AMP-25, AMP-25-EUR Calibration Procedure

Document Change Record

Rev.001	initial release	02/05/2015
Rev.002	Updated Verification Table from Verification test point sheet	03/11/2015

Periodic calibration is required to conduct correct measurement. This instrument needs periodic calibration at intervals of one year. Calibrate the instrument according to the following procedures.

⚠ *Cautions*

- Read instruction manual and understand the use of the instrument and its accessory(ies) correctly before proceeding the calibration activities.
- *Calibrate the instrument at* **23°C ± 2°C** *and humidity of* **80% R.H. or less**. *Allow the instrument to sit at this environment condition for > 30 minutes before calibration.*
- *Erroneous calibrating operation may lead to the incorrect performance and measurement.*

WARNINGS!

- **Only trained personnel can do adjustments and repairing of the instrument!**
- **Be aware of all safety precautions to avoid electric shock when working on opened instrument!**

Recommended equipment:

- Fluke 5520 calibrator
- Transconductance Amplifier
- Current coil with overall diameter < 22 mm

1. Enter Calibration Mode

1.1. Press and hold the "HOLD" button while powering up. The display shows full screen display symbols, then release buttons and press buttons **immediately** according to the following sequence to enter the calibration procedure mode.

LPF / inrush → V↯ / ZERO → HOLD → LPF / Inrush → ≂A

The "HOLD" symbol on display will flash when in calibration mode.

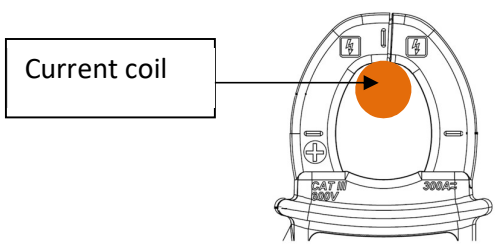
1.2. Press LPF / inrush button, the display shows "A1", press LPF / inrush button again to select "**25**"

2. Calibrate the position error (when in calibration mode)

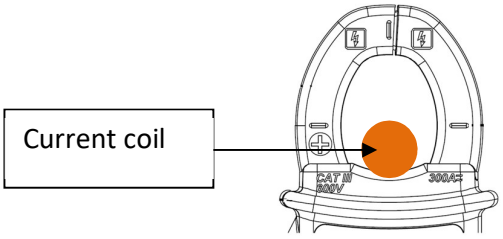
2.1. Press ≂A button to select AC A mode

2.2. Clamp the jaw around the current coil. Ensure the jaw is completely close.

2.3. Apply the reference current AC 100 A / 50 Hz, and position the jaw as below, then record the reading on the display.



2.4. Move the jaw as below, then record the reading.



2.5. If the reading from step 2.3. and 2.4. have the difference > 0.1, adjust **VR52** and repeat step 2.3. and 2.4. until both readings keep the difference ≤ 0.1

2.6. Remove the EUT from the current coil

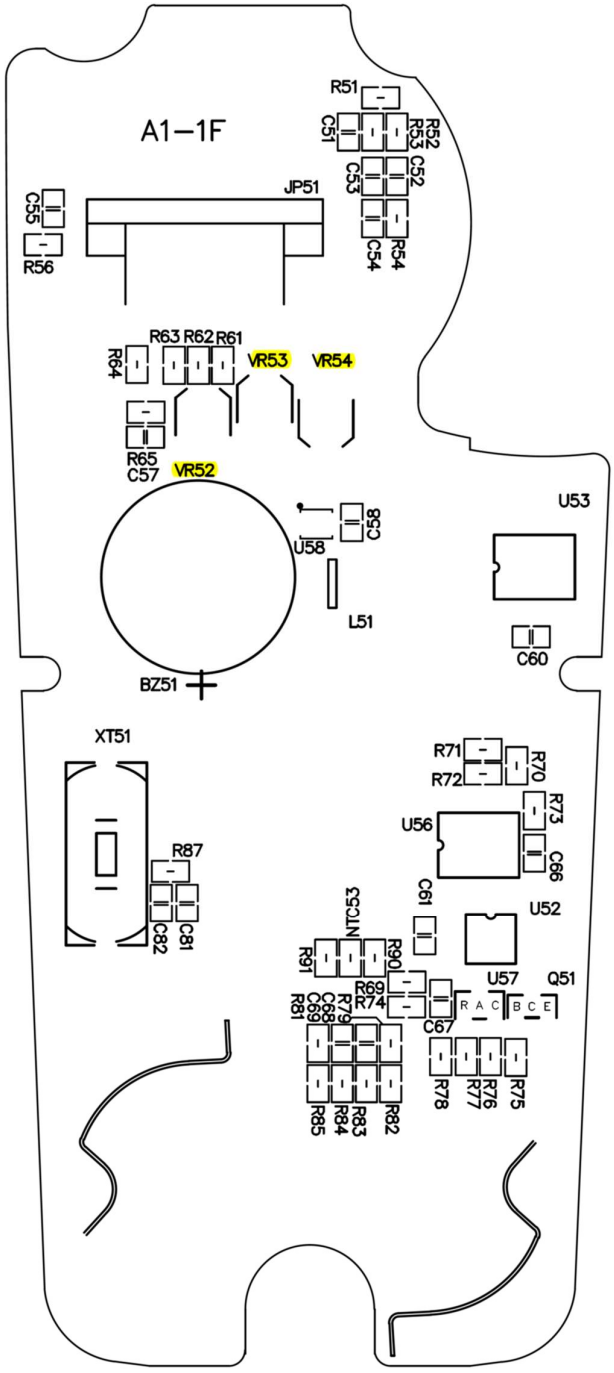
3. Calibrate Offset (ensure no signal is supplied on EUT's jaw)

3.1. Press $\overset{\sim}{\underline{A}}$ button to select DC A mode

3.2. Adjust VR54 and VR53 until display shows 0.00

3.3. After the offset adjustment in step 3.2., the display value from environment should be within +/- 0.05

Component position layout



4. AC A calibration (in calibration mode)

4.1. Press ~A button to select AC A mode
4.2. Clamp the jaw around the current coil and centered according the alignment mark on the jaw. Ensure the jaw is completely close.
4.3. Apply the standard reference current according to **Table 1**., the display should show a value (this shown reading does not have to be accurate from the standard reference).
4.4. Until the reading stabilized, press “HOLD” button to save the standard reference calibration point. A beep will sound when successfully saved the CAL point.
4.5. Repeat step 4.3. and 4.4. for the next calibration point.
4.6. If EUT beeps twice when pressing HOLD button, it indicates the CAL point fail to save. Repeat step 4.3. and 4.4. If EUT still fails to save CAL data point, contact Amprobe for serving.

5. LPF calibration (in calibration mode)

5.1. Press LPF button to select LPF mode
5.2. Clamp the jaw around the current coil and centered according the alignment mark on the jaw. Ensure the jaw is completely close.
5.3. Apply the standard reference current according to **Table 1**., the display should show a value (this shown reading does not have to be accurate from the standard reference).
5.4. Until the reading stabilized, press “HOLD” button to save the standard reference calibration point. A beep will sound when successfully saved the CAL point.
5.5. Repeat step 5.3. and 5.4. for the next calibration point.
5.6. If EUT beeps twice when pressing HOLD button, it indicates the CAL point fail to save. Repeat step 5.3. and 5.4. If EUT still fails to save CAL data point, contact Amprobe for serving.

6. DC A calibration (in calibration mode)

6.1. Press ~A button to select DC A mode
6.2. Clamp the jaw around the current coil and centered according the alignment mark on the jaw. Ensure the jaw is completely close.
6.3. Apply the standard reference current according to **Table 1**., the display should show a value . Then, remove EUT from the current coil. Press ZERO button > 2sec to zero EUT.
6.4. Position EUT back to the current coil as step 6.2. and apply the standard reference current according to **Table 1**., the display should show a value .
6.5. Until the reading stabilized, press “HOLD” button to save the standard reference calibration point. A beep will sound when successfully saved the CAL point.
6.6. Repeat step 6.2. to 6.5. for the next calibration point.
6.7. If EUT beeps twice when pressing HOLD button, it indicates the CAL point fail to save. Repeat step 4.3. and 4.4. If EUT still fails to save CAL data point, contact Amprobe for serving.

7. Exit Calibration mode

7.1. Turn OFF the EUT to exit calibration mode.

8. Verification Test

8.1. Verify the accuracy of the data points in Table 1 according to the accuracy specifications in users manual.

8.2. If reading is out of specifications, perform the following to clear all CAL data:

Press and hold the "HOLD" button while powering up. The display shows full screen display symbols, then release buttons and press buttons **immediately** according to the following sequence

LPF / inrush → V/ ZERO → HOLD → LPF / Inrush → Press and hold A until display shows "**CLr**".

The EUT will enter calibration mode after showing "CLr".

8.3. Start from Step 1 for re-calibration

8.4. If EUT still fails to comply with accuracy specifications after calibration, contact Amprobe for servicing

Table 1: Calibration data point

Recommended equipment:

· Fluke 5520 calibrator
· Transconductance Amplifier
· Current coil with overall diameter < 22 mm

		* Refer to the latest published specifications and update the calculation as applicable			Input reference			
Function	**Range**	**Accuracy***	**LSD***	**Res.***	**A**	**Hz**	**Low Limits**	**High limits**
AC A	60.00	1.5%	5	0.01	**10.00**	**50**	9.80	10.20
	60.00	1.5%	5	0.01	**10.00**	**70**	9.80	10.20
	60.00	2.5%	5	0.01	**10.00**	**200**	9.70	10.30
	60.00	2.5%	5	0.01	**10.00**	**400**	9.70	10.30
	60.00	1.5%	5	0.01	**30.00**	**50**	29.50	30.50
	60.00	2.5%	5	0.01	**30.00**	**200**	29.20	30.80
	60.00	2.5%	5	0.01	**30.00**	**400**	29.20	30.80
	60.00	1.5%	5	0.01	**60.00**	**50**	59.05	60.95
	60.00	2.5%	5	0.01	**60.00**	**200**	58.45	61.55
	60.00	2.5%	5	0.01	**60.00**	**400**	58.45	61.55

	300.0	1.5%	5	0.1	**100.0**	**50**	98.0	102.0
	300.0	2.5%	5	0.1	**100.0**	**200**	97.0	103.0
	300.0	2.5%	5	0.1	**100.0**	**400**	97.0	103.0
	300.0	1.5%	5	0.1	**290.0**	**50**	285.2	294.8
	300.0	2.5%	5	0.1	**290.0**	**200**	282.3	297.7
	300.0	2.5%	5	0.1	**290.0**	**400**	282.3	297.7
LPF	60.00	3.5%	5	0.01	**50.00**	**55**	48.20	51.80
	300.0	3.5%	5	0.1	**100.0**	**55**	96.0	104.0
	300.0	3.5%	5	0.1	**250.0**	**55**	240.8	259.2
Zero the instrument before making each DC A measurement								
DC A	60.00	1.5%	10	0.01	**10.00**	**0**	9.75	10.25
(manual DC A mode)	60.00	1.5%	10	0.01	**-10.00**	**0**	-10.25	-9.75
	60.00	1.5%	10	0.01	**30.00**	**0**	29.45	30.55
	60.00	1.5%	10	0.01	**-30.00**	**0**	-30.55	-29.45
	60.00	1.5%	10	0.01	**60.00**	**0**	59.00	61.00
	60.00	1.5%	10	0.01	**-60.00**	**0**	-61.00	-59.00
	300.0	1.5%	5	0.1	**100.0**	**0**	98.0	102.0
	300.0	1.5%	5	0.1	**-100.0**	**0**	-102.0	-98.0
	300.0	1.5%	5	0.1	**290.0**	**0**	285.2	294.8
	300.0	1.5%	5	0.1	**-290.0**	**0**	-294.8	-285.2

— End of Calibration —