# TYPE APPROVAL CERTIFICATE

Certificate No:
**TAA000016N**
Revision No:
**1**

## This is to certify:

**That the Peripheral Equipment**

with type designation(s)
**JUMO mTRON T**

Issued to
**JUMO GmbH & Co. KG**
**Fulda, Hessen, Germany**

is 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 class:**

| | |
|---|---|
| **Temperature** | **B** |
| **Humidity** | **B** |
| **Vibration** | **A** |
| **EMC** | **B** |
| **Enclosure** | **A, B (Multifunction panel at front)** |

Issued at **Hamburg** on **2020-06-22**

This Certificate is valid until **2025-06-21**.
DNV GL local station: **Hamburg CMC**

Approval Engineer: **Jens Dietrich**

for **DNV GL**
Digitally Signed By:
Papanuskas, Joannis

**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.

Job Id: **262.1-023939-2**
Certificate No: **TAA000016N**
Revision No: **1**

## Product description

Modular measuring, control and automation system.
An application consists of a base unit (control processing unit) and a maximum of 30 input/output modules (multichannel controller module, analog input module 4-channel, analog output module 4-channel, analog input module 8-channel, digital input/output module 12-channel, relay module), and if necessary a multifunction panel and router modules.

| | |
|---|---|
| Supply voltage | 24V DC<br>(only required at the base, at the router module and at the multifunction panel) |
| Case type | Base unit with metal case<br>Router module and input/output module with plastic case<br>Multifunction panel with metal case |
| Mounting | All devices on a 35 mm DIN rail<br>Multifunction panel into a panel cut-out |

**Order code Central processing unit**

| 705001 | / | x | x | - | xx | - | xx | - | xxx | / | xxx, | xxx, … |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [1] | | [2] | [3] | | [4] | | [5] | | [6] | | [7] | [8] |

| | | | |
|---|---|---|---|
| [1] | Basic type | 705001 = | Central processing unit |
| [2] | Basic type extension | 0 = | Standard |
| [3] | Version | 8 = | With factory settings |
| [4] | Interface Com 1 | 00 = | Not used |
| | | 51 = | RS232 Modbus RTU |
| | | 54 = | RS422/485 Modbus RTU |
| [5] | Interface Com2 | 00 = | Not used |
| | | 51 = | RS232 Modbus RTU |
| | | 54 = | RS422/485 Modbus RTU |
| | | 64 = | PROFIBUS_DP (slave; as of system version 02) |
| [6] | Voltage supply | 36 = | 24V DC |
| [7] | GL Approval | 062 = | With DNV GL approval |
| [8] | Extra codes | 000 = | Without extra code |
| | | 214 = | Math/logic function (activation for all connected controller modules) |
| | | 224 = | PLC acc. to IEC 61131-3 (CODESYS V3) |
| | | 225 = | Program generator 1 to 9 |
| | | 228 = | Program generator 1 to 9 with process steps (as of system version 02) |

**Order code Multichannel controller module**

| 705010 | / | x | x | - | x | x | x | - | xx | / | xxx, | xxx, … |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [1] | | [2] | [3] | | [4] | [5] | [6] | | [7] | | [8] | [9] |

| | | | |
|---|---|---|---|
| [1] | Basic type | 705010 = | Multichannel controller module<br>2x universal input, 2x digital input, 2x relay output |
| [2] | Basic type extension | 1 = | 2 relays (N/O contact) |
| | | 2 = | logic outputs 0/15V |
| [3] | Version | 8 = | With factory settings |
| [4] | Option slot 1 | 0 = | Not used |
| | | 1 = | Analog input 2 |
| | | 2 = | Relay (changeover contact) |
| | | 3 = | 2 relays (N/O contacts with common pole) |
| | | 4 = | Analog output |
| | | 5 = | 2 digital inputs |
| | | 6 = | Solid-state relay 1A |
| | | 7 = | 2 open-collector outputs |

| | | | |
|---|---|---|---|
| [5] | Option slot 2 | 0 = | Not used |
| | | 1 = | Analog input 2 |
| | | 2 = | Relay (changeover contact) |
| | | 3 = | 2 relays (N/O contacts with common pole) |
| | | 4 = | Analog output |
| | | 5 = | 2 digital inputs |
| | | 6 = | Solid-state relay 1A |
| | | 7 = | 2 open-collector outputs |
| [6] | Option slot 3 | 0 = | Not used |
| | | 2 = | Relay (changeover contact) |
| | | 3 = | 2 relays (N/O contacts with common pole) |
| | | 4 = | Analog output |
| | | 5 = | 2 digital inputs |
| | | 6 = | Solid-state relay 1A |
| | | 7 = | 2 open-collector outputs |
| [7] | Voltage supply | 36 = | 24V DC |
| [8] | GL Approval | 062 = | With DNV GL approval |
| [9] | Extra codes | 000 = | Without extra code |
| | | 879 = | AMS2750/CQI-9 |

**Order code Relay module 4-channel**

705015 / xx / xxx
[1] [2] [3]

| | | | |
|---|---|---|---|
| [1] | Basic type | 705015 = | Relay module 4-channel |
| [2] | Voltage supply | 36 = | 24V DC |
| [3] | GL approval | 062 = | With DNV GL approval |

**Order code Analog input module 4-channel**

705020 / xx / xxx, xxx
[1] [2] [3] [4]

| | | | |
|---|---|---|---|
| [1] | Basic type | 705020 = | Analog input module 4-channel |
| [2] | Voltage supply | 36= | 24V DC |
| [3] | GL approval | 062= | With DNV GL approval |
| [4] | Extra codes | 000 = | Without extra code |
| | | 879 = | AMS2750/CQI-9 |

**Order code Analog input module 8-channel**

705021 / xx / xxx
[1] [2] [3]

| | | | |
|---|---|---|---|
| [1] | Basic type | 705021 = | Analog input module 8-channel |
| [2] | Voltage supply | 36 = | 24V DC |
| [3] | GL approval | 062 = | With DNV GL approval |

**Order code Analog output module 4-channel**

705025 / xx / xxx
[1] [2] [3]

| | | | |
|---|---|---|---|
| [1] | Basic type | 705025 = | Analog output module 4-channel |

| | | | |
|---|---|---|---|
| [2] | Voltage supply | 36 = | 24V DC |
| [3] | GL approval | 062 = | With DNV GL approval |

**Order code Digital input/output module 12-channel**

705030 / xx / xxx
[1] [2] [3]

| | | | |
|---|---|---|---|
| [1] | Basic type | 705030 = | Digital input/output module 12-channel |
| [2] | Voltage supply | 36 = | 24V DC |
| [3] | GL approval | 062 = | With DNV GL approval |

**Order code Router module: 705040 / xx / xxx**

705040 / xx / xxx
[1] [2] [3]

| | | | |
|---|---|---|---|
| [1] | Basic type | 705040 = | Router module |
| [2] | Voltage supply | 36 = | 24V DC |
| [3] | GL approval | 062 = | With DNV GL approval |

**Order code Multifunction panel 840**

705060 / x - x - xx - xx / xxx, xxx, xxx, …
[1] [2] [3] [4] [5] [6] [7] [8]

| | | | |
|---|---|---|---|
| [1] | Basic type | 705060 = | Multifunction panel 840<br>1 x Ethernet/RJ45, 1 x system bus/RJ45, 1 x system bus In (RJ45), 1 x system bus Out (RJ45), 2 x USB host |
| [2] | Version | 8 = | Standard, with factory settings |
| [3] | Interface Com 1 | 00 = | Not used |
| | | 51 = | RS232 Modbus RTU |
| | | 54 = | RS422/485 Modbus RTU |
| [4] | Interface Com2 | 00 = | Not used |
| | | 51 = | RS232 Modbus RTU |
| | | 54 = | RS422/485 Modbus RTU |
| [5] | Voltage supply | 36 = | 24V DC |
| [6] | Extra codes housing | 000 = | No extra code |
| | | 444 = | Stainless steel front with design foil (neutral) |
| [7] | GL Approval | 062 = | With DNV GL approval |
| [8] | Extra codes | 000 = | Without extra code |
| | | 213 = | Recording function |

## Place of manufacture

JUMO GmbH & Co. KG
Moritz-Juchheim-Strase 1
36039 Fulda, Germany

## 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 RU SHIP Pt.4 Ch.9 Sec. 1.

A DNV GL-type approved Power Supply is to be used.

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 for evaluation and approval. Major changes in the software are to be approved before being installed in the computer.

## Type Approval documentation

Test reports JUMO according to overview document "Dokumentenübersicht Prüfprotokolle für GL Zulassung mTron T", version 08, dated 2020-06-18;
Overview diagrams and drawings for DNV GL approval Jumo mTron T (Type 705000), version 08, dated 2020-03-30;
Product overview document "Jumo mTron T – Übersicht der Baugruppen und Ausbaustufen für die GL Zulassung", version 4.10, dated 2020-04-29.
Assessment Report issued by DNV GL Magdeburg, 2020-05-14.

## Tests carried out

Applicable tests according to Class Guideline DNVGL-CG-0339, Edition December 2019.

## Marking of product

The products to be marked with:

- manufacturer name
- serial number
- type 7050xx

## 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 the certificate.

END OF CERTIFICATE