



Test Report

Project designation	Type Test according to IEC/EN 60898-1		
Product description	Circuit-breakers for Overcurrent Protection for Household and Similar Installations type ETIMAT 10		
Client	ETI Elektroelement d.d. Obrezija 5 1411 Izlake SLOVENIA		
Order from / No.	07/2013 / ---		
Project number	2.03.02769.1.0/ETIMAT10		
Date of issue	28.07.2014	Test engineer	Ing. Johann Ainetter
Total number of issues / No.	1 / 1		
Number of pages	5		
Annex: Number of pages	CB/CCA - Test Report No. 2.03.02769.1.0/ETIMAT10/CB/CCA (541 pages)		

The results relate exclusively to the items tested.

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Test item

Identification:

Circuit-breakers for overcurrent protection for household and similar installations
type ETIMAT 10

Number of poles: 1p, 1p+N, 2p, 3p, 3p+N
Instantaneous tripping currents: B (6A to 63A), C (0,5A to 63A), D (0,5A to 63A)
Rated voltages: AC 230V, AC 230/400V, AC 400V
Rated currents: 0,5A, 1A, 1,6A, 2A, 4A, 6A, 10A, 13A, 16A, 20A, 25A, 32A, 40A, 50A, 63A
Rated frequency: 50Hz
Energy limiting class: 3

Technical data and description:

See page 4

Testing location, Period of testing

Testing location:

AIT Austrian Institute of Technology GmbH
Business Unit Electric Energy Systems
Power Service Center
Giefinggasse 2
1210 Vienna
AUSTRIA

Period of testing:

10/2003 to 12/2003 and 07/2013 to 12/2013

Test(s)

Test(s) performed:

Type test

Test standard(s):

IEC 60898-1 Ed. 1.2:2003
EN 60898-1:2003+A1:2004+A11:2005+A12:2008+A13:2012

Test procedure(s):

CB Scheme and CCA Scheme

Result

The circuit-breakers for overcurrent protection for household and similar installation type ETIMAT 10 have passed the type test successfully.



Seal

Test engineer



Ing. Johann Ainetter

Responsible for the content



Ing. Karl Farthofer

Testing laboratory



ACCREDITED
 according to
EN ISO/IEC 17025
 confirmed by
BMWFI
 with GZ 92714/237-IV/9/00



CERTIFIED
 according to
ISO 9001
 confirmed by
Quality Austria
 with Reg. No. 00229/1



RECOGNIZED CB TESTING LABORATORY
 confirmed by
International Electrotechnical Commission
 under the responsibility of
OVE
 as the National Certification Body

Technical data and description

Test item	Circuit-breaker for overcurrent protection for household and similar installation
Model/Type reference	ETIMAT 10
Manufacturer	ETI Elektroelement d.d. ETI Polam Sp. z o.o.
Factory locations	Obrezija 5, SI-1411 Izlake, Slovenia Al. Jana Pawla II 18, 06-100 Pultusk, Poland
Nature of supply	AC
Number of poles	1p, 1p+N, 2p, 3p, 3p+N
Protection against external influences	Enclosed type
Degree of protection	IP20
Method of mounting	Panel board type
Method of connection	Not associated with the mechanical mounting
Method of operation	Independent manual operation
Type of terminal	Pillar terminal
Instantaneous tripping current	B-type, C-type, D-type
Rated current I_n	B-type: 6A, 10A, 13A, 16A, 20A, 25A, 32A, 40A, 50A, 63A C-type: 0,5A, 1A, 1,6A 2A, 4A, 6A, 10A, 13A, 16A, 20A, 25A, 32A, 40A, 50A, 63A D-type: 0,5A, 1A, 1,6A 2A, 4A, 6A, 10A, 13A, 16A, 20A, 25A, 32A, 40A, 50A, 63A
Rated voltage U_n	1p: 230/400V 1p+N: 230V 2p, 3p, 3p+N: 400V
Rated frequency	50Hz
Rated short-circuit capacity I_{cn}	0,5A to 40A: 10000A 50A to 63A: 6000A
Service short-circuit capacity I_{cs}	0,5A to 40A: 7500A 50A to 63A: 6000A
Energy limiting class	3
Material of insulating parts	0,5A to 40A: PA 6, 25% GF 50A to 63A: PA 46, 30% GF
Ambient air temperature	-5°C to +40°C
Altitude	≤ 2000m
Atmospheric conditions	Max. 50% relative humidity at +40°C

Measuring equipment

Measured quantity	Device	Manufacturer	Code
Voltage (tests up to 10kA)	Voltage divider 1:2000 Difference amplifier AM 502 Signal memory recorder TRA 800	AIT Tektronix W&W	- AM 502/1...3 TRA800
Current (tests up to 10kA)	Lin. Current transformer LGSSO Burden 1Ω Signal memory recorder TRA 800	Ritz AIT W&W	WLIN5000/1...3 - TRA800
Current (tests at reduced voltage)	Current transformer GE 4461 Current transformer AETt10 True-RMS amperemeter Cl. 0,5 Digital multimeter Fluke 185	Goerz Siemens Norma Fluke	WI600/1...3 WI4000/1...3 A0,5/4 FLUKE185/2
Dielectric properties	High-voltage test equipment 90-1F with measuring equipment Impulse tester 35 Impulse voltmeter 64M Oscilloscope 9430	Elabo Haefely Haefely Le Croy	HSG5KV G304 G502 G805
Leakage current	High-voltage test equipment 90-1F with measuring equipment Digital multimeter Fluke 185 Digital multimeter Fluke 187	Elabo Fluke Fluke	HSG5KV FLUKE185/2 G922
Time	Signal memory recorder TA 800 Digital stopwatch	W&W Quantum	TRA800 938-3
Temperature	Data Logger Unit 34970A Temperature meter TESTO 901	Agilent Testoterm	942 TESTO
Heat	Heating cabinet UT 6060 with measuring equipment	Heraeus	543/032/1060
Abnormal heat and fire	Glow-wire test device with measuring equipment	Friborg	GLOW
Mechanical impact	Test apparatus	PTL	MSD
Environmental tests	Environmental chamber HC7507 with measuring equipment	Heraeus	M2
Degree of protection	Test probe, dust chamber Test equipment for ingress of water	PTL, Friborg PTL, Friborg	PTL1...3 X1...X4
Ball pressure	Test equipment	AIT	KUGELDR20N
Clearances, creepage distances	Digital slide gauge	Spiral	SCHUB-1
Torque	Torque meter	Rahsol	6JY050958



Test Report issued under the responsibility of:



TEST REPORT
IEC/EN 60898-1
Circuit-breakers for over current protection for
household and similar installations

Report Reference No.: 2.03.02769.1.0/ETIMAT10/CB/CCA
Date of issue: 28.07.2014
Total number of pages: 541

CB/CCA Testing Laboratory.....: AIT Austrian Institute of Technology GmbH
Address: Giefinggasse 2, A-1210 Vienna, Austria

Applicant's name.....: ETI Elektroelement d.d.
Address: Obrezija 5, SI-1411 Izlake, Slovenia

Test specification:

Standard: IEC 60898-1:2002 (1st Edition) + A1:2002 + A2:2003 and/or
 EN 60898-1:2003 + A1:2004 + A11:2006 (+A12:2008)
Test procedure: CB / CCA
Non-standard test method.....: N/A

Test Report Form No.: IECEN60898_1C
Test Report Form(s) Originator.....: OVE
Master TRF: Dated 2007-12

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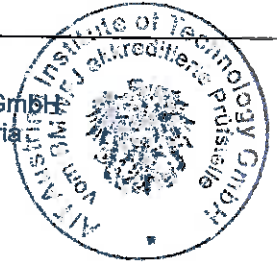
This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

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This report is not valid as a CCA Test Report unless signed by an approved CCA Testing Laboratory and appended to a CCA Test Certificate issued by an NCB in accordance with CCA

Test item description: Circuit-breakers for overcurrent protection for household and similar installations
Trade Mark: ETI
Manufacturer: ETI Elektroelement d.d., Obrezija 5, SI-1411 Izlake, Slovenia
ETI Polam Sp. z o.o., Al. Jana Pawla II 18, 08-100 Pultusk, Poland
Model/Type reference: ETIMAT 10
Ratings: 1p, 1p+N, 2p, 3p, 3p+N / B, C, D / 6A ... 63A (B), 0,5A ... 63A (C, D) / 230V/400V, 230V, 400V

Testing procedure and testing location:	
<input checked="" type="checkbox"/> CB/CCA Testing Laboratory:	
Testing location/ address	AIT Austrian Institute of Technology GmbH Giefinggasse 2, A-1210 Vienna, Austria
<input type="checkbox"/> Associated CB Laboratory:	
Testing location/ address	
Tested by (+ signature)	Ing.J.Ainetter
Approved by (+ signature)	Ing.K.Farthofer
<input type="checkbox"/> Testing procedure: TMP	
Tested by (name + signature) .....	.....
Approved by (+ signature) .....	.....
Testing location/ address .....	.....
<input type="checkbox"/> Testing procedure: WMT	
Tested by (name + signature) .....	.....
Witnessed by (+ signature) .....	.....
Approved by (+ signature) .....	.....
Testing location/ address .....	.....
<input type="checkbox"/> Testing procedure: SMT	
Tested by (name + signature) .....	.....
Approved by (+ signature) .....	.....
Supervised by (+ signature) .....	.....
Testing location/ address .....	.....
<input type="checkbox"/> Testing procedure: RMT	
Tested by (name + signature) .....	.....
Approved by (+ signature)
Supervised by (+ signature)
Testing location/ address



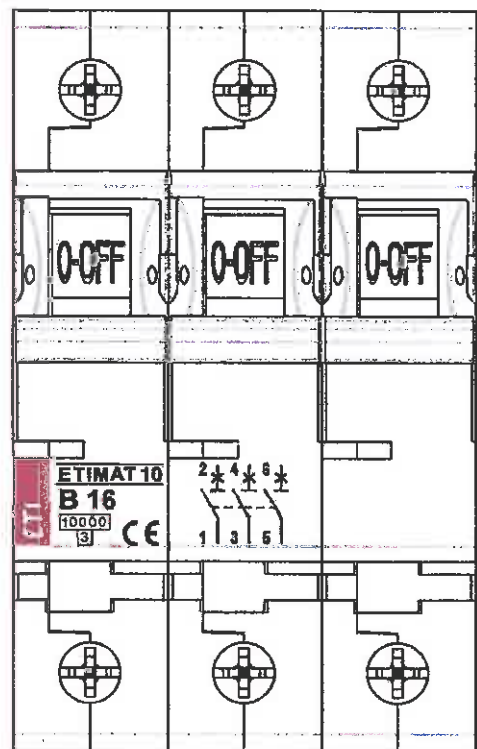
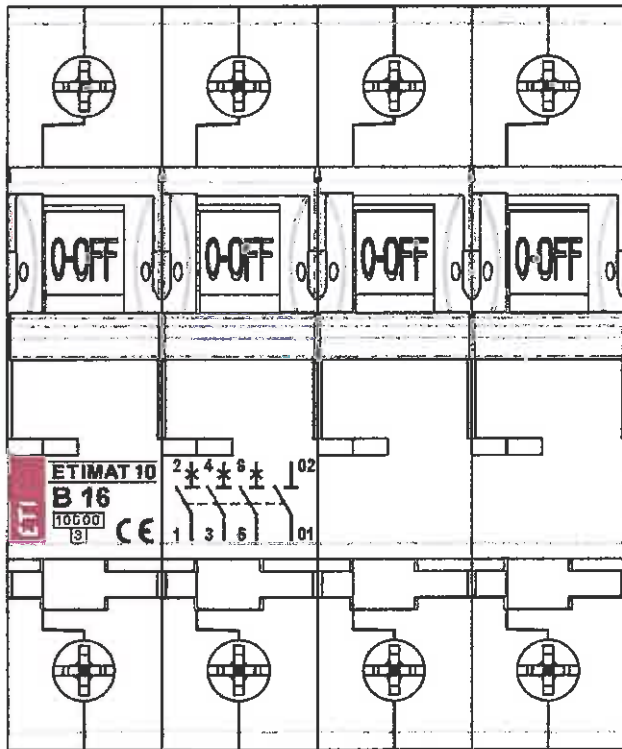
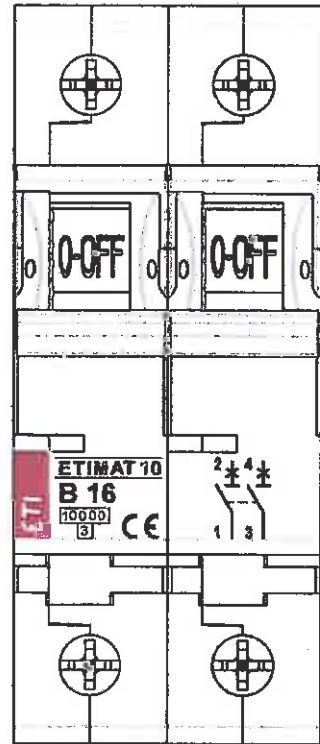
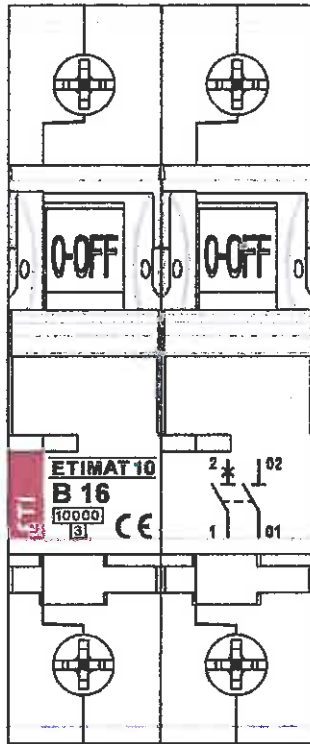
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Summary of testing:	
<p>Tests performed:</p> <p>A type test has been performed according to</p> <ul style="list-style-type: none"> ▪ IEC 60898-1 Ed. 1.2:2003 ▪ EN 60898-1:2003+A1:2004+A11:2005+A12:2008+A13:2012. <p>The circuit-breakers for overcurrent protection for household and similar installation</p> <ul style="list-style-type: none"> ▪ ETIMAT 10 <p>have passed the type test successfully.</p>	<p>Testing location:</p> <p>AIT Austrian Institute of Technology GmbH Business Unit Electric Energy Systems Power Service Center Giefinggasse 2 A-1210 Vienna</p> <p>The AIT Austrian Institute of Technology GmbH is a recognized CB/CCA Testing Laboratory under the responsibility of OVE as the National Certification Body.</p>
<p>Possible test case verdicts:</p> <p>Test case does not apply to the test object: N/A</p> <p>Test item does meet the requirement: P(ass)</p> <p>Test item does not meet the requirement: F(ail)</p>	
<p>Testing:</p> <p>Date of receipt of test item: 09/2003 and 07/2013</p> <p>Date(s) of performance of test: 10/2003 to 12/2003 and 07/2013 to 12/2013</p>	
<p>Summary of compliance with National Differences:</p> <p>---</p>	

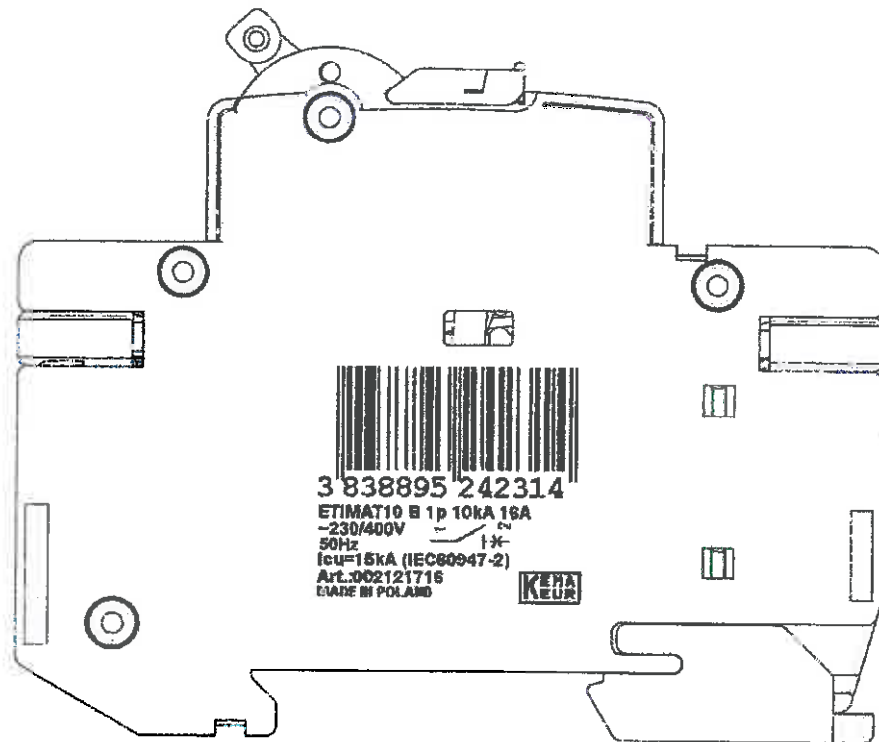
Copy of marking plate:

<u>ETIMAT 10</u> B 6 10000 S CE	<u>ETIMAT 10</u> B 10 10000 S CE	<u>ETIMAT 10</u> B 13 10000 S CE	<u>ETIMAT 10</u> B 16 10000 S CE	<u>ETIMAT 10</u> B 20 10000 S CE
<u>ETIMAT 10</u> B 25 10000 S CE	<u>ETIMAT 10</u> B 32 10000 S CE	<u>ETIMAT 10</u> B 40 10000 S CE	<u>ETIMAT 10</u> B 50 5000 CE	<u>ETIMAT 10</u> B 63 5000 CE
<u>ETIMAT 10</u> C 0,5 10000 S CE	<u>ETIMAT 10</u> C 1 10000 S CE	<u>ETIMAT 10</u> C 1,6 10000 S CE	<u>ETIMAT 10</u> C 2 10000 S CE	<u>ETIMAT 10</u> C 4 10000 S CE
<u>ETIMAT 10</u> C 6 10000 S CE	<u>ETIMAT 10</u> C 10 10000 S CE	<u>ETIMAT 10</u> C 13 10000 S CE	<u>ETIMAT 10</u> C 16 10000 S CE	<u>ETIMAT 10</u> C 20 10000 S CE
<u>ETIMAT 10</u> C 25 10000 S CE	<u>ETIMAT 10</u> C 32 10000 S CE	<u>ETIMAT 10</u> C 40 10000 S CE	<u>ETIMAT 10</u> C 50 5000 CE	<u>ETIMAT 10</u> C 63 5000 CE
<u>ETIMAT 10</u> D 0,5 10000 CE	<u>ETIMAT 10</u> D 1 10000 CE	<u>ETIMAT 10</u> D 1,6 10000 CE	<u>ETIMAT 10</u> D 2 10000 CE	<u>ETIMAT 10</u> D 4 10000 CE
<u>ETIMAT 10</u> D 6 10000 CE	<u>ETIMAT 10</u> D 10 10000 CE	<u>ETIMAT 10</u> D 13 10000 CE	<u>ETIMAT 10</u> D 16 10000 CE	<u>ETIMAT 10</u> D 20 10000 CE
<u>ETIMAT 10</u> D 25 10000 CE	<u>ETIMAT 10</u> D 32 10000 CE	<u>ETIMAT 10</u> D 40 10000 CE	<u>ETIMAT 10</u> D 50 5000 CE	<u>ETIMAT 10</u> D 63 5000 CE

Copy of marking plate (continued):



Copy of marking plate (continued):



Test item particulars:	
Type of circuit-breaker	MCB, Mechanical circuit-breaker
Number of poles	<input checked="" type="checkbox"/> 1-P <input checked="" type="checkbox"/> 1-P+N <input checked="" type="checkbox"/> 2-P <input checked="" type="checkbox"/> 3-P <input checked="" type="checkbox"/> 3-P+N <input type="checkbox"/> 4-P <input type="checkbox"/> Other
Protection against external influences	<input checked="" type="checkbox"/> enclosed <input type="checkbox"/> unenclosed
Method of mounting	<input type="checkbox"/> surface <input type="checkbox"/> flush <input checked="" type="checkbox"/> panel board / distribution board
Method of connection	<input checked="" type="checkbox"/> not associated with the mechanical mounting <input type="checkbox"/> associated with the mechanical mounting
Instantaneous tripping current	<input checked="" type="checkbox"/> B <input checked="" type="checkbox"/> C <input checked="" type="checkbox"/> D
Ambient air temperature (°C)	<input type="checkbox"/> 30°C <input type="checkbox"/> 40°C <input checked="" type="checkbox"/> Other -5°C to +40°C
Energy limiting class	<input type="checkbox"/> Class 1 <input type="checkbox"/> Class 2 <input checked="" type="checkbox"/> Class 3
Rated short-circuit capacity (A)	<input type="checkbox"/> 1,5 kA <input type="checkbox"/> 3 kA <input type="checkbox"/> 4,5 kA <input checked="" type="checkbox"/> 6 kA (50 A ... 63 A) <input checked="" type="checkbox"/> 10 kA <input type="checkbox"/> 15 kA <input type="checkbox"/> 20 kA <input type="checkbox"/> 25 kA (0,5 A ... 40 A)
Type of terminal	<input type="checkbox"/> screw ^{a) b)} <input checked="" type="checkbox"/> pillar ^{a) b)} <input type="checkbox"/> cage ^{a) b)} <input type="checkbox"/> lug <input type="checkbox"/> screw less ^{a)} <input type="checkbox"/> flat quick connect ^{a)} <input type="checkbox"/> plug-in <input type="checkbox"/> screw-in ^{a)} copper conductors ^{b)} aluminium conductors***
Value of rated operational voltage	<input type="checkbox"/> 120 V ** <input checked="" type="checkbox"/> 230 V <input type="checkbox"/> 240 V ** <input type="checkbox"/> 120/240 V ** <input checked="" type="checkbox"/> 230/400 V <input checked="" type="checkbox"/> 400 V <input type="checkbox"/> 240/415 V <input type="checkbox"/> 415 V
Value of rated current	B-type: 6A, 10A, 13A, 16A, 20A, 25A, 32A, 40A, 50A, 63A C-type: 0,5A, 1A, 1,6A, 2A, 4A, 6A, 10A, 13A, 16A, 20A, 25A, 32A, 40A, 50A, 63A
Value of rated frequency	<input checked="" type="checkbox"/> 50 Hz <input type="checkbox"/> 60 Hz
Rated impulse withstand voltage (Uimp)	<input type="checkbox"/> 2,5 kV** <input checked="" type="checkbox"/> 4 kV <input type="checkbox"/> declared ___kV
Material group and CTI declared by manufacturer	<input type="checkbox"/> Group I, (600 V ≤ CTI) <input checked="" type="checkbox"/> Group II, (400 V ≤ CTI < 600 V) <input type="checkbox"/> Group IIIa, (175 V ≤ CTI < 400 V)
<u>Remark:</u>	** delete for EN and *** only for EN