

## CALIBRATION CERTIFICATE

Department: Capacitor  
Control No: EA-13-CP-106  
Equipment Name: LC TESTER

Ambient Temperature:  
Relative Humidity:

Manufacturer: Pro-FACE DIGITAL  
Model No.: PFXGP4301TADW  
Serial No.: K00423LC042  
Equipment Class: B  
Location: BT-PRODUCTION (BFI2040)  
Received Date:  
Calibration Date:  
Calibration Due:  
Procedure Used: CE102-QID-CL-048B

### Reference Standard used during Calibration

No	Standard Used	Control No.	Model / Serial	Calibration Due Date

The calibration was carried out with reference to the following calibration and measurement standards which are traceable to the NMC A\*STAR (Singapore), NPL (UK), NIST (US) and/or other recognized national calibration laboratories.

### Charging Voltage (CH1)

Parameter	Nominal	Measured Value	Error	Min	Max	Expanded Uncertainty	Result
1 V	1.000 V	V	V	0.970 V	1.030 V	V	
3 V	3.000 V	V	V	2.910 V	3.090 V	V	
5 V	5.000 V	V	V	4.850 V	5.150 V	V	
10 V	10.000 V	V	V	9.700 V	10.300 V	V	
20 V	20.000 V	V	V	19.400 V	20.600 V	V	
25 V	25.000 V	V	V	24.250 V	25.750 V	V	
30 V	30.000 V	V	V	29.100 V	30.900 V	V	
35 V	35.000 V	V	V	33.950 V	36.050 V	V	

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## Charging Voltage (CH2)

Parameter	Nominal	Measured Value	Error	Min	Max	Expanded Uncertainty	Result
1 V	1.000 V	V	V	0.970 V	1.030 V	V	
3 V	3.000 V	V	V	2.910 V	3.090 V	V	
5 V	5.000 V	V	V	4.850 V	5.150 V	V	
10 V	10.000 V	V	V	9.700 V	10.300 V	V	
20 V	20.000 V	V	V	19.400 V	20.600 V	V	
25 V	25.000 V	V	V	24.250 V	25.750 V	V	
30 V	30.000 V	V	V	29.100 V	30.900 V	V	
35 V	35.000 V	V	V	33.950 V	36.050 V	V	

## Charging Voltage Monitor

Parameter	Nominal	Measured Value	Error	Min	Max	Expanded Uncertainty	Result
1 V	1.00 V	V	V	0.97 V	1.03 V	V	
3 V	3.00 V	V	V	2.95 V	3.05 V	V	
5 V	5.00 V	V	V	4.93 V	5.07 V	V	
10 V	10.00 V	V	V	9.88 V	10.12 V	V	
20 V	20.00 V	V	V	19.78 V	20.22 V	V	
25 V	25.00 V	V	V	24.73 V	25.27 V	V	
30 V	30.00 V	V	V	29.68 V	30.32 V	V	
35 V	35.00 V	V	V	34.63 V	35.37 V	V	

## Measurement Voltage (CH1)

Parameter	Nominal	Measured Value	Error	Min	Max	Expanded Uncertainty	Result
1 V	1.000 V	V	V	0.970 V	1.030 V	V	
3 V	3.000 V	V	V	2.910 V	3.090 V	V	
5 V	5.000 V	V	V	4.850 V	5.150 V	V	
10 V	10.000 V	V	V	9.700 V	10.300 V	V	
20 V	20.000 V	V	V	19.400 V	20.600 V	V	
25 V	25.000 V	V	V	24.250 V	25.750 V	V	
30 V	30.000 V	V	V	29.100 V	30.900 V	V	
35 V	35.000 V	V	V	33.950 V	36.050 V	V	

## Measurement Voltage (CH2)

Parameter	Nominal	Measured Value	Error	Min	Max	Expanded Uncertainty	Result
1 V	1.000 V	V	V	0.970 V	1.030 V	V	
3 V	3.000 V	V	V	2.910 V	3.090 V	V	
5 V	5.000 V	V	V	4.850 V	5.150 V	V	
10 V	10.000 V	V	V	9.700 V	10.300 V	V	
20 V	20.000 V	V	V	19.400 V	20.600 V	V	
25 V	25.000 V	V	V	24.250 V	25.750 V	V	
30 V	30.000 V	V	V	29.100 V	30.900 V	V	
35 V	35.000 V	V	V	33.950 V	36.050 V	V	

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## Measurement Voltage Monitor

Parameter	Nominal	Measured Value	Error	Min	Max	Expanded Uncertainty	Result
1 V	1.000 V	V	V	0.970 V	1.030 V	V	
3 V	3.000 V	V	V	2.910 V	3.090 V	V	
5 V	5.000 V	V	V	4.930 V	5.070 V	V	
10 V	10.000 V	V	V	9.880 V	10.120 V	V	
20 V	20.000 V	V	V	19.780 V	20.220 V	V	
25 V	25.000 V	V	V	24.730 V	25.270 V	V	
30 V	30.000 V	V	V	29.680 V	30.320 V	V	
35 V	35.000 V	V	V	34.630 V	35.370 V	V	

## LC Measurement (CH1) [Range: 20uA; Load Resistance: 1MΩ]

Parameter	Nominal	Measured Value	Error	Min	Max	Expanded Uncertainty	Result
1 V	1.00 μA	μA	μA	0.94 μA	1.06 μA	μA	
3 V	3.00 μA	μA	μA	2.84 μA	3.16 μA	μA	
5 V	5.00 μA	μA	μA	4.74 μA	5.26 μA	μA	
10 V	10.00 μA	μA	μA	9.49 μA	10.51 μA	μA	
20 V	20.00 μA	μA	μA	18.99 μA	21.01 μA	μA	

## LC Measurement (CH2) [Range: 20uA; Load Resistance: 1MΩ]

Parameter	Nominal	Measured Value	Error	Min	Max	Expanded Uncertainty	Result
1 V	1.00 μA	μA	μA	0.94 μA	1.06 μA	μA	
3 V	3.00 μA	μA	μA	2.84 μA	3.16 μA	μA	
5 V	5.00 μA	μA	μA	4.74 μA	5.26 μA	μA	
10 V	10.00 μA	μA	μA	9.49 μA	10.51 μA	μA	
20 V	20.00 A	A	A	18.99 A	21.01 A	A	

## LC Measurement (CH1) [Range: 200uA; Load Resistance: 100kΩ]

Parameter	Nominal	Measured Value	Error	Min	Max	Expanded Uncertainty	Result
1 V	10.00 μA	μA	μA	9.49 μA	10.51 μA	μA	
3 V	30.00 μA	μA	μA	28.49 μA	31.51 μA	μA	
5 V	50.00 μA	μA	μA	47.49 μA	52.51 μA	μA	
10 V	100.00 μA	μA	μA	94.99 μA	105.01 μA	μA	
20 V	200.00 μA	μA	μA	189.99 μA	210.01 μA	μA	

## LC Measurement (CH2) [Range: 200uA; Load Resistance: 100kΩ]

Parameter	Nominal	Measured Value	Error	Min	Max	Expanded Uncertainty	Result
1 V	10.00 μA	μA	μA	9.49 μA	10.51 μA	μA	
3 V	30.00 μA	μA	μA	28.49 μA	31.51 μA	μA	
5 V	50.00 μA	μA	μA	47.49 μA	52.51 μA	μA	
10 V	100.00 μA	μA	μA	94.99 μA	105.01 μA	μA	
20 V	200.00 μA	μA	μA	189.99 μA	210.01 μA	μA	

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## LC Measurement (CH1) [Range: 1000uA; Load Resistance: 10kΩ]

Parameter	Nominal	Measured Value	Error	Min	Max	Expanded Uncertainty	Result
1 V	100.00 $\mu$ A	$\mu$ A	$\mu$ A	94.99 $\mu$ A	105.01 $\mu$ A	$\mu$ A	
3 V	300.00 $\mu$ A	$\mu$ A	$\mu$ A	284.99 $\mu$ A	315.01 $\mu$ A	$\mu$ A	
5 V	500.00 $\mu$ A	$\mu$ A	$\mu$ A	474.99 $\mu$ A	525.01 $\mu$ A	$\mu$ A	
10 V	1000.00 $\mu$ A	$\mu$ A	$\mu$ A	949.99 $\mu$ A	1050.01 $\mu$ A	$\mu$ A	

## LC Measurement (CH2) [Range: 1000uA; Load Resistance: 10kΩ]

Parameter	Nominal	Measured Value	Error	Min	Max	Expanded Uncertainty	Result
1 V	100.00 $\mu$ A	$\mu$ A	$\mu$ A	94.99 $\mu$ A	105.01 $\mu$ A	$\mu$ A	
3 V	300.00 $\mu$ A	$\mu$ A	$\mu$ A	284.99 $\mu$ A	315.01 $\mu$ A	$\mu$ A	
5 V	500.00 $\mu$ A	$\mu$ A	$\mu$ A	474.99 $\mu$ A	525.01 $\mu$ A	$\mu$ A	
10 V	1000.00 $\mu$ A	$\mu$ A	$\mu$ A	949.99 $\mu$ A	1050.01 $\mu$ A	$\mu$ A	

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