Sertifikat Kalibrasi

Calibration Certificate

Certificate number:
Order number:

Deskripsi Objek yang Dikalibrasi/Diukur
Description of object being calibrated or measured

Jenis alat atau objek *Type of instrument or object*	:	Multiproduct Calibrator
Merek/pembuat dan tipe *Brand/manufacturer and type*	:	Fluke 8508A
Identifikasi alat *Instrument identification*		
Nomor seri *Serial number*	:	-
Identifikasi lain *Other identification*	:	

Identitas Pemilik
Owner's identification

Nama *Designation*	:	
Alamat *Address*	:	, , ,

Pengesahan
Authorization

Pejabat yang mengesahkan *Authorizing officer*	:	Direktur SNSU Termoelektrik dan Kimia
Nama *Name*	:	Dr. Ghufron Zaid NIP 19711104 199012 1 001
Tanggal pengesahan *Date of issue (dd/mm/yyyy)*	:	
Jumlah halaman (termasuk halaman ini) *Total number of pages including this one*	:	5

Dokumen ini disahkan secara elektronik sesuai peraturan yang berlaku dengan sertifikat dari Balai Sertifikasi Elektronik (BsrE) dan tidak memerlukan tanda tangan atau cap. Dokumen asli dapat diperoleh dengan memindai kode QR di samping ini.
This document is digitally signed. No signature or seal is required. The original document can be obtained by scanning the QR code on the left.

Kalibrasi atau pengukuran yang dilaporkan dalam sertifikat ini tercakup dalam lingkup akreditasi menurut SNI ISO/IEC 17025 oleh Komite Akreditasi Nasional, kecuali dinyatakan dalam badan sertifikat.
The calibration or measurement reported in the certificate is covered in the accredication scope according to SNI ISO/IEC 17025 by the National Accredication Committee of Indonesia, unless marked otherwise in the body of certificate.

Nama Alat/*Instrument Name* : Multiproduct Calibrator
Pembuat/*Manufacturer* : Fluke
Model/*Model* : 8508A
No. Seri/*Serial Number* : -

Tanggal Kalibrasi/*Calibration Date* : -
Tempat Kalibrasi/*Calibration Place* : laboratory

Hasil Kalibrasi/*Calibration Result*

Kondisi Ruangan/*Environmental Condition*
Suhu/*Temperature* : (22.0 ± 24.0)°C
Kelembapan/*Humidity* : (50.0 ± 62.0)%

Tegangan DC / *DC Voltage*

Rentang *Range*	Titik Ukur *Measurement Point*	Pembacaan Standar *Standard Reading*	Koreksi *Correction*	Ketidakpastian *Uncertainty*
330 mV	0 mV	0.00000 mV	0.00080 mV	0.00089 mV
330 mV	50 mV	50.0000 mV	-0.0006 mV	0.0012 mV
330 mV	100 mV	100.0000 mV	-0.0020 mV	0.0014 mV
330 mV	200 mV	200.0000 mV	-0.0048 mV	0.0036 mV
330 mV	-200 mV	-200.0000 mV	0.0059 mV	0.0036 mV
3.3 V	0.5 V	0.5000000 V	-0.0000126 V	0.0000061 V
3.3 V	1 V	1.0000000 V	-0.0000256 V	0.0000092 V
3.3 V	2 V	2.000000 V	-0.000049 V	0.000027 V
3.3 V	-2 V	-2.000000 V	0.000052 V	0.000027 V
33 V	5 V	5.000000 V	-0.000131 V	0.000049 V
33 V	10 V	10.000000 V	-0.000268 V	0.000087 V
33 V	20 V	20.00000 V	-0.00050 V	0.00035 V
33 V	-20 V	-20.00000 V	0.00057 V	0.00035 V
330 V	50 V	50.00000 V	-0.00133 V	0.00071 V
330 V	100 V	100.0000 V	-0.0027 V	0.0012 V
330 V	200 V	200.0000 V	-0.0048 V	0.0038 V
330 V	-200 V	-200.0000 V	0.0049 V	0.0037 V
1020 V	500 V	500.0000 V	-0.0124 V	0.0069 V
1020 V	1000 V	1000.000 V	-0.025 V	0.013 V
1020 V	-1000 V	-1000.000 V	0.025 V	0.013 V

Arus DC / *DC Current*

Rentang *Range*	Titik Ukur *Measurement Point*	Pembacaan Standar *Standard Reading*	Koreksi *Correction*	Ketidakpastian *Uncertainty*
330 µA	0 µA	0.0000 µA	0.0005 µA	0.0014 µA
330 µA	50 µA	50.0000 µA	-0.0006 µA	0.0019 µA
330 µA	100 µA	100.0000 µA	-0.0018 µA	0.0025 µA
330 µA	200 µA	199.900 µA	-0.106 µA	0.011 µA
330 µA	-200 µA	-199.900 µA	0.106 µA	0.011 µA
3.3 mA	0.5 mA	0.500000 mA	-0.000015 mA	0.000015 mA
3.3 mA	1 mA	1.000000 mA	-0.000029 mA	0.000021 mA
3.3 mA	2 mA	2.00000 mA	-0.00005 mA	0.00012 mA
3.3 mA	-2 mA	-2.00000 mA	0.00006 mA	0.00012 mA
33 mA	5 mA	5.00000 mA	-0.00014 mA	0.00016 mA
33 mA	10 mA	10.00000 mA	-0.00028 mA	0.00023 mA

Arus DC / *DC Current*

Rentang *Range*	Titik Ukur *Measurement Point*	Pembacaan Standar *Standard Reading*	Koreksi *Correction*	Ketidakpastian *Uncertainty*
33 mA	20 mA	20.0000 mA	-0.0003 mA	0.0025 mA
33 mA	-20 mA	-20.0000 mA	0.0009 mA	0.0025 mA
330 mA	50 mA	50.0000 mA	-0.0010 mA	0.0042 mA
330 mA	100 mA	100.0000 mA	-0.0022 mA	0.0071 mA
330 mA	200 mA	199.900 mA	-0.074 mA	0.083 mA
330 mA	-200 mA	-199.900 mA	0.078 mA	0.083 mA
1.1 A	0.4 A	0.40000 A	0.00005 A	0.00015 A
1.1 A	0.5 A	0.50000 A	0.00006 A	0.00017 A
1.1 A	1 A	1.00000 A	0.00012 A	0.00031 A
1.1 A	-1 A	-1.00000 A	-0.00011 A	0.00031 A
3 A	2 A	2.0000 A	-0.0004 A	0.0020 A
3 A	-2 A	-2.0000 A	-0.0005 A	0.0020 A
11 A	5 A	5.0000 A	0.0018 A	0.0038 A
11 A	10 A	10.0000 A	0.0054 A	0.0069 A
11 A	-10 A	-10.0000 A	-0.0008 A	0.0069 A
20 A	15 A	15.000 A	0.009 A	0.011 A
20 A	19 A	19.000 A	0.012 A	0.013 A
20 A	-19 A	-19.000 A	-0.001 A	0.013 A

Tegangan AC / *AC Voltage*

Rentang *Range*	Titik Ukur *Measurement Point*	Frekuensi *Frequency*	Pembacaan Standar *Standard Reading*	Koreksi *Correction*	Ketidakpastian *Uncertainty*
33 mV	5 mV	40 Hz	5.0000 mV	-0.0079 mV	0.0097 mV
33 mV	5 mV	1 kHz	5.0000 mV	-0.0088 mV	0.0065 mV
33 mV	5 mV	10 kHz	5.0000 mV	-0.0101 mV	0.0093 mV
33 mV	10 mV	40 Hz	10.000 mV	-0.010 mV	0.010 mV
33 mV	10 mV	1 kHz	10.0000 mV	-0.0114 mV	0.0068 mV
33 mV	10 mV	10 kHz	10.0000 mV	-0.0127 mV	0.0097 mV
33 mV	20 mV	40 Hz	20.000 mV	-0.015 mV	0.011 mV
33 mV	20 mV	1 kHz	20.0000 mV	-0.0165 mV	0.0074 mV
33 mV	20 mV	10 kHz	20.000 mV	-0.018 mV	0.010 mV
330 mV	50 mV	40 Hz	50.000 mV	-0.030 mV	0.016 mV
330 mV	50 mV	1 kHz	50.000 mV	-0.032 mV	0.012 mV
330 mV	50 mV	10 kHz	50.000 mV	-0.033 mV	0.016 mV
330 mV	100 mV	40 Hz	100.000 mV	-0.054 mV	0.025 mV
330 mV	100 mV	1 kHz	100.000 mV	-0.057 mV	0.020 mV
330 mV	100 mV	10 kHz	100.000 mV	-0.059 mV	0.024 mV
330 mV	200 mV	40 Hz	200.000 mV	-0.112 mV	0.072 mV
330 mV	200 mV	1 kHz	200.000 mV	-0.111 mV	0.053 mV
330 mV	200 mV	10 kHz	200.000 mV	-0.119 mV	0.060 mV
3.3 V	0.5 V	40 Hz	0.50000 V	-0.00026 V	0.00011 V
3.3 V	0.5 V	1 kHz	0.500000 V	-0.000271 V	0.000083 V
3.3 V	0.5 V	10 kHz	0.50000 V	-0.00028 V	0.00010 V
3.3 V	1 V	40 Hz	1.00000 V	-0.00051 V	0.00018 V
3.3 V	1 V	1 kHz	1.00000 V	-0.00054 V	0.00013 V
3.3 V	1 V	10 kHz	1.00000 V	-0.00056 V	0.00017 V
3.3 V	2 V	40 Hz	2.00000 V	-0.00033 V	0.00062 V
3.3 V	2 V	1 kHz	2.00000 V	-0.00040 V	0.00053 V
3.3 V	2 V	10 kHz	2.00000 V	-0.00055 V	0.00059 V
33 V	5 V	40 Hz	5.0000 V	-0.0010 V	0.0011 V
33 V	5 V	1 kHz	5.00000 V	-0.00118 V	0.00083 V
33 V	5 V	10 kHz	5.0000 V	-0.0015 V	0.0010 V
33 V	10 V	40 Hz	10.0000 V	-0.0022 V	0.0018 V
33 V	10 V	1 kHz	10.0000 V	-0.0025 V	0.0013 V
33 V	10 V	10 kHz	10.0000 V	-0.0030 V	0.0017 V
33 V	20 V	40 Hz	20.0000 V	0.0000 V	0.0062 V
33 V	20 V	1 kHz	20.0000 V	-0.0014 V	0.0053 V
33 V	20 V	10 kHz	20.0000 V	-0.0123 V	0.0059 V

Tegangan AC / *AC Voltage*

Rentang *Range*	Titik Ukur *Measurement Point*	Frekuensi *Frequency*	Pembacaan Standar *Standard Reading*	Koreksi *Correction*	Ketidakpastian *Uncertainty*
330 V	50 V	1 kHz	50.0000 V	-0.0057 V	0.0083 V
330 V	50 V	10 kHz	50.000 V	-0.032 V	0.010 V
330 V	100 V	1 kHz	100.000 V	-0.013 V	0.013 V
330 V	100 V	10 kHz	100.000 V	-0.064 V	0.017 V
330 V	200 V	1 kHz	200.000 V	-0.020 V	0.060 V
330 V	200 V	10 kHz	200.000 V	0.264 V	0.061 V
1020 V	500 V	1 kHz	500.00 V	-0.06 V	0.10 V
1020 V	500 V	10 kHz	500.00 V	0.66 V	0.10 V
1020 V	1000 V	1 kHz	1000.00 V	-0.13 V	0.17 V
1020 V	1000 V	10 kHz	1000.00 V	1.32 V	0.17 V

Arus AC / *AC Current*

Rentang *Range*	Titik Ukur *Measurement Point*	Frekuensi *Frequency*	Pembacaan Standar *Standard Reading*	Koreksi *Correction*	Ketidakpastian *Uncertainty*
330 µA	50 µA	40 Hz	50.00 µA	-0.04 µA	0.25 µA
330 µA	50 µA	1 kHz	50.00 µA	-0.05 µA	0.25 µA
330 µA	100 µA	40 Hz	100.00 µA	-0.10 µA	0.27 µA
330 µA	100 µA	1 kHz	100.00 µA	-0.10 µA	0.27 µA
330 µA	200 µA	40 Hz	200.00 µA	-0.10 µA	0.43 µA
330 µA	200 µA	1 kHz	200.00 µA	-0.11 µA	0.43 µA
3.3 mA	0.5 mA	40 Hz	0.50000 mA	-0.00024 mA	0.00055 mA
3.3 mA	0.5 mA	1 kHz	0.50000 mA	-0.00026 mA	0.00054 mA
3.3 mA	1 mA	40 Hz	1.00000 mA	-0.00047 mA	0.00075 mA
3.3 mA	1 mA	1 kHz	1.00000 mA	-0.00050 mA	0.00075 mA
3.3 mA	2 mA	40 Hz	2.0000 mA	-0.0011 mA	0.0043 mA
3.3 mA	2 mA	1 kHz	2.0000 mA	-0.0009 mA	0.0043 mA
33 mA	5 mA	40 Hz	5.0000 mA	-0.0025 mA	0.0055 mA
33 mA	5 mA	1 kHz	5.0000 mA	-0.0025 mA	0.0055 mA
33 mA	10 mA	40 Hz	10.0000 mA	-0.0048 mA	0.0075 mA
33 mA	10 mA	1 kHz	10.0000 mA	-0.0051 mA	0.0075 mA
33 mA	20 mA	40 Hz	20.000 mA	-0.013 mA	0.041 mA
33 mA	20 mA	1 kHz	20.000 mA	-0.015 mA	0.041 mA
330 mA	50 mA	40 Hz	50.000 mA	-0.027 mA	0.055 mA
330 mA	50 mA	1 kHz	50.000 mA	-0.029 mA	0.055 mA
330 mA	100 mA	40 Hz	100.000 mA	-0.050 mA	0.075 mA
330 mA	100 mA	1 kHz	100.000 mA	-0.053 mA	0.075 mA
330 mA	200 mA	40 Hz	200.00 mA	-0.09 mA	0.54 mA
330 mA	200 mA	1 kHz	200.00 mA	-0.21 mA	0.54 mA
1.1 A	0.4 A	40 Hz	0.40000 A	-0.00014 A	0.00081 A
1.1 A	0.4 A	1 kHz	0.40000 A	-0.00026 A	0.00081 A
1.1 A	0.5 A	40 Hz	0.50000 A	-0.00017 A	0.00086 A
1.1 A	0.5 A	1 kHz	0.50000 A	-0.00029 A	0.00085 A
1.1 A	1 A	40 Hz	1.0000 A	-0.0003 A	0.0013 A
1.1 A	1 A	1 kHz	1.0000 A	-0.0004 A	0.0013 A
3 A	2 A	40 Hz	2.0000 A	-0.0003 A	0.0059 A
3 A	2 A	1 kHz	2.0000 A	-0.0011 A	0.0059 A
11 A	5 A	1 kHz	5.000 A	-0.001 A	0.010 A
11 A	10 A	1 kHz	10.000 A	-0.001 A	0.017 A
20 A	15 A	1 kHz	15.000 A	-0.001 A	0.025 A
20 A	19 A	1 kHz	19.000 A	-0.002 A	0.029 A

Resistansi / *Resistance*

Rentang *Range*	Titik Ukur *Measurement Point*	Pembacaan Standar *Standard Reading*	Koreksi *Correction*	Ketidakpastian *Uncertainty*
11 Ω	0 Ω	0.000000 Ω	0.000000 Ω	0.000011 Ω
11 Ω	10 Ω	10.00000 Ω	0.00010 Ω	0.00019 Ω
33 Ω	20 Ω	20.00000 Ω	0.00016 Ω	0.00077 Ω

Resistansi / ***Resistance***

Rentang ***Range***	**Titik Ukur** ***Measurement Point***	**Pembacaan Standar** ***Standard Reading***	**Koreksi** ***Correction***	**Ketidakpastian** ***Uncertainty***
110 Ω	100 Ω	100.0000 Ω	0.0008 Ω	0.0011 Ω
330 Ω	200 Ω	199.9900 Ω	-0.0080 Ω	0.0077 Ω
1.1 kΩ	1 kΩ	1.000000 kΩ	0.000008 kΩ	0.000011 kΩ
3.3 kΩ	2 kΩ	2.000000 kΩ	0.000003 kΩ	0.000057 kΩ
11 kΩ	10 kΩ	10.00000 kΩ	0.00004 kΩ	0.00010 kΩ
33 kΩ	20 kΩ	20.00000 kΩ	0.00008 kΩ	0.00025 kΩ
110 kΩ	100 kΩ	100.0000 kΩ	0.0008 kΩ	0.0013 kΩ
330 kΩ	200 kΩ	199.990 kΩ	-0.009 kΩ	0.015 kΩ
1.1 MΩ	1 MΩ	1.000000 MΩ	0.000001 MΩ	0.000017 MΩ
3.3 MΩ	2 MΩ	2.00000 MΩ	-0.00072 MΩ	0.00027 MΩ
11 MΩ	10 MΩ	10.00000 MΩ	0.00004 MΩ	0.00032 MΩ
33 MΩ	20 MΩ	20.000 MΩ	0.002 MΩ	0.012 MΩ
110 MΩ	100 MΩ	100.000 MΩ	0.014 MΩ	0.016 MΩ
330 MΩ	200 MΩ	199.9000 MΩ	0.0279 MΩ	0.0013 MΩ
1100 MΩ	1000 MΩ	1000.5000 MΩ	1.6669 MΩ	0.0018 MΩ

Catatan/***Notes***

Hasil kalibrasi ini diperoleh berdasarkan prosedur kalibrasi I.ME.1.05 untuk tegangan DC, I.ME.3.05 untuk arus DC, I.ME.5.04 untuk tegangan AC, I.ME.6.06 untuk arus AC, dan I.ME.2.09 untuk resistansi dengan menggunakan alat standar yang tertelusur ke SI melalui SNSU-BSN. / *The calibration result was acquired based on the procedure of I.ME.1.05 for DC voltage, I.ME.3.05 for DC current, I.ME.5.04 for AC voltage, I.ME.6.06 for AC current, and I.ME.2.09 for resistance using standard instruments that is traceable to SI through SNSU-BSN.*

Ketidakpastian pengukuran dihitung dengan tingkat kepercayaan tidak kurang dari 95% dan faktor cakupan k = 2. / *The uncertainty of measurement was calculated with a confidence level not less than 95% and coverage factor of k = 2.*

Alat standar yang digunakan adalah Reference Multimeter Fluke 8508A (SN. 941254525) / *The standard instruments used were Reference Multimeter Fluke 8508A (SN. 941254525)*

Hasil kalibrasi yang ditandai bintang (*) tidak tercakup dalam ruang lingkup akreditasi KAN. / *Calibration results marked by asterisk (*) are not covered by KAN accreditation.*

Dikalibrasi oleh/*Calibrated by* : Hayati Amalia, M.T.

Diperiksa oleh/*Checked by* : Agah Faisal, M.Sc.
(Penyelia/*Supervisor)*

: Agah Faisal, M.Sc.
(Kepala Laboratorium SNSU Kelistrikan)