

TYPE APPROVAL CERTIFICATE

This is to certify:**That the General Control System**with type designation(s)
FSPmini; MFD; S-ODS-2; Interface Unit AX2/AX3

Issued to

SCHOTTEL GmbH
Spay, Rheinland-Pfalz, Germanyis found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft**Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.****Location classes:****Temperature A*/D****Humidity B****Vibration A****EMC B****Enclosure Required protection according to the Rules shall be provided upon installation on board.***** see Application/Limitation**Issued at **Hamburg** on **2019-06-05**This Certificate is valid until **2024-06-04**.DNV GL local station: **Essen**for **DNV GL**Approval Engineer: **Heinz Scheffler****Joannis Papanuskas**
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.



Product description

Miscellaneous operator panels for remote control of Schottel's different designs of propulsion and auxiliary thrusters:

Hardware:

- **FSP- Mini FP:** Control Desk Panel for Fixed Pitch Propeller
inside: (ID no. 1216595; 1216596); outside: (ID no. 1216680; 1216598)
- **FP- Mini FP:** Drive control panel for for Fixed Pitch Propeller
inside: (ID no. 1216597); outside: (ID no. 1216599)
- **FSP- Mini CP:**Control Desk Panel for Controllable Pitch Propeller
inside: (ID no.1216600; 1216776); outside: (ID no. 1216773; 1216778)
- **FP- Mini CP:** Drive control panel for Controllable Pitch Propeller
inside: (ID no.S-1216602); outside: (1216775)
- **Interface unit AX2:** I/O interface and indicators (ID no. 1208358)
- **Interface unit AX3:** CAN interface (ID no. 1208359)
- **MFD:** Multi-Functional Display (ID no. 1222778)
- **S-ODS-2:** SCHOTTEL Operation Diagnosis System 2 (ID no. 1230791)

Software:

- **FSP- Mini FP:** Control Desk Panel for Fixed Pitch Propeller (ID no. 1216772; 1217636)
- **FP- Mini FP:** Drive control panel for for Fixed Pitch Propeller (ID no. none)
- **FSP- Mini CP:**Control Desk Panel for Controllable Pitch Propeller (ID no. 1216772; 1217636)
- **FP- Mini CP:** Drive control panel for Controllable Pitch Propeller (ID no. none)
- **MFD:** Multi-Functional Display (ID no. 1222779)
- **S-ODS-2:** SCHOTTEL Operation Diagnosis System 2 (ID no. 1230792)

Approval conditions

The following documentation of the actual application is to be submitted for approval in each case:

- Reference to this Type Approval Certificate
- Reference to other Type Approval Certificates where applicable (e.g. for control levers)
- Functional description
- System block diagram
- Power supply arrangement (may be part of the System block diagram)
- List of control and monitored points
- Test program for certification

The Type Approval covers hardware and software listed under Product description.

When the type approved software is revised (affecting all future deliveries) DNV GL is to be informed by forwarding updated software version documentation. If the changes are judged to affect functionality for which rule requirements apply a new functional type test may be required and the certificate may have to be renewed to identify the new software version.

Product certificate

Each delivery of the application system is to be certified according to Pt.4 Ch.9 Sec.1. The certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. After the certification the clause for application software control will be put into force.

Application software control

All changes in software are to be recorded as long as the system is in use on board. Documentation of major changes is to be forwarded to DNV GL for evaluation and approval before implemented on board.

Job Id: **262.1-026136-1**
Certificate No: **TAA00002B6**

Application/Limitation

Location classes Temperature A:

- MFD: Multi-Functional Display (ID no. 1222778)
- S-ODS-2: SCHOTTEL Operation Diagnosis System 2 (ID no. 1230791)

All equipment is to be installed more than 5 m from magnetic compass.

Type Approval documentation

Documents: Functionaldescription_FSPmini_&_FPmini-CP_GB, Rev. no. 8, 03/04/2019 TEK RGM;
Functionaldescription_FSPmini_FPmini-FP_GB, Rev. no. 8, 03/04/2019 TEK RGM;
Functionaldescription_MFD_GB, Rev. no. 3, 20/12/2018 TEK RGM;
Functionaldescription_S-ODS-2_GB, Rev. no. 0, 26/11/2018 TEK RGM
Data Sheets: 2016_06_02_AX2_31038-V104_SP; 2016_06_02_AX3_31039-V304_SP;
HMI_S-Datenblatt_ODS-2.doc, Rev. MZ 08.02.2017; MFD_Spec.doc, Rev. MZ 14.03.2017;
FSP-Mini_Funktionspanel-CP_Beschreibung.doc, Rev. MZ 30.08.2016; FSP-Mini_Funktionspanel-
FP_Beschreibung.doc, Rev. MZ 30.08.2016; FSP-Mini-CP_Beschreibung.doc, Rev. MZ 30.08.2016;
FSP-Mini-FP_Beschreibung.doc, Rev. MZ 30.08.2016

Test Reports: U161753E1; U172374E1; 3403-323 dated 29.10.2016; 3403-324 dated 29.10.2016;
3403-326 dated 10.02.2018; TL/TEAS GPU 18-09-2017

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2016.

Marking of product

The products to be marked with:

- manufacturer name
- model name
- serial number

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE