker control (close, open 1 and open 2)
   Station voltage and coil current measurement

2. **PARKING SPACE**
   For safe disconnection of coil circuits

3. **TIMING AUX**
   3 channels for auxiliary contact timing

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 analogue channels

7. **TIMING M/R, DRM/VDS**
   Timing of main and resistor contacts, DRM, SRM and 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™ AND DRM** for future use
   Input for DualGround™ timing (opt. accessory) & DRM control output (opt. accessory)

10. **USB AND ETHERNET PORT**
    3 × USB A, 1 × USB B and 1 x RJ45

11. **LCD SCREEN**
    7" high visibility touch screen

12. **OPERATE / MEASURE ROTARY SWITCH**

13. **ICONOGRAPHY**
    Contrast rich iconography for best visibility and understanding

14. **USER INTERFACE**
    Workflow based (Nameplate, test settings, connections, results, report)

15. **PRINTER**
    Optional 4" thermal printer

16. **COLOUR CODED CONNECTORS AND LEADS**
    For easy verification of connections
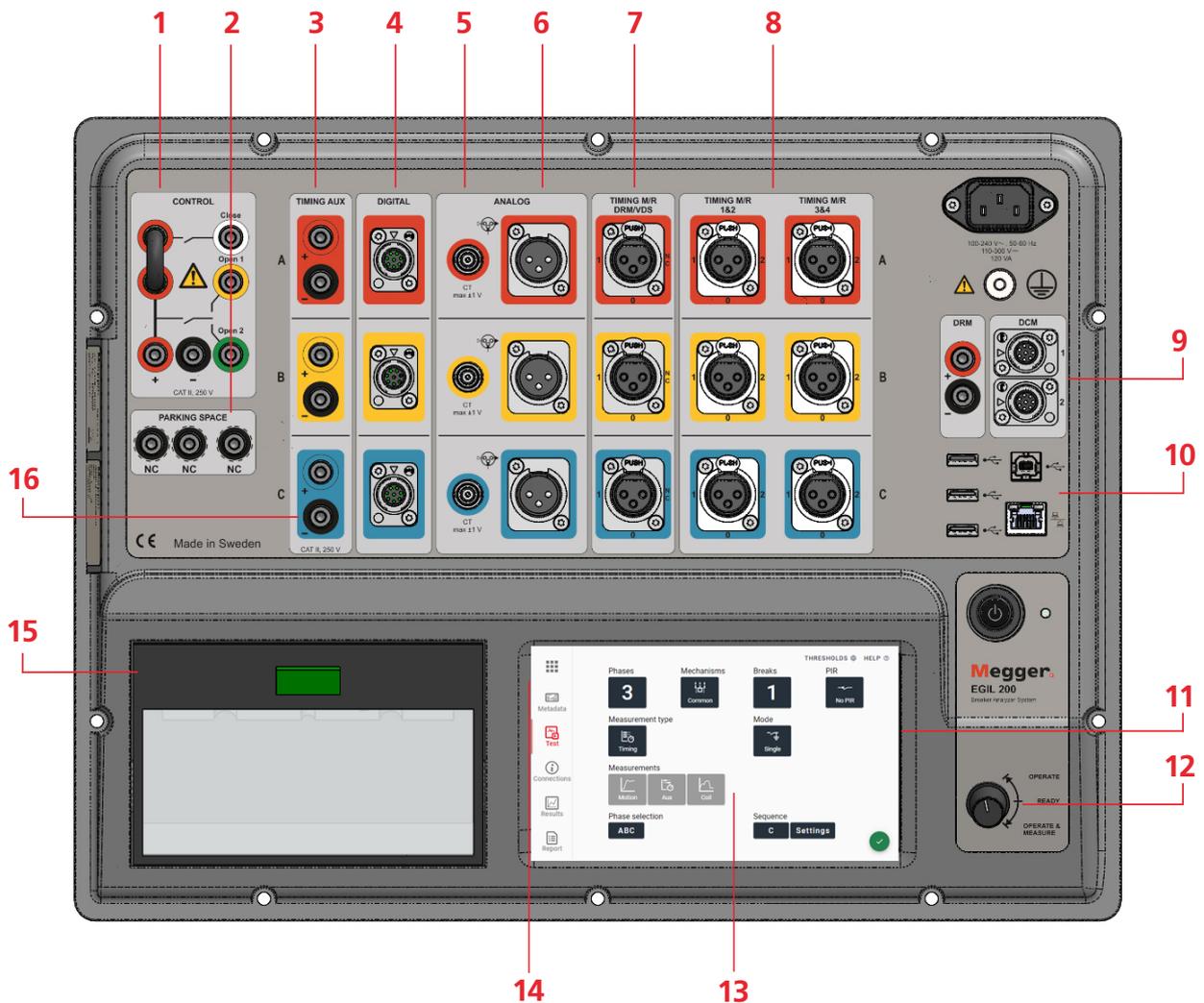
EGIL200
Circuit breaker analyser

Megger®

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 sub-stations 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

Display

	7" (17.8 cm) LCD, Capacitive touch screen
Available languages	English, French, German, Spanish and Swedish

Communication interfaces

⟳ (USB)	3 USB A, 1 USB B for connection to external PC
🖧 (LAN)	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

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	± 400V
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 cicuit 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 kΩ < Open (Factory default)

PIR resistance measurement

Supported PIR types	Linear PIR
Measurement range	10 Ω – 10 kΩ
Inaccuracy	±5 % of reading ±0.1 % of range[1]

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

[1] With standard 5 m test leads and floating test object

Analogue 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 kΩ

Output

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

Voltage measurement

Max. voltage	±10 V_{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	±1 V_{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)

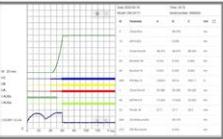|	
Type	Thermal printer
Paper width	112 mm, 114 mm (4.41", 4.48")
Operating temperature	0 °C to +60 °C (32 °F to +140 °F)
Storage & transport	-20 °C to +70 °C (-4 °F to +158 °F)

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
GA-00850 	**Timing M/R cable** For 2 breaks/phase ■ 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)	✓		
GA-00851 	**Timing M/R extension cable** ■ XLR3 male to XLR3 female, 10 m (32.8 ft)	✓		✓
GA-00853 	**Timing M/R medium voltage cable** ■ 3 x XLR3 male to banana, 3 m (9.8 ft) ■ Length of the split portion 0.5 m (1.6 ft)		✓	
GA-00854 	**Timing M/R high voltage cable** For 1 breaks/phase ■ 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)			✓
GA-00871 	**Timing AUX cable** ■ 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	✓	✓	✓
GA-90002 	**Control cable kit** ■ 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	✓	✓	✓

EGIL200
Circuit breaker analyser

Megger

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 ▪ Banana connector and strain relief		✓	✓	✓
GA-01005 Analog cable ▪ Screened cable ▪ XLR3 female to XLR3 male, 10 m (32,8 ft)		✓	✓	✓
CM-8200X EGIL200 Viewer ▪ The PC software EGIL200 Viewer is used to analyze results and create pdf reports ▪ The installation file is preloaded on the supplied USB memory		✓	✓	✓
GD-30225 Lead and accecory bag ▪ Lead and accessory bag with backpack straps and hand straps. ▪ Variable height through zipper solution. ▪ Dimensions 580 x 355 x 165/228 mm (23" x 14" x 6.5"/9")		✓	✓	✓
GC-00110 Thermal printing paper ▪ Only for models with printer				
Other material included in delivering ▪ 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's manual	✓	✓	✓

Optional accessories

XB-51020
Universal transducer mounting kit
- For linear and rotary travel transducers

XB-39131
Rotary digital transducer kit
- With 10 m (33 ft) cable and flexible coupling
- Fits with transducer mounting kit XB-51020

GA-00891
Digital extension cable
- neutriCON female to neutriCON male, 10 m (33 ft)

GA-00886
Cable adapter
- EGIL200 digital to TM17/1800 transducers
- neutriCON male to DSUB15 female, 0.3 m (1 ft)

XB-30017
Linear analogue transducer TLH-225
- 225 mm (8.8") travel
- Fits with transducer mounting kit XB-51020.

BL-90700/BL-90710
First trip kits
- For analysis of first trip behaviour
- For single operating mechanism, 1 + 3 clamps (BL-90700)
- For three operating mechanisms, 3 + 3 clamp (BL-90710)

XA-11620
Current clamp
- With BNC connector.
- Ranges: 30/300 A DC/AC, 10/1 mV / A
- Cable length 2 m (6.6 ft)

CM-09290/CM-09292
DCM200 DualGround™ timing
- 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

DualGround™ method

GD-31070
Soft carrying and transport case
- Fits EGIL200 and one lead bag
  Dimensions: 66 x 46 x 46 cm (26" x 18" x 18")

GD-31055
Soft cable case
- 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")

Note: No cables included

EGIL200
Circuit breaker analyser

Megger

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

EGIL 200 can be ordered either in preconfigured, standard configurations including main unit and accessories or in fully customizable configurations.

EGIL 200 naming and part number structure

EGIL	2		

Part number: CM	2				

1 = 1 break per phase
2 = 2 breaks per phase
4 = 4 breaks per phase

Number of analog channels 1or 3

0 = No printer
1 = Printer

0 = No accessories
8 = Alternate lead kit, see ordering information
9 = Standard lead kit, see ordering information
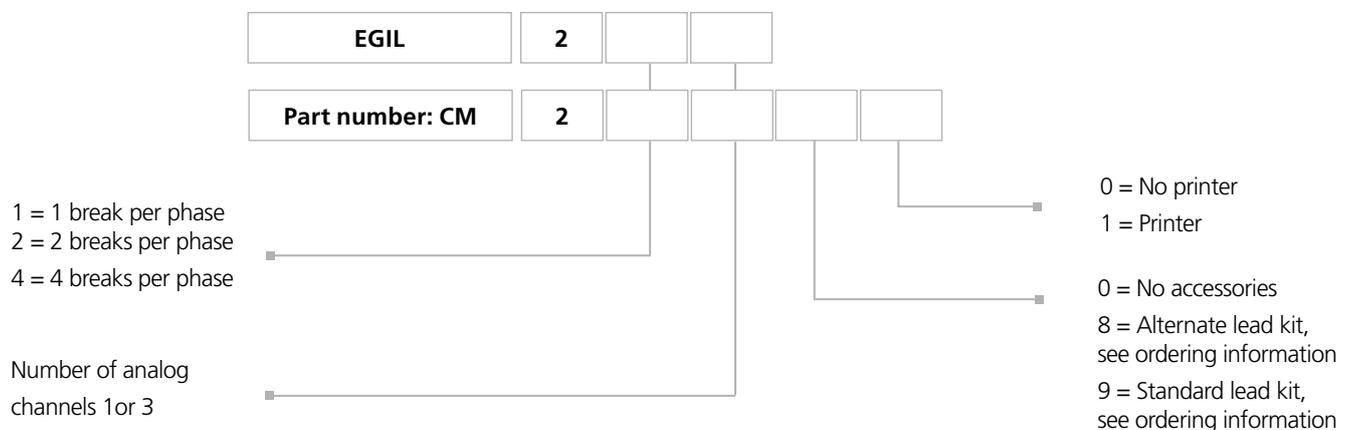
EGIL200 SOFTWARE PACKAGES AND FEATURES

Select your own EGIL Software. Standard software package (CM-8000X) 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	Analogue	✓	✓				
	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**	Not launched	**CM-8006X**	**CM-8002X**	Not launched	Not launched

1 See the User Guide for details

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 or download it from www.megger.com

ORDERING INFORMATION

Item	Part number
EGIL 241	
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
EGIL 243	
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)	Not launched
Online Includes VDS and First trip (First trip test requires First trip kit, optional accessory)	CM-8006X
DualGround™ (Requires DCM200, optional accessory)	CM-8002X
SDRM (Requires SDRM201, optional accessory)	Not launched
Undervoltage release	Not launched

ORDERING INFORMATION

Item	Part number
EGIL 211	
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
EGIL 213	
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
EGIL 221	
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
EGIL 223	
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

Megger. Ⓡ