PRODUCT ADVISORY NOTICE

KEEPING YOU INFORMED OF PRODUCT CHANGES

To: **All Customers, Sales Representatives and Distributors**

Date: March 11, 2022

Subject: Consolidation of Die and Wire Bond Encapsulant on select Encoder and Joystick Products

This Product Advisory Notice is to alert you that Grayhill is changing the Die and Wire Bond Encapsulant on select Encoder and Joystick Products. ***Please forward this notification to the appropriate person(s) in your organization.***

Description of Change

Due to material availability, Grayhill is changing the encapsulant used in the encoder and joystick products specified in this PAN that are die and wire bonded at Grayhill from UVEXS PN 605A to 605B. The UVEXS PN 605B that Grayhill is currently used on Grayhill products and is readily available. This encapsulant meets all of Grayhill's comprehensive environmental product qualification requirements, including thermal shock, vibration, and 85C/85% RH. As a confirmation of material compliance, Grayhill re-ran the encapsulant qualification tests with passing results (see attached qualification report).

Reason for Change

Material availability

Effective Date

Units produced after March 14, 2022 will use this new encapsulant.

Actions Required

Because the parts with the consolidated encapsulant meet the same specifications and are form, fit, and functional equivalents, no action is required. If you have any questions, please contact your Grayhill sales associate.

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Part Numbers Affected

The Part Numbers below are affected by this PAN:

60ADY18017	60AY18036	62CY1111017	62CY2222030	62HY2211001	62HY3030001
60AY18003	60AY18037	62CY1111021	62CY2222031	62HY2222001	62HY3030004
60AY18005	60AY18040	62CY1111021	62CY2222031	62HY2222001	62N22-020C
60AY18005	60AY18040	62CY1111026	62CY2222037	62HY2222004	62N22-020S
60AY18009	60AY18042	62CY1111026	62CY2222037	62HY2222005	62N22-040S
60AY18009	60AY18042	62CY1111031	62CY2222042	62HY2222006	62N22-060C
60AY18010	60AY18049	62CY1111031	62CY2222042	62HY2222007	62N22-110S
60AY18010	60AY18049	62CY1111033	62CY3030003	62HY2222007	62NY22002
60AY18011	60AY18055	62CY2211001	62CY3030003	62HY2222008	62NY22003
60AY18011	60AY18055	62CY2211001	62DY11001	62HY2222010	62NY22004
60AY18014	60AY18057	62CY2211003	62DY11002	62HY2222012	62RY22002
60AY18016	60AY18057	62CY2211004	62DY11003	62HY2222012	62RY22002
60AY18020	62AY11151	62CY2211004	62DY11004	62HY2222013	62VY11001
60AY18020	62CY1111003	62CY2215001	62DY11005	62HY2222014	62VY11003
60AY18022	62CY1111003	62CY2215002	62DY11007	62HY2222014	62VY11005
60AY18022	62CY1111005	62CY2215003	62DY11008	62HY2222015	62VY11007
60AY18023	62CY1111009	62CY2222004	62DY11012	62HY2222015	62VY11009
60AY18023	62CY1111010	62CY2222016	62DY11014	62HY2222017	62VY15001
60AY18029	62CY1111010	62CY2222023	62DY11015	62HY2222017	62VY15002
60AY18029	62CY1111011	62CY2222023	62DY11020	62HY2222018	62VY15003
60AY18030	62CY1111012	62CY2222024	62HNY30004	62HY2222019	62VY15004
60AY18030	62CY1111014	62CY2222024	62HSY22001	62HY2222022	62VY15005
60AY18033	62CY1111014	62CY2222026	62HSY22003	62HY2222022	62VY15008
60AY18034	62CY1111016	62CY2222026	62HSY22004	62HY2222048	
60AY18034	62CY1111016	62CY2222030	62HY2211001	62HY2222048	

LREQ-SP02-2804

62AY22044 Quality Test Report

Revision A
November 09, 2021

Testing Performed By:	Kina Manvar Quality Lab Technician	X 
Testing Start Date	September 15, 2021	
Testing End Date	November 09, 2021	

Report Written By:	Kina Manvar Quality Lab Technician	X 
Report Submitted For Approval	November 09, 2021	

Report Approved By:	Nick Walls Quality Lab Manager	X 
Report Approved On	November 11, 2021	

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1.0 REVISION HISTORY

Revision	Report Writer	Date Written	Report Approver	Date Approved	Description
A	Kina Manvar	November 09, 2021	Nick Walls	November 11, 2021	Initial Release

2.0 TESTING INFORMATION

2.1. PURPOSE

This document contains the report of all testing completed for 62A alternative encapsulant on 62AY22044. The purpose of these tests is to qualify an alternative encapsulant for wire bonded encoders.

2.2. DUT INFORMATION

The device under test (DUT) is the Grayhill Part Number 62AY22044.

The group made with the alternative encapsulant is labeled under “605B”

2.3. ADDITIONAL NOTES

Functional Test was completed by production floor on November 09, 2021.

3.0 FLOWCHART

3.1. FLOWCHART

Humidity 85/85, Thermal Shock

4.0 HUMIDITY 85C/85%RH

4.1.1.SUMMARY

Table 1 – Humidity 85/85 Test Summary

DUT Serial Numbers	DUT Part Number	Test Location	Test Dates	Result
1-20 (605B)	62AY22044	Grayhill Inc.	September 15, 2021 – October 06, 2021	**PASS**

4.1.2.TEST SPECIFICATION

This test is to be run per 62 series Validation Test Plan, Revision 1.

4.1.3.PURPOSE

The DUT shall survive cyclic damp heat conditions with no degradation in performance or visual and mechanical defects.

4.1.4.TEST CONDITIONS

Quantity	40
Humidity (%RH)	85
Temperature(°C)	+85
Duration (hrs)	500
Voltage (VDC)	5
Operational Mode	Powered

4.1.5.TEST PROCEDURE

- Perform a BASIC Functionality check before testing has begun
- Perform a BASIC Functionality check after all testing has completed.
- Use the values from the Test Conditions section (4.1.4) for all relevant conditions.

4.1.6.TEST SETUP

Table 2 - Equipment List

Equipment ID	Equipment Type	Model Number	Manufacturer	Last Calibrated Date	Calibration Due Date
GT - 1010	Temperature and Humidity Chamber	SM-16-8200	THERMOTRON	October 14, 2020	October 14, 2021
GT-554	DC Power Supply	GPS-4251	GW Instek	NA	Verified with calibrated Digital Multimeter GT-603
GT-603	Digital Multimeter	179	FLUKE	April 2021	April 2022

Figure 1 –Humidity 85/85 Test Setup

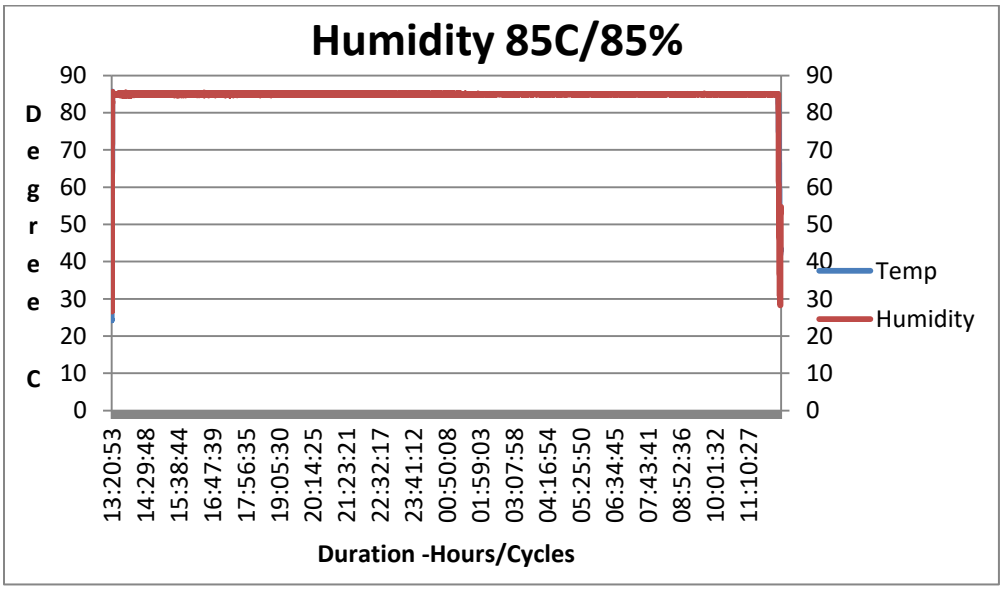

Figure 2 – Humidity 85/85 Test Profile

4.1.7.COMPLIANCE CRITERIA

The DUT shall pass the BASIC Functionality checks as noted in the Test Procedure (4.1.5).

4.1.8.TEST RESULTS

Table 3 – Humidity 85/85 Test Results

DUT Serial Number	Test Dates	Result
1-20 (605B)	September 15, 2021 – October 06, 2021	**PASS**

4.1.9.TEST SUMMARY

Testing was completed per the test specification and test conditions stated. A BASIC Functionality Check was performed before testing began and again when all testing was completed.

All encoders with 605B encapsulant that were subjected to 85/85 @ 500 hours and Shock passed production and engineering electrical and mechanical testing.

One of the good 605B encoders was opened up for analysis passed inspection.

5.0 THERMAL SHOCK

5.1.1. SUMMARY

Table 4 - Thermal Shock Test Summary

DUT Serial Numbers	DUT Part Number	Test Location	Test Dates	Result
21-40 (605B)	62AY22044	Grayhill Inc.	September 15, 2021 – September 17, 2021	**PASS**

5.1.2. TEST SPECIFICATION

This test is to be run per 62 series Validation Test Plan, Revision 1. with temperature limits and number of cycles determined per LREQ.

5.1.3. PURPOSE

The DUT shall survive exposure to alternating extremes of high and low temperatures with no degradation in performance or visual changes.

5.1.4. TEST CONDITIONS

Quantity	40
Temperature Min (°C)	-40
Temperatures Max (°C)	85
Humidity	Uncontrolled
Dwell Time (Hr)	1
Cycles (Min to Max to Min)	25
Operational Mode	Unpowered

5.1.5. TEST PROCEDURE

Perform the test per Include the following additions/changes.

- Perform a BASIC Functionality check before testing has begun
- Perform a BASIC Functionality check after all testing has completed.
- Use the values from the Test Conditions section (5.1.4) for all relevant conditions.

5.1.6. TEST SETUP

Table 5 - Thermal Shock Equipment List

Equipment ID	Equipment Type	Model Number	Manufacturer	Last Calibrated Date	Calibration Due Date
GT-1008	Temperature Chamber	VTS-3-6-6-SC/WC	CSZ	Oct 01, 2020	Oct 31, 2021
GT-543	Thermometer Data Logger	52II	FLUKE	Oct 23, 2020	Oct 31, 2021
GT-143	Hygrometer	MDM25	Mitchell Instruments	October 22, 2020	October 31, 2021

Figure 3 - Thermal Shock Chamber

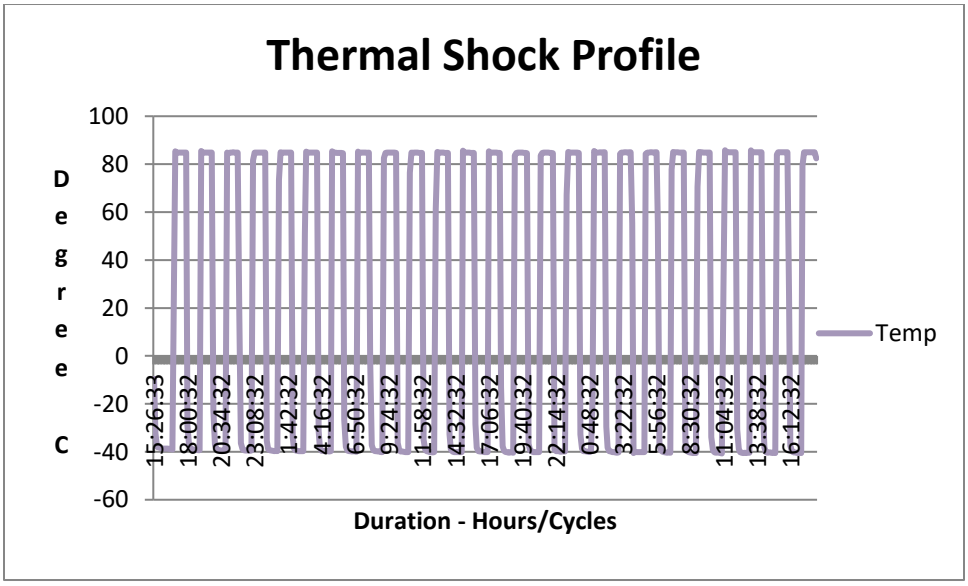

Figure 4 - Thermal Shock Temperature Profile

5.1.7. COMPLIANCE CRITERIA

The DUT shall pass the BASIC Functionality checks as noted in the Test Procedure (5.1.5).

After removal from the chamber, the switch shall be examined and show no signs of mechanical or electrical damage, or damage/loosening of rivets or other fastening devices.

5.1.8. TEST RESULTS

Table 6 - Thermal Shock Test Results

DUT Serial Number	Test Dates	Result
605B 21-40	September 15, 2021 – September 17, 2021	**PASS**

5.1.9. TEST SUMMARY

Testing was completed per the test specification and test conditions stated.

All DUTs passed functionality test and there was no evidence of physical, mechanical or electrical damage following the test.