

# Circuit breaker testing accessories

**Megger**<sup>®</sup>  
Power on



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Item	Description	TM1800	TM1700	TM1600	EGIL	Art. No.
<b>Cables</b>						
<i>Analogue Input XLR/Banana</i>		X	X	X	X	GA-00040
<i>Cable Analogue XLR/open ends</i>		X	X	X	X	GA-00041
<i>Extension cable Analogue Input</i>		X	X	X	X	GA-00042
<i>Transducer cable, XLR / IP / TS</i>		X	X	X	X	GA-00044
<i>Transducer cable, XLR / TLH / LWH</i>		X	X	X	X	GA-00049
<i>Transducer cable XLR / LWG</i>		X	X	X	X	GA-00050

Item	Description	TM1800	TM1700	TM1600	EGIL	Art. No.
Cable Current clamp						
	For current clamp, BNC / XLR3, 0.3 m (1 ft)	X	X	X	X	GA-00140
Cable, extension EGIL Timing MAIN						
	Extension cable for time measurement of main contacts, XLR5 female / XLR5 male 10 m (32.8 ft)				X	GA-00150
	5 m (16.4 ft)				X	GA-00155
Cable, EGIL Timing						
	Timing 5 m (16.4 ft) XLR5 / 4 mm banana incl. clamps				X	GA-00160
Cable, EGIL Timing AUX						
	AUX1&2, timing 2 m (6.5 ft) XLR5 / 4 mm banana excl. clamps				X	GA-00170
Cable, EGIL Voltage sense						
	SDRM Voltage sense cable incl. clamps, 2 m (6.5 ft)				X	GA-00175
Cable set, Timing TM1800 AUX TM1700 AUX TM1600 MAIN TM1600 AUX						
	The cable sets consist of 8 cables with clamps and 4 mm stackable safety plugs. For timing of CB contacts. 5 m (16.4 ft)	X	X	X		GA-00231
	10 m (32.8 ft)	X	X	X		GA-00241
	15 m (49.2 ft)	X	X	X		GA-00251
	20 m (65.6 ft)	X	X	X		GA-00261
	25 m (82 ft)	X	X	X		GA-00271
	40 m (131 ft)	X	X	X		GA-00281

Item	Description	TM1800	TM1700	TM1600	EGIL	Art. No.
SCA600/Coax. Cable		X	X	X		GA-00750
Extension cable Analogue input						
	XLR female/XLR male 1 m (3.3 ft)	X	X	X	X	GA-00760
Cable reel	20 m (65.5 ft), 4 mm stackable safety plugs					
	Black	X	X	X	X	GA-00840
	Red	X	X	X	X	GA-00842
	Yellow	X	X	X	X	GA-00844
	Green	X	X	X	X	GA-00845
	Blue	X	X	X	X	GA-00846
Cable Timing MAIN						
	Timing M/R XLR3 male / banana, 5 m (16.4 ft), Length of the split portion (retractable sock), 2.4 m (8 ft) to 3.8 m (12 ft)	X	X			GA-00850
Extension cable Timing MAIN						
	For Timing M/R modules, XLR3 male / XLR3 female, 10 m (32.8 ft)	X	X			GA-00851
Adapter for Doble digital transducer						
	For Doble digital transducer	X	X			GA-00867
Adapter for Siemens digital transducer						
	For Siemens digital transducer	X	X			GA-00868
Adapter for Vanguard digital transducer						
	For Vanguard digital transducer	X	X			GA-00869





Item	Description	TM1800	TM1700	TM1600	EGIL	Art. No.
Cable Timing AUX	 <p>Including: 4 Adapter for terminal block 4 Cable lug adapter 1 Cable, 5 m, (16.4 ft)</p>	X	X			GA-00870
Digital transducercable	 <p>For customized digital transducer connection RS422, SUB-D15 / open ends, 10 m (33 ft)</p>	X	X			GA-00885
Digital transducer extension cable	 <p>RS422, SUB-D15 / SUB-D15, 10 m (33 ft)</p>	X	X			GA-00888
Cable Digital TP1 and Rotary EIL	 <p>NOVOTECH Digital TP1 and Rotary Baumer EIL transducer cable, D-SUB 15 / M12</p> <p>20 m (66 ft)</p> <p>10 m (33 ft)</p>	X	X			GA-00887
Adapter for Elcon digital transducer	 <p>For using Leine &amp; Linde 530 digital transducer, 10 m (33 ft)</p>	X	X			GA-00890
Baumer digital cable	 <p>For using Baumer BDH16.05A3600-LO-B, digital transducer, 10 m (33 ft)</p>	X	X			GA-00895
Ethernet cable, network	 <p>Cable for connection to network/LAN, RJ45</p>	X	X			GA-00970




Item	Description	TM1800	TM1700	TM1600	EGIL	Art. No.		
TM1700/1800 DCM extension cable	 <p>GA-00999</p>	1 DCM extension cable, DIN 6, 10 m (33 ft) Old type				X	X	GA-00998
Open analog cable		1 DCM extension cable, DIN 7, 10 m (33 ft) Actual type. See "TM1700/1800 DCM Extension cable" on page 8				X	X	GA-00998
Extension cable Analogue Input		For customized analog transducer connection, 1 m (3.3 ft)				X	X	GA-01000
Cable kit Control		For analog input, XLR3 female / XLR3 male Analog cable EGIL/TM, 10 m (33 ft)				X	X	GA-01005
HV Timing cable kit		Control kit for three phases <b>Including:</b> 5 Test clip 5 Adapter for terminal block 5 Cable lug adapter 5 5 m (16 ft) 2 0.25 m (10") 2 Jumper 1 Plastic box				X	X	GA-90002
Connection kit for Control cables		For Timing M/R modules, XLR3 male / XLR3 female				X	X	GA-90005
		5 Cable, 10 m (32.8 ft)				GA-00851		
		<b>Including:</b> 5 Test clip 5 Adapter for terminal block 5 Cable lug adapter 1 Plastic box				X	X	GA-90010

Item	Description	TM1800	TM1700	TM1600	EGIL	Art. No.
<b>DCM – DualGround</b>						
<i>DCM</i>	DCM TM1700 DualGround Timing					
	3- channels <b>Including:</b> 1 DCM Upgrade cable kit		X			BL-59190
	CG-19180					
	6-channels <b>Including:</b> 2 DCM Upgrade cable kit		X			BL-59192
	CG-19180					
<i>TM1700/1800 DCM Upgrade cable kit</i>	Cables for 3 channels addition DualGround upgrade from 3 to 6 channels Length of the 1-cable portion, 10 m (33 ft) Length of the 2-cable portion, 1.5 m (5 ft) <b>Including:</b> 3 DCM cable units 6 Clamps		X	X		CG-19180
	KD-03040					
<i>TM1700/1800 DCM Extension cable kit</i>	DualGround cable, DIN 7, extension for 3 channels 10 m (33 ft)		X	X		CG-19181
	3 x GA-00999					
<i>DCM - TM1800</i>	Module for TM1800					
	DCM Module 3 DCM cables, 12 m (39 ft) DCM to Timing M/R cable 6 Clamps Accessory bag		X			CG-19190
	GA-12900 KD-03040 GD-31040					
	DCM Module 6 DCM cables, 12 m (39 ft) DCM to Timing M/R cable 12 Clamps Accessory bag		X			CG-19192
	GA-12900 KD-03040 GD-31040					
<i>DCM Span extension cable</i>	Cable to extend the span in the TM1700/1800 DCM BNC / BNC, 2 m (6.6 ft)		X	X		GA-00720
						
<i>DCM Cable link</i>	DCM to Timing M/R		X			GA-12900
						



Item	Description	TM1800	TM1700	TM1600	EGIL	Art. No.
<b>Software</b>						
<i>CABA Win</i>						
	For TM1700/1800, incl. Ethernet cross-over cable	X	X			CG-8000X
	For TM1600, incl. fiberoptics and USB interface			X		BL-8203X
	For EGIL, incl. USB cable				X	BL-8206X
	Upgrade to R04D	X	X	X	X	CG-8010X
	Upgrade from R04 and lower to R06, including Test Plan Editor (TPE)	X	X	X	X	CG-8040X
<b>Application kits</b>						
<i>First trip kit</i>						
	For single operating mechanism, 1 + 3 clamps	X	X			BL-90700
	For three operating mechanisms, 3 + 3 clamps	X	X			BL-90710
<i>Synchro Switch Relay kit</i>						
	Synchronized Switching Relay test kit incl. accessories, software and cables (delivered in transport case)					
	SSR kit for TM 1700/1800	X	X			CG-91200
	SSR for TM1600 (incl. VD401)			X		BL-91200
<i>VDS Adapter</i>						
	Accessory for on-line timing of MV breakers. Enables on-line timing on circuit breakers installed in enclosed medium voltage substations. Adapted to connect directly to the capacitive VDS (Voltage Detection System) interface according to the IEC 61243-5 and VDE 0682 T415 standards.	X	X	X		XB-39260
<i>Trig source selector</i>						
	Combines signals from six trig sources into one single trig signal. Ideal when making on-line testing and using multiple trig sources, e.g. close command, trip command, spring charge motor, disconnector and ground switches. Eliminates the need of reconnections between tests since all connections can be made initially.					XB-39265






Item	Description	TM1800	TM1700	TM1600	EGIL	Art. No.
Transducer calibration kit 	Plate XB-39022 not included	X	X	X	X	XB-39095
Vibration kit 	The Vibration kit extends TM1800/TM1700/TM1600 and CABA Win with the equipment and software required for recording and analyzing vibration signals at a circuit breaker. The kit includes the signal conditioning unit SCA606, the software CABA Win Vibration and one vibration channel. The vibration solution can be extended up to 6 channels.	X	X	X		BL-13090
Vibration channel 	Additional vibration channel to be used together with the Vibration kit. Each Vibration channel includes accelerometer, accelerometer adapter, cables to SCA606 and cables to TM1800/TM1700/TM1600*.	X	X	X		XB-32010








Item	Description	TM1800	TM1700	TM1600	EGIL	Art. No.
<b>Static and dynamic resistance measurement</b>						
SDRM201 EGIL		<i>Included accessories:</i>				
		SDRM Cable	GB-03431			
		SDRM multi cable extension, 10 m (33 ft)	GA-12812			
		Voltage sense	GA-00175			
		Voltage sense extension cable	GA-00150			
		Current cable (red)	GA-12820			
		Current cable (black)	GA-12830			
		Clamps (2 pcs)	KD-03040			
		Ground cable, 2.5 mm <sup>2</sup> , 10 m (33 ft)	GA-00208			
		Charger	HC-04210			
		Accessory bag	GD-31040			
		Case	GD-00222		X	CG-90250
SDRM201 TM1700/TM1800		<i>Included accessories:</i>				
		SDRM Cable	CG-90205			
		SDRM multi cable extension, 10 m (33 ft)	GA-12812			
		Current cable (red)	GA-12820			
		Current cable (black)	GA-12830			
		Ground cable, 2.5 mm <sup>2</sup> , 10 m (33 ft)	GA-00208			
		Charger	HC-04210			
		Accessory bag	GD-31040			
		Case	GD-00222	X	X	CG-90260
		Pack of 3 units (CG-90260) for circuit breaker with 2 Breaks/Phase				CG-90263
SDRM202		<i>Included accessories:</i>				
		SDRM Cable for TM1700/1800	GB-03412			
		SDRM multi cable extension, 10 m (33 ft)	GA-12812			
		Current cable, red, 2pcs, 3 m (9.8 ft)	GA-12820			
		Current cable, black 2 pcs, 0.5 m (1.6 ft)	GA-12830			
		Ground cable, 2.5 mm <sup>2</sup> 10 m (33 ft)	GA-00208			
		Charger	HC-04210			
		Accessory bag	GD-31040			
		Case	GD-00222	X	X	CG-90200
		Pack of 3 units (CG-90200) for circuit breaker with 2 Breaks/Phase				CG-90230
		SDRM Cable for EGIL	GB-03431			
		SDRM multi cable extension, 10 m (33 ft)	GA-12812			
		Voltage sense cable, 2 m (6.5 ft)	GA-00175			
		Voltage sense extension cable, 10 m (33 ft)	GA-00150			
		Current cable, red, 2pcs, 3 m (9.8 ft)	GA-12820			
		Current cable, black 2 pcs, 0.5 m (1.6 ft)	GA-12830			
		Clamps (2 pcs)	KD-03040			
		Ground cable, 2.5 mm <sup>2</sup> 10 m (33 ft)	GA-00208			
		Charger	HC-04210			
		Accessory bag	GD-31040			
		Case	GD-00222		X	CG-90220

Item	Description	TM1800	TM1700	TM1600	EGIL	Art. No.
<b>SDRM202 Cable</b> 	SDRM Cable for TM1700/1800 <b>Including:</b> Accessory bag	GD-31040	X	X		CG-90205
	SDRM Cable for EGIL <b>Including:</b> Voltage sense extension cable 10 m (33 ft) Accessory bag Voltage sense cable, 2 m (6.5 ft) Clamps 2 pcs)	GA-00150 GD-31040 GA-00175 KD-03040				X
<b>Extension cable, SDRM201/202</b> 	Extension cable for: CG-90200, CG-90220, CG-90250 and CG-90260 10 m (33 ft)		X	X	X	GA-12812
<b>Current cables and clamps for SDRM202</b> 	Cable, red 2.5 m (8.2 ft)		X	X	X	GA-12820
	Cable, black, 0.5 m (1.6 ft)		X	X	X	GA-12830
<b>Transducers</b>						
<b>Linear</b>						
<b>Analog</b>						
<b>TLH-150</b> 	150 mm (5.9") travel <sup>1)</sup>		X	X	X	XB-30016
<b>TLH-225</b>	225 mm (8.8") travel <sup>1)</sup>		X	X	X	XB-30017
<b>TLH-500</b>	500 mm (19.7") travel <sup>1)</sup>		X	X	X	XB-30020
<b>TLH-750</b>	750 mm (29.5") travel <sup>1)</sup>		X	X	X	XB-30022
<b>TLH-1000</b>	1000 mm (39.4") travel <sup>1)</sup>		X	X	X	XB-30023
	<sup>1)</sup> Including cable, 0.5 m (20") GA-00049					
<b>LWG 150</b> 	150 mm (5.9") travel <sup>2)</sup>		X	X	X	XB-30116
<b>LWG 225</b>	225 mm (8.8") travel <sup>2)</sup>		X	X	X	XB-30117
<b>LWG 500</b>	500 mm (19.7") travel <sup>2)</sup>		X	X	X	XB-30120
	<sup>2)</sup> Including cable, 0.5 m (20") GA-00050					
<b>TS 150</b> 	150 mm (5.9") travel <sup>3)</sup>		X	X	X	XB-30030
<b>TS 50</b>	50 mm (1.9") travel <sup>3)</sup>		X	X	X	XB-30031
<b>TS 25</b>	25 mm (1") travel <sup>3)</sup>		X	X	X	XB-30033
	<sup>3)</sup> Including cable, 1 m (39") GA-00044					
The above transducers are also available in other lengths, please contact Megger for more information.						


Item	Description	TM1800	TM1700	TM1600	EGIL	Art. No.	
Touchless linear digital transducer (kit) 	<b>Including:</b> Magnetic band, 2 m (6 ft), XB-39250 Touchless linear digital transducer, SIKO, XB-39237 Cable, 10 m (33 ft), GA-00889 Clamping base, XB-39014 Flexible arm, XB-39012	X	X			XB-39230	
<b>Rotary</b>							
<b>Analog</b>							
Transducer kit		Novotechnic IP6501 <b>Including:</b> Cable, 1 m (39"), Flex coupling, 6 mm Hexagon wrench	X	X	X	X	XB-31010
<b>Digital</b>							
<b>Transducer kit</b>							
	Baumer EIL580-SC10.5RH.03600.A <b>Including:</b> Flex coupling, 10/6 mm Hexagon wrench	X	X			XB-39130	
	With Cable, 10 m (33 ft)	X	X			XB-39130	
	With Cable, 20 m (66 ft)	X	X			XB-39135	



Item	Description	TM1800	TM1700	TM1600	EGIL	Art. No.
<b>Transducer mounting kits</b>						
<b>Universal kits</b>						
<i>TLH/LWG/TP1 kit</i>						
	For use with linear transducers (TLH/LWH/TP1)	X	X	X	X	XB-39065
<i>Transducer kit 500/600 mm</i>						
	Single phase, Analog, Linear, 500 mm (19.7")	X	X	X	X	XB-40101
	Single phase, Analog, Linear, 600 mm (23.6")	X	X	X	X	XB-40102
<i>Transducer kit 300 mm</i>						
	Single phase, Analog, Linear, 300 mm (11.8")	X	X	X	X	XB-40103
						
	3 phase, Analog, Linear, 300 mm (11.8")	X	X	X		XB-40104
<i>Transducer mounting kits</i> <i>Note: Transducers not included</i>						
	Same as above kits but without transducers, i.e. includes only case, brackets and other mounting details. Fits with: Single phase, Analog, Linear, 500-600 mm (19.7"-23.6")	X	X	X	X	XB-40110
	Fits with: Single phase, Analog, Linear, 300 mm (11.8")	X	X	X	X	XB-40111
	Fits with: 3 phase, Analog, Linear, 300 mm (11.8")	X	X	X		XB-40112
<i>Rotary transducer mounting kit</i>						
	For transducers XB-31010 and XB-39130 <b>Including:</b>					
	Clamping base					XB-39014
	Flexible arm					XB-39021
	Holder for angular transducer					XB-39022
	Plastic transport case					XB-39023
	Adapter M6/6 2 Nuts M6					XB-39025
	Adapter M8/6 2 Nuts M8					XB-39026
	Adapter M10/6 2 Nuts M10					XB-39027
	Adapter M12/6 2 Nuts M12					XB-39028
	Holder for dig. rotary EIL and linear LWG, Ø 36 mm					XB-39005
		X	X	X	X	XB-51010

Item	Description	TM1800	TM1700	TM1600	EGIL	Art. No.
Universal transducer mounting kit 	For linear and rotary transducers <b>Including:</b> Magnetic base XB-39013 Clamping base XB-39014 Flexible arm XB-39021 Holder for angular transducer XB-39022 Plastic transport case XB-39023 Adapter M6/6 2 Nuts M6 XB-39025 Adapter M8/6 2 Nuts M8 XB-39026 Adapter M10/6 2 Nuts M10 XB-39027 Adapter M12/6 2 Nuts M12 XB-39028 Universal support XB-39029 Holder for dig. rotary EIL and linear LWG, Ø 36 mm XB-39005	X	X	X	X	XB-51020
Universal adapter for rotary transducer 	Universal adapter to breaker and drive types HPL/BLG 3AP1FG, AP1FI, 8DPP3, 3AQ	X	X	X	X	XB-51060
<b>Circuit breaker specific kits</b>						
HPL kit (ABB) 	For use on ABB HPL circuit breakers	X	X	X	X	XB-39080
BLG kit (ABB) 	For use on ABB mechanisms BLG 352, 352C, 1002 and 1002A	X				XB-39085
LTB kit (ABB) 	For use on ABB LTB circuit breakers with 3-column stand	X	X	X	X	XB-39090
LTB Kit (ABB) 	<b>Including:</b> Mounting kit, XB-51010 Universal adapter for rotary transducer XB-51060	X	X	X	X	XB-61010
VD4 Adapter (ABB) 	Fits with TS-transducer, Stainless steel					GB-39030

Item	Description	TM1800	TM1700	TM1600	EGIL	Art. No.
HPL/BLG Kit (ABB)	 <p><b>Including:</b>            Mounting kit XB-51010            Universal adapter for rotary transducer XB-51060</p>	X	X	X	X	XB-61020
AHMA Kit (ABB)	 <p>3-Phase Diagnostic Set for ABB drive mechanism type AHMA 4/8  <b>Including:</b>            3 Transducers            3 Adapter cable GA-00044            Mounting details            Transport case</p>	X	X	X		XB-61030
AHMA Kit (ABB)	 <p>1-Phase Diagnostic Set for ABB drive mechanism type AHMA 4/8  <b>Including:</b>            1 Transducers            1 Adapter cable GA-00044            Mounting details            Transport case</p>	X	X	X		XB-61050
HMB Kit (ABB)	 <p>For drive mechanism type HMB 4/8            Three phase set complete in case  <b>Including:</b>            3 PES-HMB8 Transducers            3 Adapter cable GA-00044            1 Transport case            3 Calibration Certificates</p>	X	X	X		XB-61040
HMB Kit (ABB)	 <p>For drive mechanism type HMB 4/8            One phase set complete in case  <b>Including:</b>            1 PES-HMB8 Transducers            1 Adapter cable GA-00044            1 Transport case            1 Calibration Certificates</p>	X	X	X		XB-61060
<b>Ready-to-use kits – Rotary</b>						
<b>Analog</b>						
1-phase kit	 <p>Incl. transducer XB-31010, mounting kit XB-51010</p>	X	X	X	X	XB-71010
3-phase kit	Incl. 3 x 1-phase kits XB-71010	X	X	X		XB-71013

Item	Description	TM1800	TM1700	TM1600	EGIL	Art. No.
<b>Digital</b> 1-phase kit	 <p><i>Including:</i> Transducer XB-39130 Mounting kit XB-51010 With Cable, 10 m (33 ft)</p>	X	X			XB-71020
	With Cable, 20 m (66 ft)	X	X			XB-71022
3-phase kit	<i>Including:</i> 3 x 1-phase kits XB-71020	X	X			XB-71023
	<i>Including:</i> 3 x 1-phase kits XB-71022	X	X			XB-71025
<b>Transducer mounting accessories</b>						
Holder for transducer	 <p>Holder for dig. rotary Baumer EIL and linear LWG, Ø 36 mm</p>	X	X			XB-39005
Flexible arm	 <p>M8 bolt threads at the ends of the arms</p>	X	X	X	X	XB-39012
Switch magnetic base	 <p>For easy attachment of transducer mounting arrangements. Equipped with threaded hole suited for a "Flexible arm".</p>	X	X	X	X	XB-39013
Clamping base	 <p>Clamp suited for a "Flexible arm" Jaw opening max 40 mm</p>	X	X	X	X	XB-39014
Flexible arm	 <p>This one is stronger than XB-39012 M8 bolt threads at the ends of the arms</p>	X	X	X	X	XB-39021
Holder for transducer	 <p>Holder for analog rotary transducer and Baumer BDH digital rotary transducer, Ø 55 mm</p>	X	X	X	X	XB-39022

Item	Description	TM1800	TM1700	TM1600	EGIL	Art. No.
Universal support	 <p>Suited for the "Flexible arms". Rod length is 250 mm Jaw opening max 40 mm</p>					XB-39029
Flex coupling	 <p>For shaft diam. 6 mm (for Novotechnic IP6501)</p>	X	X	X	X	XB-39030
Flex coupling	 <p>For shaft diam. 10 / 6 mm (for Baumer BDH)</p>	X	X			XB-39032
Thread adapter kit	 <p>Imperial / metrics adapter kit for TLH / TP1 <b>Including:</b> 1 nut metrics, M5 1 spacer nut, M5 / UNF 10-32 1 spacer nut, M5 / UNC 1/4-20 1 nut, UNF 10-32 1 nut, UNC 1/4-20</p>	X	X	X	X	XB-39036
Magnetic adapter for motion transducer fitting.	 <p>For attaching rotary transducers on shaft ends. Ideal at first trip test when other mechanical attachment methods are impracticable. Fits to a Ø 6 mm flex coupling. Super strong neodymium magnet. Fits with both resistive and incremental rotary transducers</p>					XB-39037
Holder for TS transducer	 <p>For TS Transducer 18 mm</p>					XB-39512



Item	Description	TM1800	TM1700	TM1600	EGIL	Art. No.
<b>Other</b>						
<i>Dolphin clamps</i>						
	Black, with connection for 4 mm banana plug	X	X	X	X	40-083220
	Red, with connection for 4 mm banana plug	X	X	X	X	40-08322
<i>Timing clamp</i>						
	Timing clamp for bolt head	X	X	X	X	53-31800
<i>Cable organizer</i>						
	Hook-and-loop straps, 10 pcs.	X	X	X	X	AA-00100
<i>Long term monitoring</i>						
<i>VD401</i>						
	Voltage divider, ratio 400/1 (for TM1600 and EGIL with analog channel)			X	X	BL-90070
<i>USB to fiber adapte</i>						
	CABA Hardware USB to fiber adapter			X		BL-90165
<i>Current</i>						
	AC/DC clamp/clip-on/current probe, Fluke 80i-110s Current sensor kit 1 channel (Fluke 80i-110s incl. cable GA-00140)	X	X	X	X	BL-90600
	Current sensor kit 3 channels 3 x (Fluke 80i-110s incl. cables GA-00140)	X	X	X		BL-90610
<i>Temperature sensor</i>						
	With the temperature sensor the ambient temperature is automatically recorded with each measurement and stored together with the test result. The temperature becomes a parameter in CABA Win. Suitable cable is the Analog cable, 10 m GA-01005. Range: -20°C to +50°C (-4°F to +122°F) Resolution: 0.5°C (0.9°F)	X				CG-90070
<i>Thermopaper, for Fujitsu</i>						
	114 mm, 30 m			X	X	GC-00030
	Box/24 pcs			X	X	GC-00032
<i>Thermopaper</i>						
	114 mm, Ø 40 mm	X				GC-00040

Item	Description	TM1800	TM1700	TM1600	EGIL	Art. No.
Soft case						
	Made from sturdy nylon fabric	X	X			GD-00340
Cable case						
	Cable case soft with 11 compartments With shoulder strap and two handles Made from sturdy nylon fabric Dimensions: 740 x 270 x 420 mm <b>Note:</b> No cables included	X	X	X	X	GD-31055
Clamp						
		X	X	X	X	KD-03040
Clamps						
	Multipurpose Timing clamp, black, 4 mm banana	X	X	X	X	XB-39200
						
	Multipurpose Timing clamp, red, 4 mm banana	X	X	X	X	XB-39202
Ferrite kit						
	Accessory for timing of GIS circuit breakers using TM1800 with DualGround™ <b>Including:</b> C-shape ferrite 7 XB-40010 I-shape ferrite 4 XB-40020 Round ferrite 4 30-67090 Hook and loop fastener 4 09-10140 Transport case GD-00440 User's Manual ZP-CG04E	X	X			XB-40090
Ferrite I-shape slim						
	Width: 25 mm	X	X			XB-40030
Ferrite kit with I-shape slim ferrites						
	Accessory for timing of GIS circuit breakers using TM1800 with DualGround™ <b>Including:</b> C-shape ferrite 7 XB-40010 I-shape slim ferrite 4 XB-40030 Round ferrite 4 30-67090 Hook and loop fastener 4 09-10140 Transport case GD-00440 User's Manual ZP-CG04E	X	X			XB-40095

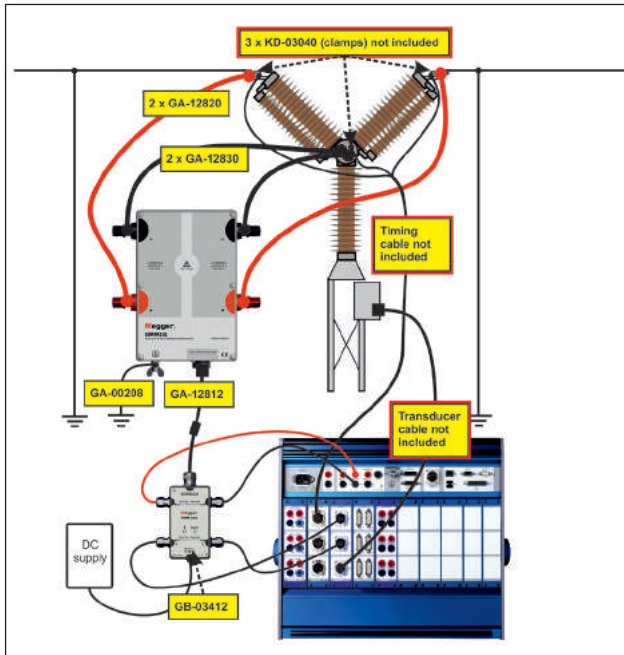
For more information about optional accessories please contact Megger



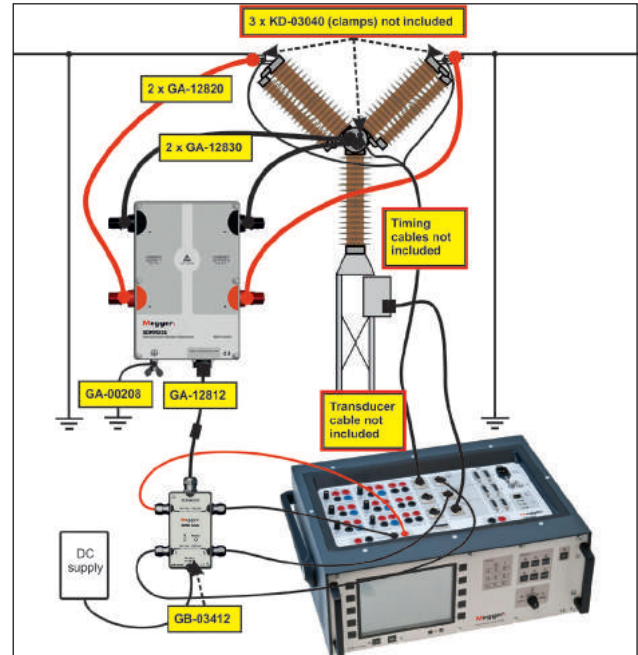


## Connecting and mounting guidance

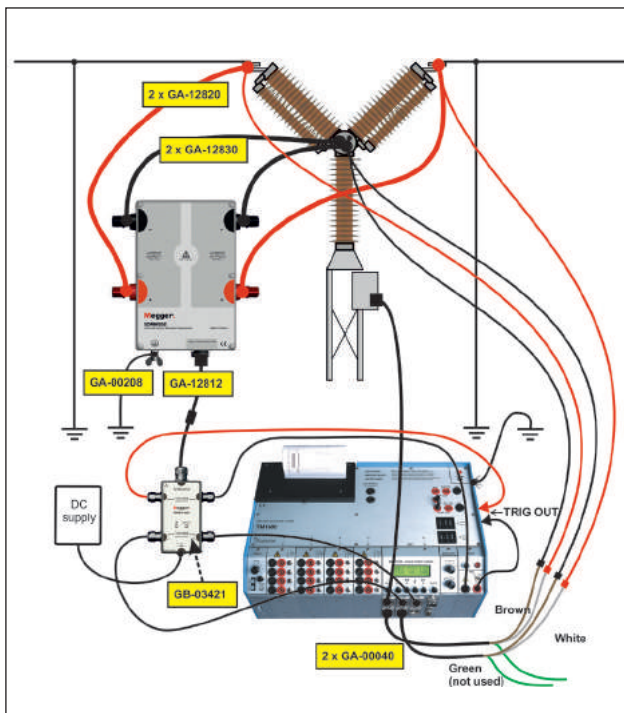
### SDRM Hook-up examples and cable designations



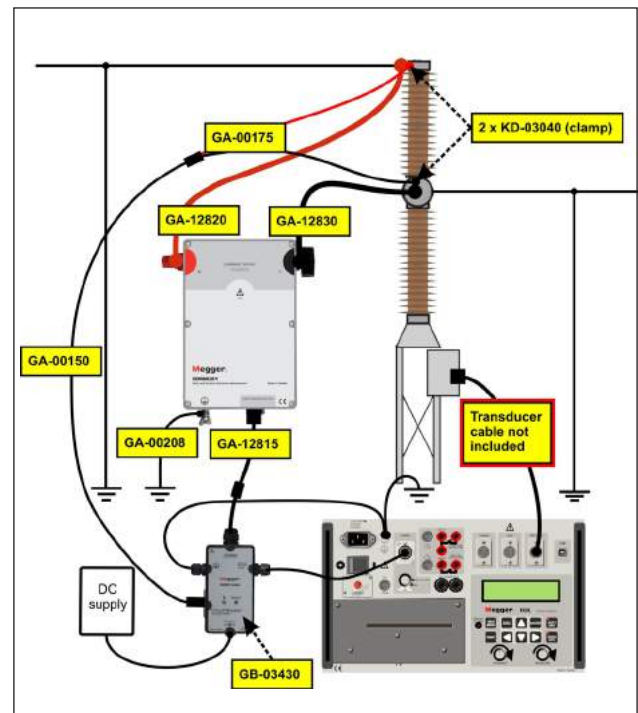
Timing cable is included with the TM1800 timing module. Transducer cable is selected together with the the type of transducer used.



Timing cable is included with the TM1700. Transducer cable is selected together with the the type of transducer used.



Timing cable is an optional accessory to TM1600. Transducer cable is selected together with the the type of transducer used.



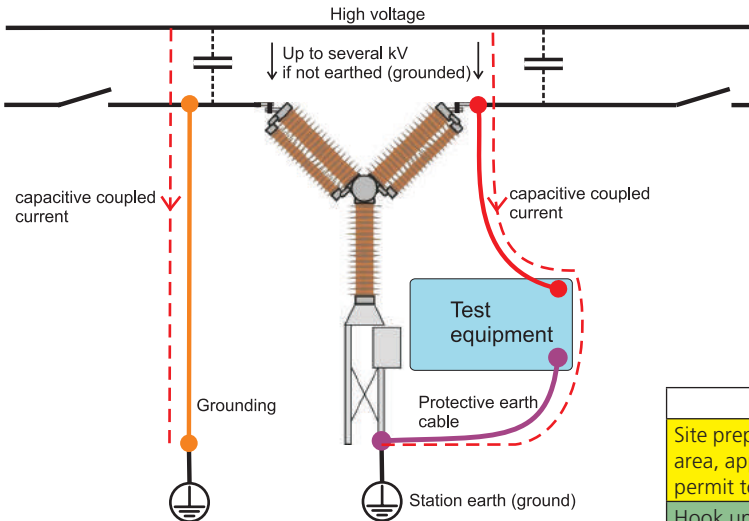
Transducer cable is selected together with the the type of transducer used.



## DualGround - safe testing

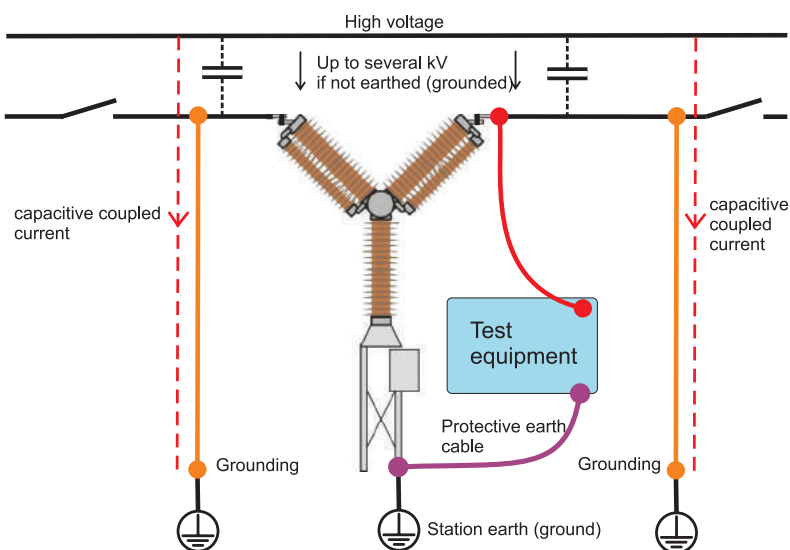
The best way to provide safety in circuit breaker testing is to keep both sides of the circuit breaker grounded throughout the test. This will also make the test faster and easier. Minimum time shall be spent in the substation and focus shall be on the test rather than the equipment.

### One side grounded



Conventional vs. DualGround	
Site preparation (isolate work area, apply safety ground, issue permit to work)	Site preparation (isolate work area, apply safety ground, issue permit to work)
Hook up test equipment. Issue sanction for test	Hook up test equipment. Issue sanction for test
Authorised person removes the ground	Risky step left out
Perform testing	Safe testing with both sides grounded
Authorised person applies ground	Risky step left out
Cancel sanction for test. Disconnect test equipment	Cancel sanction for test. Disconnect test equipment
Site closing (cancel permit to work, disconnect ground)	Site closing (cancel permit to work, disconnect ground)

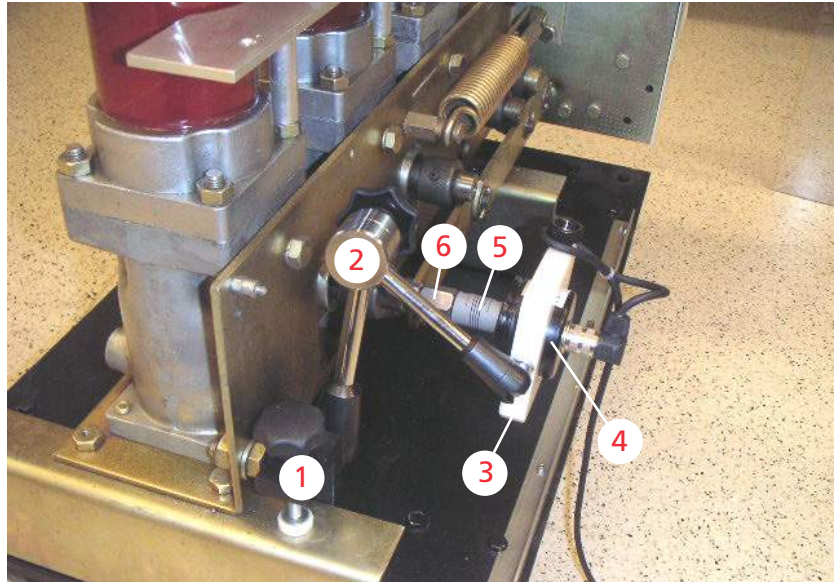
### Both sides grounded



## Transducer mounting examples

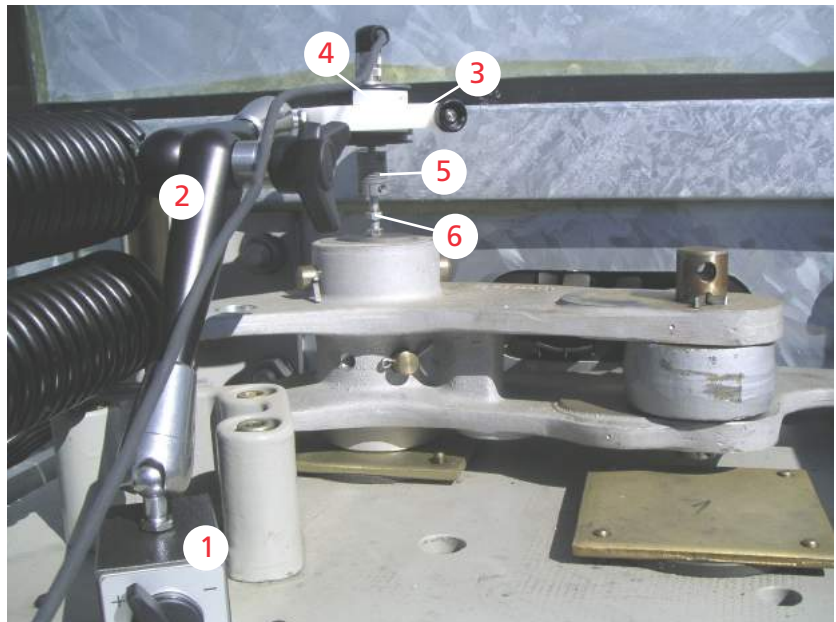
### Analog transducer mounted on a distribution circuit breaker

1. Clamping base
2. Flexible arm
3. Holder angular transducer
4. Novotechnik IP6501
5. Flex coupling
6. Bolt adapter



### Analog transducer mounted on a distribution circuit breaker

1. Magnetic base
2. Flexible arm
3. Holder angular transducer
4. Novotechnik IP6501
5. Flex coupling
6. Bolt adapter



## First trip measurement

When a fault occurs on a transmission or distribution line, the mission for the circuit breaker is to open the circuit to isolate the fault from the power source. A quick interruption of the current will avoid or limit damage to expensive equipment caused by the high fault currents.

### Why capture first trip

Testing circuit breakers can be done in many ways, but one of the most common is timing of the main contacts, which gives a direct indication of the trip time. A typical procedure for performing a timing test on a circuit breaker is:

1. Open the CB
2. Disconnect the CB by opening the disconnecter switches
3. Ground the CB
4. Perform the timing test

Will the timing tests show the true trip time? Well, not necessarily. Consider a circuit breaker that has been in service without operating for many months, even years, before it was taken out of service for testing. It might then be suffering from a lack of or dried grease and maybe corrosion in its bearings. These problems can, and most probably will, slow down the first operation.

The problem with this procedure is that the CB has been operated at least once before the testing procedure begins. This operation might be all it takes to "shake off" any corrosion problems or sticky bearings and bring the breaker's trip time up to standard. So when the actual timing test is performed, no problem exists and the service engineer thinks the breaker is in good shape and no further service is needed. Some months later the corrosion is back and when a fault occurs the CB does not trip fast enough, or maybe not at all. This is why it is important to capture the first operation to reveal any problems with the CB.

### Perform a first trip test

A good and time effective way to check the condition of a circuit breaker is to document its behavior at the first open operation after it has been idle for long time. The measurement and connections to the CB are carried out while it is still in service. The only way to measure the currents in a safe way is to use current clamps. For the coil current, either one or three clamps are needed depending on the number of operating mechanisms. The clamps shall be of DC type in order to manage all types of coils.

Connecting current clamps to the CT's secondary winding makes it possible to check the transition of the line currents to zero during the opening of the CB contacts as well as the synchronization of the opening times on the three phases.

The equipment needed for a first trip measurement depends on the configuration of the circuit breaker. All the connections are made inside the control cabinet.

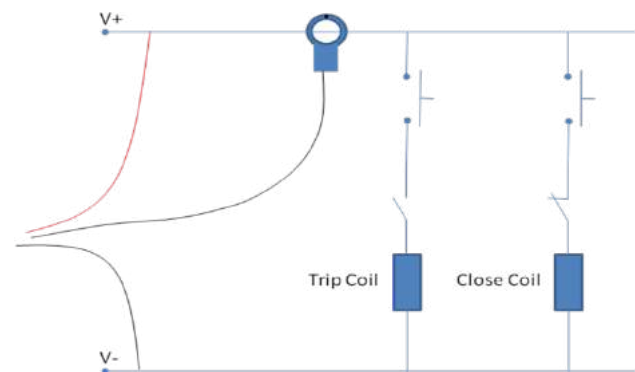


Figure 1. Point for measuring coil current and control voltage.

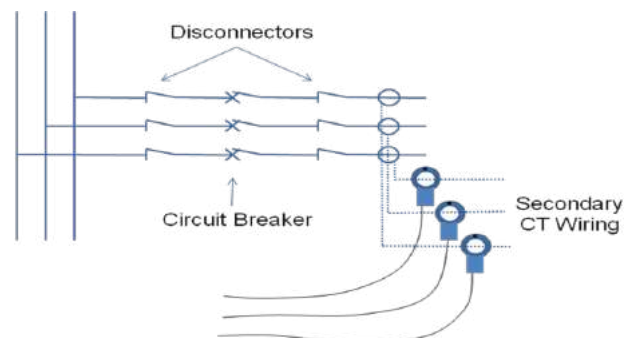


Figure 2. Points for measuring the line currents. Since the CB is in service, the conventional way with leads across the CB cannot be used. Instead, three current clamps are used on the secondary side of the current transformer for each phase.

For ordering information, see "First trip kit" on page 9.



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