# SECURE GROUNDING CLAMP
# MATIS21GD-SDE4-NOMADAUTO



## Secure grounding clamp for explosive areas

- **Suitable for any container type : drum, tank, FIBC, truck …**
- **For potentially explosive areas gas (G) or dust (D)**
- **Easy to fit and easy to use**
- **Indicator light when correct grounding**
- **ATEX protection on the jaws clamp**
- **Digital output for control and automation**

Control of electrostatic charges in explosive areas is a recursive topic during risk analysis. Filling or discharging of trucks is often considered but small containers, as input or output material containers or transfer container has also to be considered.
MATIS21GD-SDE4-NOMAD is a secure grounding clamp which allows, in explosive atmospheres, to insure a correct ground connection of the containers avoiding electrostatic charges during filling and discharging operations. The ATEX design of the MATIS21GD-SDE4-NOMAD grounding clamp permits to control a potential spark when grounding the containers. Once the ground connection realized, indicator lights are flashing on the clamp and on the wall enclosure, and let the operator confident with a correct ground connection during the transfer phase.
A digital output, relayed through the NAEV30-NOMAD interface, allows to use the grounding status for operating an automation control.
The clamp is fitted with even a 1m/4m or 2m/7.5m spiral cable wired to the movable enclosure which plugs on a wall support. The clamp can be replaced by a contact magnetic handle to get easier quick and frequent grounding operations. To optimize the use of the equipment, several wall supports can be installed on the field, able to receive for plugging in a movable wall enclosure only when the filling or discharging process needs it. This equipment, in accordance with 2014/34/UE directive, can be used even in gas area (G) or dust area (D), zone 0 and/or 20.
MATIS21GD-SDE4-NOMADAUTO grounding clamp:
- is very convenient and flexible since it is suitable for any container type – barrel, tank or FIBC,
- is very easy to use which is allowed new safety procedure implementation,
- gives a complete user safety in often careless locations,
- reduces the investment because it is movable and stand-alone.

References – marking and using areas

| Reference | Apparatus and clamp using areas | Classement ATEX |
|---|---|---|
| MATIS21GD-SDE4-NOMAD | Zones 0, 1, 2 et/ou 20, 21,22 | II 1 G D - Ex ia IIC T6, T5, T4 Ga – Ex ia IIIC T80°C, T95°C, T130°C Da |
| E1 Suffix or E2 suffix | PUR Spiral cable – E1 = 1 to 4m – E2 = 2 to 7,5m | |
| MATIS21GD-SDE4-PINCE/INOX | Removable stainless steel clamp | |
| B2 option | Option for clamp for FIBC | |
| MATIS21GD-SDE4-MAG | Removable magnetic connection handle (instead of clamp) | |
| SOCLE-NOMAD | Wall support - Equipment needing no marking and certification | |
| CASQUETTE-NOMAD option | Stainless steel protection cap for outside use | |
| DEROULEUR MPEX (sheet 796) | 15m cable streamer to fit between MATIS21GD-SDE4-NOMAD and the clamp or the magnetic handle | |

**Mechanical**
Movable waterproof enclosure IP66
Pluggable on a wall support
Overall dimension
Height : 265mm – Width : 88mm
Fixing by 4 holes 6.5mm diameter – 225x56mm
Thickness : 190mm
Clamp is connected to the movable enclosure even with a 1m/4m (E1) or a 2m/7.5m (E2) spiral cable, using a removable terminal.
Clamp opening capability for 25mm diameter barrel

**Environmental**
Operating temperature : -20 to +50°C
Storage temperature : -40 to +80°C

CE The apparatus bears CE mark as per 2014/30/UE and meets NF EN 61326-1 requirements.

**This data sheet is also the ATEX instructions.**

**ATEX instructions for safe use**
MATIS21GD-SDE4 is an apparatus designed according to ATEX directive 2014/34/UE.
Apparatus can be used in hazardous area zone 0, 1, 2 and/or 20,21,22
LCIE 06 ATEX 6007X
II 1 G D - Ex ia IIC T6, T5, T4 Ga – Ex ia IIC T80°C, T95°C, T130°C Da
Ambient temperature : –20 to +50°C
Digital output for automatism :
Ui ≤ 30V, Ii ≤ 101mA, Pi ≤ 758mW or Ui ≤ 28,4V, Ii ≤ 116mA, Pi ≤ 824mW -Ci = 0 et Li = 0
Parameters in accordance with NAEV30-NOMAD interface (refer sheet 3).

**Supply and wiring**
The MATIS-SDE clamp id powered by a 9V battery inside the movable enclosure.
Reference : 6LR61 – 6F22 - PP3-
The battery must be removed only in safe area

| Battery reference | Temperature classification |
|---|---|
| Duracell ultra M3 MN 1604 | T4 (T130°C) |
| Duracell ultra ou procell | T5 (T95°C) |
| Ultralife U9VL | T4 (T130°C) |
| Rayovac High Power | T5 (T95°C) |
| Energizer 6LR61 | T6 (T80°C) |
| Philips Super | T6 (T80°C) |

# MATIS 21GD-SDE-NOMAD
# ATEX instructions – operating manual

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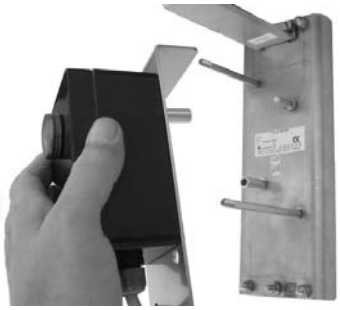
EXPLOSIONSGEFÄHRDETE BEREICHE

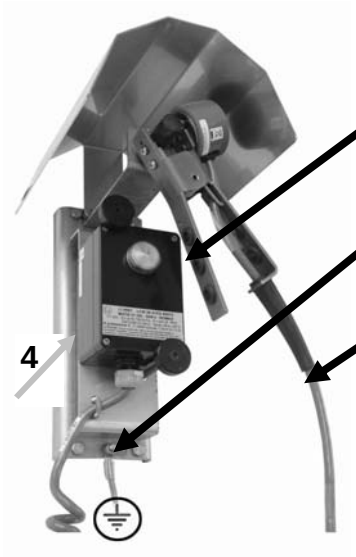
ATMOSPHERES EXPLOSIBLES



**Fitting the electronic enclosure on the wall support:**

The movable electronic enclosure can be displugged from the wall support, even to change the battery (only in safe area) or to be plugged on another wall support.

Before using the clamp the electronic enclosure must be lock on the wall support using the appropriate washers.




## CAUTION ! Before any using please check :

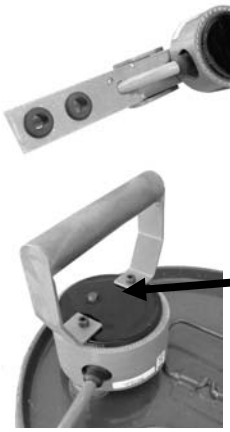
**1- the electronic movable enclosure is plugged and locked on the wall support of the grounding system**

**2- the wall support is effectively wired to the ground with a cable minimum 4mm²**

**3- the clamp is effectively connected to the measurement cable before connecting the object to ground**

**4- the removal terminal dedicated for the automatism digital output is connected (refer sheet 3)**

**Container grounding procedure**
Once equipment fitted as described above, connect the clamp on the object to be grounded or put on the magnetic element.
For painted or oxidised containers, when the clamp is connected, it is advised to give a slight movement to ensure that contacts get through the paint.
When the contact between the container and the clamp is correct, the electronic enclosure detects it and a green LED blinks on the clamp or on the magnetic element and another green lamp blinks on the movable electronic enclosure.
The grounding is done and secure.
In neutral position, put the clamp on the black bakelite handle to avoid contact and discharge of the battery.




**If the lamps do not blink:**
Check the right connection of the clamp on the container, for example on painted containers it can be necessary to scrape the paint using the lugs of the clamp, on a FIBC check that the clamp is well connected to the conductive discharge snap.
Battery is perhaps discharged and has to be replaced, to confirm the discharge of the battery connect the clamp on the metallic wall support.
Container is perhaps not conductive at all; in this case it cannot be grounded.

**Battery replacement**
Battery replacement is required to be done only in safe area.
Unlock the movable enclosure. Choose a suitable battery depending on the chart of the first page of this document.
While replacement did fit again the movable enclosure on the wal support as specified above.

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# AUTOMATION INTERFACE
# FOR SECURED GROUNDING
# NAEV30-NOMAD-C024-0


The automation digital output of the secured grounding system MATIS21GD-SDE4-NOMAD/AUTO is an intrinsically safe signal and must absolutely be connected through the interface NAEV30-NOMAD-C024-0.

## ATEX parameters and requirements

NAEV30-NOMAD-C024-0 interface is an intrinsically safe associated apparatus and must be installed in safe area
ATEX 2014/34/UE marking : CE 0081 I/II (M1)/(1)G/D
Depending on standard evolution [Ex ia] I/IIC
or [Ex iaD]
Operating ambient temperature: –20°C to +60°C

Intrinsic safety parameters (terminal A and between C+ and B-) :

| Uo (V) | Io (mA) | Po (mW) | Co - IIC (nF) | Lo - IIC (mH) | Co - IIB (nF) | Lo - IIB (mH) | Co - IIA (nF) | Lo - IIA (mH) |
|---|---|---|---|---|---|---|---|---|
| 10 | 11 | 27,5 | 3000 | 200 | 20000 | 800 | 100000 | 1000 |

These parameters are in accordance with the automatism digital output of MATIS21GD-SDE4-NOMADAUTO.

## Operating

The automatism digital output is pulses duration from ≈ 30 to 130ms period between 0,3 and 0,9 seconds (depending on test item resistor and battery condition) which permit to transfer securely grounding status.
NAEV30-NOMAD interface allows, using this digital output:

- To give back an passive "alive ", isolated galvanically recopy output of theses pulses: then the connected PLC can check is the system is running and the grounding is secured– terminals b+ and b-, the lamp B on the interface front panel blinks
- To give a steady relay recopy, 230VAC - 0,5A -115VA – terminals a+ and a-, the lamp A on the interface front panel is steadily lit when the grounding is done,
- To control the lamp on the electronic enclosure of the MATIS21GD-SDE4-NOMADAUTO, either directly connecting the "alive" pulse, or through an order from the PLC connected. The lamp C on the interface front panel lights on at the same time than the control lamp on MATIS21GD.

NAEV30-NOMAD-C024-0 never powers the MATIS21GD….

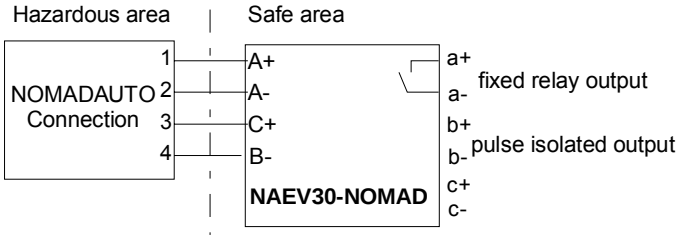
## Power suppy

Primary power supply for NAEV30-NOMAD-C024-0 interface: 24VDC ±10%
Supply distribution by mean of a flat cable from one unit to the next one. This flat cable is in standard delivery
When a primary 230VAC supply is needed refer to PROF30-AUP-AL24

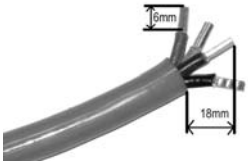
## Wiring

MATIS21GD-SDE4-NOMADAUTO is delivered with the removable connection and 2 cable glands for 6 to 12,5mm diameter.
Wire the removable connection to NAEV30-NOMAD interface, as described bellow.

**NAEV inputs : «-»** channel **C** et **«+»** channel **B** non connected
«+» channel **A**, supply output for NAMUR to connect to terminal n° **1**
«-» channel **A**, pulse input to connect tot terminal n° **2**
«+» channel **C**, output for driving lamp to connect to terminal n° **3**
«-» channel **B**, common for driving lamp to connect to terminal n° **4**
**NAEV outputs :** channel **d** non connected
«+/-» channel **a** ground status fixed relay output
«+/-» channel **b** pulse output

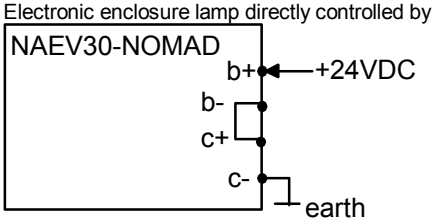



Recommendations for removable connection wiring





The outputs must be polarized
Electronic enclosure lamp directly controlled by the pulse output




This equipment has a 1-year warranty including parts and labour for all materials returned in our factory. Even when the warranty period is over, only A puissance 3 has the authority to modify and repair a certified electrical component or material for hazardous atmospheres of its own production and covered by a certificate of conformity or an EC-type examination certificate. Should this clause not adhered to, will A puissance 3 no longer be held liable for any non-conformity noticed a posteriori.

MATISAUTO-SDE-ANG-1909

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