

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Peripheral Equipment**

with type designation(s)

Local Display Unit LDU-20

Issued to

**Parker Hannifin Manufacturing Finland Oy
Forssa, Finland**

is found to comply with

DNV GL rules for classification – Ships and offshore units**Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.****Location classes:**

Temperature	D
Humidity	B
Vibration	B
EMC	B
Enclosure	B

This Certificate is valid until **2020-03-04**.Issued at **Høvik** on **2016-04-14**DNV GL local station: **Helsinki**Approval Engineer: **Ståle Sneen**for **DNV GL**

Odd Magne Nesvåg
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

46WLDU-200E Cabinet mountable Local Display Unit
46WLDU-20ATX Cabinet mountable Local Display Unit

Technical data:

Main Processor Motorola MPC5200B, 396 MHz, 2 x 64 MB DDR SDRAM
Membrane 10-button Keypad
Selector knob (pulse wheel) with pushbutton
6.5" color TFT-LCD display (640x480 RGB) with backlight LED
Integrated Buzzer
-2x CAN communication channels (non-isolated) 1 MBit/s
-1x CAN communication channels (isolated) 500 kBit/s
-1x RS-232, 115.2 kb/s
-1x RS485, 230 kb/s
-2x Ethernet 10Base-T, 100Base-Tx, 100Base-Fx
-4x Digital Input
-1x Digital Output
-1x Analogue Output (0...22mA)

The LDU-20 units are optimised to run with DENX ELDK Release 4.1.
Software is not covered by the type approval certificate.

Place of manufacture

Benchmark Electronics
Parcul Industrial Ghimbav
Strada 103C Km 2+115
Hala 3 – 507075 Brasov
Romania

Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV GL rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

Product certificate

If specified in the Rules, ref. Pt.4 Ch.9 Sec.1, the control and monitoring system in which the above listed hardware is used shall be delivered with a product certificate. For each such delivery the certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. The test shall be done according to an approved test program. After the certification the clause for application software control will be put into force.

Clause for application software control

All changes in software are to be recorded as long as the system is in use on board. The records of all changes are to be forwarded to DNV GL for evaluation and approval. Major changes in the software are to be approved before being installed in the computer.

Ex-certification is not covered by this certificate. Application in hazardous area to be approved in each case according to the Rules and Ex-Certification/ Special Condition for Safe Use listed in valid Ex-certificate issued by a notified/recognized Certification Body.

Job Id: **262.1-008792-4**
Certificate No: **TAA00000CT**

Type Approval documentation

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2015.

Marking of product

Manufacturer: Parker Hannifin Manufacturing Finland Oy (for Ex/ATEX variants only, on separate label)
Mfr. Part no.: As listed under product description
Wärtsilä part no.
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