Type Examination Certificate CML 21UKEX4050X Issue 1

United Kingdom Conformity Assessment

1 Product or Protective System Intended for use in Potentially Explosive Atmospheres UKSI 2016:1107 (as amended)

2 Equipment **A5S1 Series Hall-Effect Sensors**

3 Manufacturer **Braun GmbH Industrie-Elektronik**

4 Address **Esslinger Straße 26**
DE 71334 Waiblingen,
Germany

5 The equipment is specified in the description of this certificate and the documents to which it refers.

6 Eurofins E&E CML Limited, Newport Business Park, New Port Road, Ellesmere Port, CH65 4LZ, United Kingdom, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations.

The examination and test results are recorded in the confidential reports listed in Section 12.

7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to specific conditions of use (affecting correct installation or safe use). These are specified in Section 14.

8 This Type Examination certificate relates only to the design and construction of the specified equipment. Further requirements of the Regulations apply to the manufacturing process and supply of the product. These are not covered by this certificate.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:

EN IEC 60079-0:2018 EN IEC 60079-7:2015+A1:2018

10 The equipment shall be marked with the following:

Ex II 3 G

Ex ec IIC T* Gc

Ta**= Up to -40°C to +125°C

* ***T4 or T6 depending on supply power and ambient temperature, see Specific Conditions of Use***

** ***See Specific Conditions of Use for details***

11 Description

The A5S1 Series Hall-effect Sensors are non-contact measuring head sensors used to detect the movement of rotating ferromagnetic parts with profiling, eg rotating cog wheels. The measuring head contains a hall-effect sensor, magnet and amplifier circuit encapsulated in a cylindrical stainless-steel enclosure with end cap. The power supply and signal output connections are made using either an attached cable or plug and socket connector depending on the model.

The A5S1 Series sensor has a number of options defined by the full model number:

A5S1 b c d e f g - xm -n

b = Signal frequency (up to 25kHz)
c = Signal output
d = Unit of shaft diameter
e = Thread of shaft diameter
f = Connection type
g = Nominal thread length in mm
x = Length of fixed Teflon® (PTFE/FEP) cable in m
-n = Protection Type Ex ec

Alternative model coding may be used in line with specific customer orders. The Sensors have the following ratings,

Rated voltage = 32Vdc
Rated current = 40mA/60mA/120mA

Variation 1:

This variation introduces the following modifications:

i. Standards update:
   a. Update to EN IEC 60079-0:2018.
   b. Update to EN IEC 60079-7:2015+A1:2018. Marking update from “Ex nA” to “Ex ec”.
ii. Trademark update.
iii. Address correction.
iv. Modification of AMB42 documents.

12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	22 Apr 2021	R13681A/00	Issue of Prime Certificate
1	10 Dec 2025	R18858A/00	Introduction of Variation 1

Note: Drawings that describe the equipment are listed in the Annex.

13 Conditions of Manufacture

The following conditions are required of the manufacturing process for compliance with the certification.

i. The equipment shall be subjected to an electric strength test using a test voltage of 500 VAC or a 40% higher DC voltage may be applied between the circuit and earth for 60s. Alternatively, a voltage of 20% higher may be applied for 1s. There shall be no evidence of flashover or breakdown and the maximum current flowing shall not exceed 5mA.

14 Specific Conditions of Use

The following conditions relate to safe installation and/or use of the equipment.

i. The following ambient temperature and supply input limits are to be applied to the sensor arrangement as applicable:

Connection /Type	Temperature class	Minimum ambient temperature	Maximum ambient temperature	Maximum temperature at end cap	Ratings
PTFE/FEP cable	T4	-40°C	+125°C	+125°C	32Vdc 40mA
			+115°C		32Vdc 60mA
			+100°C		32Vdc 120mA
PTFE/FEP cable with plug/socket	T4	-40°C	+85°C	+125°C	32Vdc 120mA
PVC cable	T4	-5°C if cable flexed	+70°C if cable flexed	+125°C	32Vdc 60mA
		-30°C if cable fixed	+80°C if cable fixed		
All Ex ec types	T6	≥-5°C	+70°C	+80°C	32Vdc 60mA
	T6	≥-5°C	+60°C	+80°C	32Vdc 120mA
Note: The worst case input limitation and ambient shall always apply if more than one limiting factor present in the sensor arrangement					

Certificate Annex

Certificate Number	**CML 21UKEX4050X**
Equipment	**A5S1 Series Hall-Effect Sensors**
Manufacturer	**Braun GmbH Industrie-Elektronik**

The following documents describe the equipment defined in this certificate:

Issue 0

Drawing No	Sheets	Rev	Approved date	Title
EX-10101-AMB42-Schematic	1 of 1	A	22/04/2021	AMB42 Schematic
EX-10102-AMB42-Layout	1 of 1	A	22/04/2021	AMB42-Layout (LP2157v7)
EX-10103-AMB42-BOM	1 of 1	A	22/04/2021	AMB42-BOM
EX-10105-AMB42K9,8-BOM	1 of 1	A	22/04/2021	AMB42K9,8-BOM
EX-10106-AMB42K11-BOM	1 of 1	A	22/04/2021	AMB42K11-BOM
EX-10107-AMB42K15,5-BOM	1 of 1	A	22/04/2021	AMB42K15,5-BOM
EX-10201-AMB64-Schematic	1 of 1	A	22/04/2021	AMB64 Schematic
EX-10202-AMB64-Layout	1 of 1	A	22/04/2021	AMB64-Layout (LP2209v0)
EX-10203-AMB64-BOM	1 of 1	A	22/04/2021	AMB64-BOM
EX-10205-AMB64K9,8-BOM	1 of 1	A	22/04/2021	AMB64K9,8-BOM
EX-10206-AMB64K11-BOM	1 of 1	A	22/04/2021	AMB64K11-BOM
EX-10301-AMB57-Schematic	1 of 1	A	22/04/2021	AMB57 Schematic
EX-10302-AMB57-Layout	1 of 1	A	22/04/2021	AMB57-Layout (LP2186v4)
EX-10303-AMB57-BOM	1 of 1	A	22/04/2021	AMB57-BOM
EX-10305-AMB57K15,5-BOM	1 of 1	A	22/04/2021	AMB57K15,5-BOM
EX-10401-AMB63-Schematic	1 of 1	A	22/04/2021	AMB63 Schematic
EX-10402-AMB63-Layout	1 of 1	A	22/04/2021	AMB63-Layout (LP2208v0)
EX-10403-AMB63-BOM	1 of 1	A	22/04/2021	AMB63-BOM
EX-10405-AMB63K9,8-BOM	1 of 1	A	22/04/2021	AMB63K9,8-BOM
EX-10406-AMB63K11-BOM	1 of 1	A	22/04/2021	AMB63K11-BOM
EX-10520-TubeM12	1 of 1	A	22/04/2021	Dimensions tube M12
EX-10511-XA372	1 of 1	A	22/04/2021	XA372 End Cap Dimensions
EX-10521-TubeM14	1 of 1	A	22/04/2021	Dimensions tube M14
EX-10512-XA403	1 of 1	A	22/04/2021	XA403 End Cap Dimensions
EX-10522-TubeM18	1 of 1	A	22/04/2021	Dimensions tube M18
EX-10513-XA405	1 of 1	A	22/04/2021	XA405 End Cap Dimensions

Certificate Annex

Certificate Number	**CML 21UKEX4050X**
Equipment	**A5S1 Series Hall-Effect Sensors**
Manufacturer	**Braun GmbH Industrie-Elektronik**

Drawing No	Sheets	Rev	Approved date	Title
EX-10524-Assembly-L3T-L4T	1 to 12	A	22/04/2021	Cable and connector assembly
EX-10525-L3T24MO-5m-BOM	1 of 1	A	22/04/2021	Cable and connector BOM
EX-10526-L3T25MO-5m-BOM	1 of 1	A	22/04/2021	Cable and connector BOM
EX-10527-L4T09MO-5m-BOM	1 of 1	A	22/04/2021	Cable and connector BOM
EX-10528-L4T10MO-5m-BOM	1 of 1	A	22/04/2021	Cable and connector BOM
EX-10528-L3T-L4T - Torque	1 of 1	A	22/04/2021	L3T-L4T Torque and Cable Data
EX-10523-Typelabel	1 of 1		22/04/2021	Type label of Sensor A5S1
BA03513363	1 to 37	02	22/04/2021	User instructions

Issue 1

Drawing No	Sheets	Rev	Approved date	Title
BA03513363	1 to 9	-	10 Dec 2025	Ex-relevant extract from the instruction manual
EX-10101-AMB42-Schematic	1 of 1	B	10 Dec 2025	AMB42 Schematic
EX-10102-AMB42-Layout	1 of 1	B	10 Dec 2025	AMB42-Layout (LP2154v6)
EX-10103-AMB42-BOM	1 of 1	B	10 Dec 2025	AMB42-BOM
EX-10105-AMB42K9,8-BOM	1 of 1	A	10 Dec 2025	AMB42K9,8-BOM
EX-10106-AMB42K11-BOM	1 of 1	A	10 Dec 2025	AMB42K11-BOM
EX-10107-AMB42K15,5-BOM	1 of 1	A	10 Dec 2025	AMB42K15,5-BOM
EX-10201-AMB64-Schematic	1 of 1	A	10 Dec 2025	AMB64 Schematic
EX-10202-AMB64-Layout	1 of 1	A	10 Dec 2025	AMB64-Layout (LP2209v0)
EX-10203-AMB64-BOM	1 of 1	A	10 Dec 2025	AMB64-BOM
EX-10205-AMB64K9,8-BOM	1 of 1	A	10 Dec 2025	AMB64K9,8-BOM
EX-10206-AMB64K11-BOM	1 of 1	A	10 Dec 2025	AMB64K11-BOM
EX-10301-AMB57-Schematic	1 of 1	A	10 Dec 2025	AMB57 Schematic
EX-10302-AMB57-Layout	1 of 1	A	10 Dec 2025	AMB57-Layout (LP2186v4)
EX-10303-AMB57-BOM	1 of 1	A	10 Dec 2025	AMB57-BOM
EX-10305-AMB57K15,5-BOM	1 of 1	A	10 Dec 2025	AMB57K15,5-BOM
EX-10401-AMB63-Schematic	1 of 1	A	10 Dec 2025	AMB63 Schematic
EX-10402-AMB63-Layout	1 of 1	A	10 Dec 2025	AMB63-Layout (LP2208v0)
EX-10403-AMB63-BOM	1 of 1	A	10 Dec 2025	AMB63-BOM

Certificate Annex

Certificate Number **CML 21UKEX4050X**

Equipment **A5S1 Series Hall-Effect Sensors**

Manufacturer **Braun GmbH Industrie-Elektronik**

Drawing No	Sheets	Rev	Approved date	Title
EX-10405-AMB63K9,8-BOM	1 of 1	A	10 Dec 2025	AMB63K9,8-BOM
EX-10406-AMB63K11-BOM	1 of 1	A	10 Dec 2025	AMB63K11-BOM
EX-10511-XA372	1 of 1	A	10 Dec 2025	XA372 End Cap Dimensions
EX-10512-XA403	1 of 1	A	10 Dec 2025	XA403 End Cap Dimensions
EX-10513-XA405	1 of 1	A	10 Dec 2025	XA405 End Cap Dimensions
EX-10520-TubeM12	1 of 1	A	10 Dec 2025	Dimensions tube M12
EX-10521-TubeM14	1 of 1	A	10 Dec 2025	Dimensions tube M14
EX-10522-TubeM18	1 of 1	A	10 Dec 2025	Dimensions tube M18
EX-10523-Typelabel	1 of 2	B	10 Dec 2025	Type label of Sensor A5S1
EX-10524-Assembly-L3T-L4T	1 to 12	A	10 Dec 2025	Cable and connector assembly
EX-10525-L3T24MO-5m-BOM	1 of 1	A	10 Dec 2025	Cable and connector BOM
EX-10526-L3T25MO-5m-BOM	1 of 1	A	10 Dec 2025	Cable and connector BOM
EX-10527-L4T09MO-5m-BOM	1 of 1	A	10 Dec 2025	Cable and connector BOM
EX-10528-L3T-L4T - Torque	1 of 1	A	10 Dec 2025	L3T-L4T Torque and Cable Data
EX-10528-L4T10MO-5m-BOM	1 of 1	A	10 Dec 2025	Cable and connector BOM