



Product Alert

June 3rd, 2019

Type of Notification: Product Safety Notification

FM Approvals has been notified by ABB Engineering (Shanghai) Ltd. of a potential defect involving FM Approved and ATEX/IECEX certified ABB LMT Series Intrinsically Safe Magnetostrictive Level Transmitters.

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Product Identity: LMT Series Magnetostrictive Level Transmitters

Description: Intrinsically Safe Versions Only

Make/Model: LMT100, LMT200

Nameplate Data: Products marked as Ex ia IIC T6 (Refer attached ABB bulletin number LMT_Exia_02_2019)

FM Approvals Certificates: FM17US0243X & FM17CA0124X

ATEX Certificate: FM17ATEX0062X

IECEX Certificate: IECEX FME 17.0004X

FM Approval Status: FM Approved

Hazard Involved: The products contain a non-compliance with intrinsic safety requirements due to missing epoxy encapsulation over a group of electrical components on the products Front-End Board. See attached Technical Bulletin LMT_Exia_02_2019, issued by ABB Engineering (Shanghai) Ltd. The affected product should be modified or replaced as described in the attached Technical Bulletin.

If you suspect you are in possession of affected equipment bearing the FM Approvals certification marking, please process in accordance with the attached bulletin. For additional assistance, please contact:

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ABB Measurement & Analytics

Technical Bulletin

Magnetostrictive Series level transmitters

Product Group: Level - Magnetostrictive

Products: LMT100 and LMT200 Series

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1. Introduction

This bulletin addresses a specific issue with the Magnetostrictive Series Level Transmitters, LMT100 and LMT200 models, shipped with the Intrinsic Safety (Ex ia) Approval marking. (refer Appendix-1 of this document)

2. Description : Missing encapsulation in the front-end PCBA

During a recent internal audit and inspection, ABB's quality team found a non-conformance with the FM certification requirements for the LMT100 and LMT200 model's Intrinsic Safe option (Ex ia). The non-conformance is caused by missing epoxy encapsulation over a component in the Front-End board. The contract manufacturer did not apply the local encapsulation over a group of components as required for the Ex ia marking.



Fig-1: Board with correct encapsulation

3. What actions have been taken to correct this situation?

All the front-end boards in stock have been reworked with correct encapsulation. The supplier has also been informed about the non-conformance and has corrected its process. The latest batches have been received with the correct encapsulation meeting the approvals requirements.

4. Which models and markings are affected ?

In both the Magnetostrictive Series Level Transmitters LMT100 and LMT200, only the Intrinsic Safety (Ex ia) models are affected by the non-conformance. The encapsulation is only required for the Ex ia, intrinsic safety option, therefore, only the units marked for this application is affected by the missing encapsulation. The affected units only present a risk if the field wiring scheme employed to install the product did not use the flameproof/explosion proof electrical cable glands at the LMT housing. The Flameproof (Ex d) and Non-Incendive (Ex n) options are not affected by this omission. The LMT devices affected are identified with serial numbers as listed in the Appendix-1 of this bulletin.

5. Is there a risk with the installed base LMT units in the field?

Based on ABB's internal risk assessment reviewed and confirmed by FM, the lack of local encapsulation does not represent a critical or emergency safety concern. However, the lack of encapsulation is a non-compliance with the requirements of the intrinsic safety standard. Therefore, the recommendation from FM Approvals, is to

urge actions to mitigate risk for those non-compliant units in the field marked with this Intrinsic safety concept (Ex ia).

6. Why is this not a critical or emergency safety concern?

All the LMT Series units are built using the same components irrespective of the hazardous location protection concept. Therefore, the housing used in all these units, regardless of markings meet all the requirements for Flameproof/Explosion proof applications. Therefore, there is minimal risk for those units marked with Ex ia intrinsic safety, if the field wiring scheme employed to install these products use the flameproof/explosion proof electrical cable glands at the LMT housing. Similarly, all the internal components as shown in the below picture are same for both the Intrinsic Safety and Flameproof/Explosion proof options.

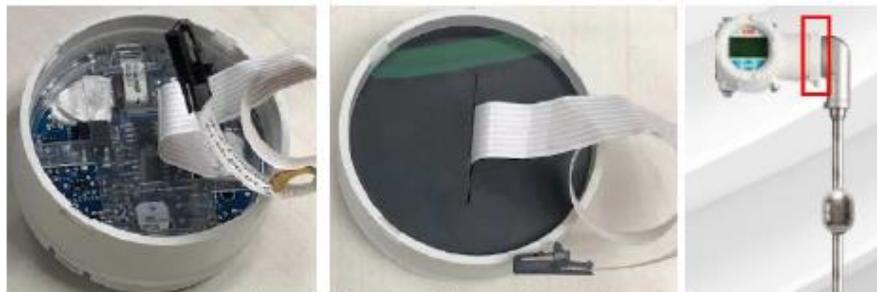


Fig-2: Front-end assembly sealed with rubber gasket and LMT with common housing

Additionally, the following technical assessment provides the confidence that the missing encapsulation does not present a significant safety risk.

- The typical voltage at the capacitor which is covered by this encapsulation is only 6.0 V (12.0 V maximum with the application of up to 2 countable and any number of non-countable faults).
- All the LMT models including the ones with "ia" protection type uses the same Flameproof Enclosure.
- All the LMT models irrespective of the protection designation are constructed with dual compartment housing that separates the power terminal block compartment from the electronics compartment. This reduces the probability of power wires coming contact with this PCBA. In addition, any power supply wiring or troubleshooting isolates the need to open only the compartment hosting the non-conforming PCBA.
- Most of the time the human interaction with the LMT unit is through the HMI display. The LMT HMI display is operated with the "Through-The-Glass" (TTG) technology which allows the user to navigate through the device menu without opening the window cover of the housing, greatly limiting human contact with the non-conforming portion of the board.
- Finally, the front-end board PCBA with this nonconformance is placed in the electronics compartment of the LMT flameproof housing separated from the remaining volume of the compartment by very tight rubber gasket. (as shown in the Fig-2)

7. Recommended actions for the installed units

Below are the recommendations to mitigate risk for the installed LMT100 and LMT200 units with the Ex ia (intrinsic safety) protection concept.

1. For all the LMT models, while installation, operation and maintenance, follow the best practices and safety instruction as mentioned in the LMT Series Operating Instructions and Safety Manual. In addition, please follow the Safety guidelines and instructions as directed by the local/national regulations with regards to installing, functional testing, repairing, operating and maintaining electrical devices.
2. Avoid opening the enclosure while the device is energized.
3. For energized interaction with the device use the TTG (thru-the-glass) interface or use the Software drivers like EDD, DTM or an FDI for any configuration or for troubleshooting of the device.

In addition to the above actions, the following is also highly recommended:

End User Actions:

1. In an installation with Ex ia marking, if necessary replace the electrical cable glands with electrical cable glands that meet the flameproof explosion and Ingress Protection requirements in that area. Also, in the unused housing opening install a plug certified for explosion-proof applications. This will make the unit equivalent for Flameproof application while allowing continued safe use for the Intrinsic application.
2. For installed units without the encapsulation, wherever possible, convert the unit and entire loop to a flameproof connection and change the marking in the certification plate as appropriate. Seal the unused opening with a plug certified for explosion proof applications. Refer Fig:3 LMT Series housing.



Fig-3: LMT Series housing

As necessary with the change above, remove the Ex ia application markings on the certification plate of the unit and mark the box appropriate for Exd or Ex n application. An example as shown in Fig-4: LMT Series certification plate example

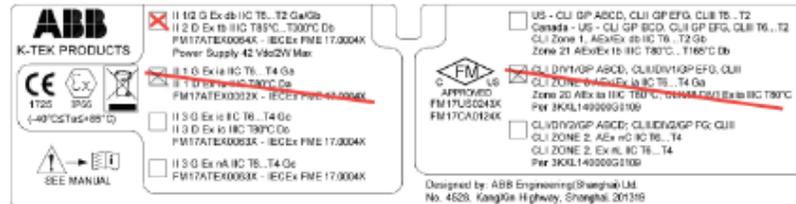


Fig-4: LMT Series certification plate example

3. In case such installation is changed to a flameproof protection, then the enclosure must be maintained as flameproof. Necessary instructions shall be provided by the end user, for on-going maintenance activities to ensure the integrity of this change is maintained.

ABB Actions:

If it is not possible for the end user to perform the above actions and/or if the end-user would like ABB assistance to address this low risk non-conformance, ABB, will support the end user upon a formal email request to Ktek Service ktek-service@us.abb.com with one of the following options, whichever feasible:

1. Wherever possible an ABB Service team will replace this non-conforming front-end board PCBA with a new PCBA with the encapsulation.
2. Wherever, the above option-1 is not feasible due to the installation, location or due to any other reasons, ABB will replace the LMT unit with a new unit that meets the conformance requirements through the 'Advanced Replacement Policy' based on the lead-time delivery terms from the factory.



Appendix-1: List of devices affected

Sl Nr	Material	Device Serial Number	ABB SO#
1	LMT100	3K620000231535	1830211
2	LMT100	3K620000231536	1830211
3	LMT100	3K620000231537	1830211
4	LMT100	3K620000231538	1830211
5	LMT100	3K620000231539	1830211
6	LMT100	3K620000231540	1830211
7	LMT100	3K620000231541	1830211
8	LMT100	3K620000231542	1830211
9	LMT100	3K620000232496	1811500
10	LMT100	3K620000232970	1841859
11	LMT100	3K620000239257	1816658
12	LMT100	3K620000242289	1908907
13	LMT100	3K620000242290	1908907
14	LMT100	3K620000244105	1919390
15	LMT100	3K620000251459	1953843
16	LMT100	3K620000253731	1966541
17	LMT100	3K620000253732	1966541
18	LMT100	3K620000253733	1966541
19	LMT100	3K620000253734	1966541
20	LMT100	3K620000253735	1966541
21	LMT100	3K620000257399	1990319
22	LMT100	3K620000264397	2024472
23	LMT100	3K620000265698	2030865
24	LMT100	3K620000270009	2055680
25	LMT100	3K620000270348	2057853
26	LMT100	3K620000270349	2057853
27	LMT100	3K620000271042	2065111
28	LMT100	3K620000273999	2085293
29	LMT100	3K620000279066	2116984
30	LMT100	3K620000281558	2130037
31	LMT200	3K620000230104	1821242
32	LMT200	3K620000237007	1870416
33	LMT200	3K620000240343	1894119
34	LMT200	3K620000240344	1894119
35	LMT200	3K620000240347	1894119
36	LMT200	3K620000240348	1894119
37	LMT200	3K620000240361	1894710
38	LMT200	3K620000242477	1910003
39	LMT200	3K620000248329	1936480
40	LMT200	3K620000250093	1944250
41	LMT200	3K620000251239	1952761
42	LMT200	3K620000253009	1962101
43	LMT200	3K620000256172	1982085
44	LMT200	3K620000256173	1982085
45	LMT200	3K620000257398	1990319
46	LMT200	3K620000259263	2002479
47	LMT200	3K620000261015	2010168
48	LMT200	3K620000264544	2025581



49	LMT200	3K620000264546	2025581
50	LMT200	3K620000264709	2027497
51	LMT200	3K620000268482	2045696
52	LMT200	3K620000269377	2050857
53	LMT200	3K620000269378	2050857
54	LMT200	3K620000269379	2050857
55	LMT200	3K620000269380	2050857
56	LMT200	3K620000269381	2050857
57	LMT200	3K620000269382	2050857
58	LMT200	3K620000269383	2050857
59	LMT200	3K620000269384	2050857
60	LMT200	3K620000269385	2050857
61	LMT200	3K620000269386	2050857
62	LMT200	3K620000269387	2050857
63	LMT200	3K620000269388	2050857
64	LMT200	3K620000269389	2050857
65	LMT200	3K620000269390	2050857
66	LMT200	3K620000269391	2050857
67	LMT200	3K620000269392	2050857
68	LMT200	3K620000269393	2050857
69	LMT200	3K620000269394	2050857
70	LMT200	3K620000269395	2050857
71	LMT200	3K620000269396	2050857
72	LMT200	3K620000269397	2050857
73	LMT200	3K620000269398	2050857
74	LMT200	3K620000269399	2050857
75	LMT200	3K620000269400	2050857
76	LMT200	3K620000269401	2050857
77	LMT200	3K620000269402	2050857
78	LMT200	3K620000269403	2050857
79	LMT200	3K620000269404	2050857
80	LMT200	3K620000269405	2050857
81	LMT200	3K620000269406	2050857
82	LMT200	3K620000269407	2050857
83	LMT200	3K620000269408	2050857
84	LMT200	3K620000269409	2050857
85	LMT200	3K620000269410	2050857
86	LMT200	3K620000269411	2050857
87	LMT200	3K620000269412	2050857
88	LMT200	3K620000269413	2050857
89	LMT200	3K620000269414	2050857
90	LMT200	3K620000269415	2050857
91	LMT200	3K620000269416	2050857
92	LMT200	3K620000269417	2050857
93	LMT200	3K620000269418	2050857
94	LMT200	3K620000269419	2050857
95	LMT200	3K620000269432	2051379
96	LMT200	3K620000275054	2092517
97	LMT200	3K620000275056	2092517
98	LMT200	3K620000275059	2092517
99	LMT200	3K620000275060	2092517



100	LMT200	3K620000275063	2092517
101	LMT200	3K620000275064	2092517
102	LMT200	3K620000275887	2097038
103	LMT200	3K620000277080	2105721
104	LMT200	3K620000281559	2130039
105	LMT200	3K620000282320	2132935
106	LMT200	3K620000282518	2134681
107	LMT200	3K620000283145	2137002
108	LMT200	3K620000284459	2143024
109	LMT200	3K620000284460	2143024
110	LMT200	3K620000284461	2143024
111	LMT200	3K620000284783	2146707
112	LMT200	3K620000284784	2146707
113	LMT200	3K620000284785	2146707
114	LMT200	3K620000284786	2146707
115	LMT200	3K620000285143	2150259
116	LMT200	3K620000290416	2185024
117	LMT200	3K620000290417	2185024
118	LMT200	3K620000291089	2188512
119	LMT200	3K620000295138	2201145
120	LMT200	3K620000295139	2201145
121	LMT200	3K620000295219	2202063
122	LMT200	3K620000295264	2203229
123	LMT200	3K620000295740	2206650
124	LMT200	3K620000295741	2206650
125	LMT200	3K620000295742	2206650
126	LMT200	3k672018390596	502311270
127	LMT200	3k672018390597	502311270
128	LMT100	3k672018240984	502228452
129	LMT100	3k672018240985	502228452
130	LMT200	3k672018331178	502253734
131	LMT200	3k672018331179	502253734
132	LMT200	3k672018331180	502253734
133	LMT200	3k672018331181	502253734
134	LMT200	3k672018331182	502253734
135	LMT200	3k672018331183	502253734
136	LMT100	3k672018430879	502319375
137	LMT100	3k672018430880	502319375
138	LMT100	3k672018430881	502319375
139	LMT100	3k672018430882	502319375
140	LMT100	3k672018430883	502319375



Additional information

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