



## LLOYD'S REGISTER TYPE APPROVAL – DESIGN APPRAISAL DOCUMENT

Issued by: HAMBURG TECHNICAL SUPPORT OFFICE

Issued to: SEG ELECTRONICS GMBH

For: PROTECTIVE DEVICES; TYPES: MCA4, MCDGV4, MRDT4, MRI4, MRM4, MRU4

The undernoted documents have been reviewed for compliance with the requirements of the Lloyd's Register Type Approval System Procedure TA14 Version 04 (September 2020) and this Design Appraisal Document forms part of the Certificate.

### APPROVAL DOCUMENTATION

unnumbered	Type Approval Application Checklist	05.04.2024
423381	Request for Marine Services – Type Approval	02.07.2024
HTS/ETS 35256-17	Design Appraisal Document of previous certificate no. 15/20120 (E1)	16.05.2017
15/20120 (E1)	LR Type Approval Certificate for Protection Relays HighPROTEC MCDGV4, MRDT4	16.05.2017
PRJ11100449899	Production quality assessment (PQA) report of SEG Electronics GmbH	29.08.2024
01 100 2000464	Certificate ISO 9001:2015 of SEG Electronics GmbH	02.03.2022
00529-EU-102-01e.doc	EU Declaration of Conformity (LVD, EMC) for MCDGV4	23.04.2021
00534-EU-102-01e.doc	EU Declaration of Conformity (LVD, EMC) for MRDT4	23.04.2021
unnumbered	Conformance Declaration Statement acc. IEC 60255-1: 2009 for HighPROTEC-Series	14.05.2024
unnumbered	Excel-file "HighPROTEC_Devices vs PCBAs.xlsx" (matrix of internal PCB)	10.07.2024
unnumbered	Excel-file "LR_Testoverview _Devices.xlsx" (overview of agreed test devices, test routine)	10.07.2024
DOK-FLY-MCA4-2E,	Product data sheet Feeder Protection MCA4, Rev. V	09.2022
DOK-FLY-MCDGV4-2E	Product data sheet Generator Differential Protection MCDGV4, Rev. W	09.2022
DOK-FLY-MRDT4-2E,	Product data sheet Transformer Differential Protection MRDT4, Rev. U	07.2023
DOK-FLY-MRI4-2E,	Product data sheet Overcurrent and Earth-fault Protection MRI4, Rev. S	07.2023
DOK-FLY-MRM4-2E,	Product data sheet Motor Protection MRM4, Rev. T	03.2022
DOK-FLY-MRU4-2E,	Product data sheet Voltage and Frequency Relay MRU4, Rev. U	09.2022
61738	Firmware MCDGV4 Release Notes Version 3.10	21.03.2024
1650-19E V2	KEMA Type Test Certificate of Complete Type Tests acc. IEC 60255-1: 2009 for HighPROTEC line (MRI4, MRU4, MRA4, MCA4, MRDT4, MCDTV4, MCDLV4, MRM4, MRMV4)	05.03.2020
unnumbered	Manufacturer's Confirmation Statement of Immunity to Radiated Radio Frequency fields	30.08.2024

### TEST REPORTS

1556-19	KEMA Report of Performance (test results) acc. IEC60255-1: 2009 for MCDGV4-2	05.03.2024
1559-19	KEMA Report of Performance (test results) acc. IEC60255-1: 2009 for MRM4-2	05.03.2024
1561-19	KEMA Report of Performance (test results) acc. IEC60255-1: 2009 for MRI4-2	05.03.2024
1651-19	KEMA Report of Performance acc. IEC60255-1: 2009, subclause 6.5 for MCDTV4, MCDGV4 MCDLV4 (test results of protection functions)	05.03.2024
Unnumbered	Test Report acc. to IACS UR E10 Rev. 8 / 2021 (Power Supply Failure) for MCA4, witnessed by LR	19.07.2024
Unnumbered	Test Report acc. to IACS UR E10 Rev. 8 / 2021 (Power Supply Variation) for MCA4, witnessed by LR	24.07.2024
Unnumbered	Test Report acc. to IACS UR E10 Rev. 8 / 2021 (Burst) for MRM4, witnessed by LR	19.07.2024

### **TEST REPORTS (continued)**

2024-0511-VU	Test Report acc. to IACS UR E10 Rev. 8 / 2021 (Vibration) for MRM4 & MCA4	06.08.2024
2024-0515-E	Test Report acc. to IACS UR E10 Rev. 8 / 2021 (partial) for MRM4 & MCA4	06.08.2024
1-0098/15-01-02	Test Report acc. to IACS UR E10 (vibration) for MRDT4	24.09.2015
1-0098/15-01-03	Test Report acc. to IACS UR E10 (conducted low frequencies) for MRDT4	24.09.2015
SEG_2317	Test Report (EMC) acc. to EN 61000-4-3 / -4-6 for MCA4	07.06.2024



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### **Supplementary Type Approval Terms and Conditions**

*Type Approval certifies that a representative sample of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein. It does not mean or imply approval for any other use, nor approval of any product(s) designed or manufactured otherwise than in strict conformity with the said representative sample.*

*Type Approval is based on the understanding that the manufacturer's recommendations and instructions and any relevant requirements of the Rules and Regulations are complied with.*

*Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations. Lloyd's Register EMEA reserves the right to cancel or withdraw this Type Approval Certificate in accordance with the Lloyd's Register Type Approval System Procedure.*