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Test report New Design Soldering nut M5 for DVL family



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1. AIM:

The aim is to check new design of Soldering Nut M5 - 3 mm (CLEM № 92.40.09.120.0 - rev.00) and PCB 2385 (CLEM № 92.49.02.385.0 - rev.00) during assembling and soldering process with current productions tools.





2. GOAL OF EXPERIMENT:

The goals of the experiment are:

To be checked what will be the behavior during assembling and soldering of Soldering Nut M5 - 3 mm with PCB 2385. For soldering process was used soldering station from current production.

During torque test to be reached break of connections of assembled and soldered PCBs and soldering nut over 2,2N.

3. RESULTS:

3.1 Results after assembling of Soldering Nut M5 92.40.09.120.0 - 3mm

General view after manual assembling of PCB 92.49.02.385.0 and Soldering Nut M5 92.40.09.120.0 - 3mm





3.2 Results after soldering of Soldering Nut M5 92.40.09.120.0 - 3mm

Below are presented pictures with results after soldering.

PCB 92.49.02.385.0 assembled with Soldering Nut M5 92.40.09.120.0 - 3mm and soldered





3.3 PCB electrical analyses for conductivity after soldering

Soldering tip	PCB#	Nut#	Signal	R [Ω]
SFV25AR	1	1	V+	0
		2	М	0
		3	V-	0
		4	0V	0
	2	5	V+	0
		6	М	0
		7	V-	0
		8	0V	0
	3	9	V+	0
		10	М	0
		11	V-	0
		12	0V	0
	4	13	V+	0
		14	М	0
		15	V-	0
		16	0V	0

Measurement of the resistance between the thread of nuts and cable solder pad.

*Green means the conductivity is OK.

Conclusion: The results showed presence of connection, no issue was detected.



3.4 Results from torque test

PCB 92.49.02.385.0 assembled with Soldering Nut M5 92.40.09.120.0 - 3mm and soldered

	Test Ce	ertificate	Atlas (Сорсо
STanalyse	er.		Transducer	
Type: Serial num	STanalyser STA.0175		Serial number: Minimum load: Capacity:	42250230 4,09 81,72
Company: Type:	LEM Bulgaria PEB 2385		Sensitivity: Span: Type:	2,0 120% IRTT T
Model:	nut 9120 3 mm	1 ti f	Calibration value:	68,100
PCB Number	Soldering Nut Number	finished hole size	Torque result	Soldering tip
1	1 2 3 4	1 2 3 4	5,56 Nm 5,62 Nm 5,43 Nm 5,49 Nm	SFV 25AR
2	5 6 7 8	1 2 3 4	5,56 Nm 5,56 Nm 5,27 Nm 5,62 Nm	SFV 25AR
3	9 10 11 12	1 2 3 4	5,35 Nm 5,41 Nm 5,67 Nm 5,47 Nm	SFV 25AR
4	13 14 15 16	1 2 3 4	5,45 Nm 5,73 Nm 5,35 Nm 5,52 Nm	SFV 25AR





General view after torque test of PCB 92.49.02.385.0 and Soldering Nut M5 92.40.09.120.0 - 3mm



Soldering Nut M5 92.40.09.120.0 - 3mm



4. CONCLUSION:

After performed tests it can be concluded that the new design of PCB 92.49.02.385.0 and Soldering Nut M5 92.40.09.120.0

- Reach requirement for electrical connection based on results from measurement of the resistance between the thread of nuts and cable solder pad.
- Reach recommended fastening torque of 2, 2 Nm based on results from torque test.
- PCB and Soldering Nut are easy for manual assembling.