



TYPE APPROVAL CERTIFICATE

Certificate No:
TAA0000202
Revision No:
2

This is to certify:

That the Pressure Switch

with type designation(s)
E1H-H15, E1H-H90, E1H-H250, E1H-H500, E1H-H-VAC

Issued to
Barksdale GmbH
Reichelsheim (Wetterau), Hessen, Germany

is found to comply with
DNV 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.

Location classes:

Temperature	B
Humidity	B
Vibration	A
EMC	B
Enclosure	B (IP56)

Issued at **Hamburg** on **2023-09-18**

for **DNV**

This Certificate is valid until **2028-09-17**.

DNV local station: **Augsburg**

Approval Engineer: **Heinz Scheffler**

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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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

Membrane-piston-pressure switches and vacuum-switches

Type: E1H-U V-W-X Y-Z

Nomenclature

U = Micro switch:

- H-Types:
 - Electrical Contact (change over)
 - 125/250VAC, 10A (inductive and resistive), 6 - 24VDC, 0.5A (inductive and resistive)
 - Small hysteresis; high AC / low DC loads
- M-Types:
 - 125AC, 10A (inductive and resistive); 12VDC, 5A inductive, 15A resistive
 - 250AC, 10A (inductive and resistive); 24VDC, 1A inductive, 2A resistive
 - 250AC, 10A (inductive and resistive); 250VDC, 0.25A inductive, 0.4A resistive
 - Medium hysteresis; high AC and DC loads
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V = Pressure range code

- 15 = 0,10...1,0 bar (rising)
- 90 = 0,8...6,0 bar (rising)
- 250 = 2,10...17,0 bar (rising)
- 500 = 3,70...34,0 bar (rising)
- VAC (Vacuum) = -0,28...-0,9 bar (rising)

W = Process connection:

- P4 = 1/4" NPT IG (Standard bei E1H)
- P6 = 1/8" NPT IG mit 1/2" NPT AG (Standard bei E1S)
- P6-PLS = P6 aus PLS (nur bis 17 bar)
- P7 = G 1/4 IG

X = Process connection Material of the parts in contact with the media

- () anodized aluminum
- (F2) nickel-plated, not for seawater use
- (SS) = VA-Stahl, 17.7 PH / SS304

Y = Diaphragm material

- () = diaphragm material Buna is standard
- (T) = PTFE
- (V) = diaphragm material viton

Z= Options:

- EXI = for intrinsically safe application
- RD = Manual reset with G microswitch
- GExxx = special option
- ST1 = 3-pin connector EN 175 301-801-A (prev. DIN 43650)
- ST2 = 4-pin connector Amphenol

Degree of protection: IP 56.

Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, 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 Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

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.

Type Approval documentation

Documents: Drawing 800-0102; Data sheet E1H Series; Membrane Piston Pressure Switches E1H, 923-1505, Index: G; Membrane Diaphragm Seal Piston Press. Switches, Rev.G / 923-1506; Operating Instructions 923-0167, Index: N; Nomenclature 922-1771
Test Reports: ENG-0108 Certificate Overview Econ-O-trol TAA0000202, Rev.A

Tests carried out

Applicable tests according to class guideline DNV CG-0339, August 2021.

Marking of product

The products to be marked with:

- model name
- manufacturer 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 after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of this certificate.

END OF CERTIFICATE