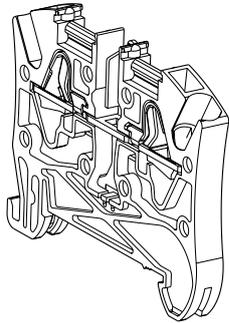


**Terminal Blocks Viking 3 spring connection
ATEX - IECEx**

**Cat. Nos.: 0 372 00/01/02/03/04/07/08/09/10/11/12
0 372 20/21/40/41/42/43/44/46/47/60/61
0 372 62/63/64/67/68/69/70/71/72/73/74/79**



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1. GENERALITIES ATEX - IECEx

In the industrial world, certain atmospheres are made explosive by the presence of flammable substances such as gases, vapors, mists (mines, refineries) or by the presence of dust (cereal silos).

Potential sources of ignition are numerous: sparks, flames, electric arcs, high surface temperatures, release of acoustic energy, optical, electromagnetic or other radiation. Electrical and non-electrical appliances used in explosive atmospheres shall be designed and operated in a manner that does not present a risk to the safety of persons, animals or property.

The European Directive «ATEX» 2014/34 / EU of 26/02/2014, whose application is compulsory since 20/04/2016, and the IECEx regulations for the zone outside Europe define the essential safety requirements for these equipments. These documents classify the devices into groups and categories according to the intended use and describe the procedures for assessing their conformity. Devices conforming to this Directive and Regulations must bear a specific marking in order to facilitate their use.

The standards IEC / EN 60079-0 (general requirements) give a list of the different possible modes of protection for «Electrical equipment for explosive atmospheres». These modes of protection correspond to different standardized technical means:

- Gaz - Flammeproof enclosure “d”,
- Gaz - Pressurized enclosures “p”,
- Gaz - Powder filling “q”,
- Gaz - Oil immersion “o”,
- Gaz - Increased safety “e”,
- Gaz - Intrinsic safety “i”,
- Gaz - Different protection modes “n”,
- Gaz and dusts - Encapsulation “m”,
- Dusts – Ignition protection “t”,
- Dusts – Pressurized enclosures “pD”.

The use of these methods of protection must be based on several parameters, including the nature of the atmosphere (chemical composition) and the geographical zone of installation of the equipment:

- Zones 0 and 20 : Gas explosive atmosphere and presence of dust fuels permanently,
- Zones 1 and 21 Gas explosive atmosphere and presence of intermittently combustible dust,
- Zones 2 and 22 : Gaseous explosive atmosphere and presence of combustible dust episodically.

2. VIKING 3 ATEX - IECEx

2.1 Overview

Electrical equipment, such as general purpose connections boxes and junction boxes (*), are generally found in zones 1, 21, 2 and 22.

The Viking 3 terminal blocks are certified as COMPONENTS for incorporation into devices, enclosures or end systems with the following protection mode:

- Increased safety «e»: measures are applied to avoid, with a high safety factor, the possibility of excessive temperatures and the occurrence of arcs or sparks on the inside and on the external parts of the electrical equipment which does not produce such in normal service.

The Viking 3 terminal blocks can be used for the connection of intrinsically safe circuits type «ia» or «ib» depending on the level of protection of the connected equipment.

For use in dust explosive atmospheres, Viking 3 terminal blocks shall be installed in certified envelopes for the particular application.

(*) § 6.7 and annex E of IEC/EN 60079-7 standards.

2. VIKING 3 ATEX - IECEx (cont.)

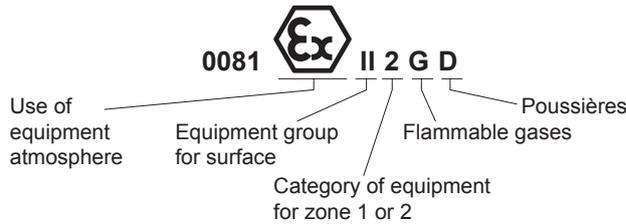
2.2 Marking and use

The terminal blocks are marked as follow:

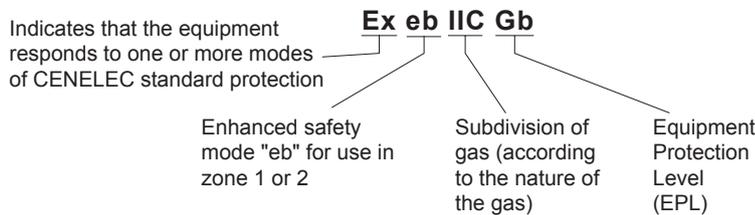
- 0081: Identification number of the notified body responsible for surveillance

0081  **II 2 G D**
Ex eb IIC Gb
LCIE 16 ATEX 3049U
IECEx LCIE 16.0036 U

- Possible use of the terminal blocks embedded in the following devices:



- Protection modes:



LCIE 16 ATEX 3049U

UE type examination certificate n° 3049 for component (U) established by notified body L.C.I.E.

IECEx LCIE 16.0036 U

Conformity certificate n° 0036 for component (U) established by LCIE under IECEx scheme.

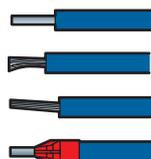
The ATEX certificate of the Viking 3 terminal blocks is a partial (component) attestation; it can be used as a basis for the attestation of an appliance or a protection system that would integrate these terminal blocks.

This implies the use of the terminal blocks in accordance with the technical data of the certified product.

2.3 Type of conductor

The conductors to be connected must be of copper, flexible type or rigid type:

- Class 1, rigid core:
- Class 2, cabled rigid core:
- Class 5, flexible core:
- Flexible core with ferrule:



2.4 Connection

2.4.1 Connection capacity

Block pitch (mm)	Nominal cross-section (mm ²)	Capacity (mm ²)		
		Rigid conductor	Flexible conductor	Conducteur souple avec embout
5	4	0.5 to 6	0.5 to 4	0.5 to 2.5
6	4	0.5 to 6	0.5 to 4	0.5 to 4
8	6	0.5 to 6	0.5 to 6	0.5 to 6
10	10	0.75 to 10	0.75 to 10	0.75 to 10
12	16	4 to 16	4 to 16	4 to 16

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2. VIKING 3 ATEX - IECEx (cont.)

2.4 Connection (cont.)

2.4.2 Tapping

Tapping is not allowed for protective conductor terminal blocks
Cat Nos. 0 372 10/11/12, 0 372 70 à 74 et 0 372 79.
For other terminal blocks, tapping is only possible with the use of
twin ferrule:

Cat. Nos.	Comptability with twin ferrule Starfix				
	0 376 87 2 x 0.75 mm ²	0 376 88 2 x 1 mm ²	0 376 89 2 x 1.5 mm ²	0 376 90 2 x 2.5 mm ²	
Block	Pitch de 5 2,5 mm ²	●	●	-	-
	Pitch de 6 4 mm ²	●	●	-	-
	Pitch de 8 6 mm ²	●	●	●	-
	Pitch de 10 10 mm ²	●	●	●	●

⚠ The intensity in the conductors shall not exceed the rated intensity
of table § 2.7.

2.4.3 Stripping length of conductors

Block Pitch (mm)	Length (mm)
5	8 to 12
6	
8	
10	8 to 13
12	8 to 15

2.4.4 Implementation

The insertion of a rigid core conductor, or flexible core with ferrule, is
straight and without tool for pitch 5 and 6 mm terminal blocks and with
tool for 8, 10 and 12 mm pitch terminal blocks. Use of a tool is necessary
for insertion of flexible core without ferrule into all terminal blocks:

Block Pitch (mm)	Flat screwdriver Ø blade (mm)
5	3.5
6	
8	4
10	
12	5.5

To ensure a good electrical connection, the stripping length must be
respected, as well as an insertion of the conductor into the block.

2.5 Operating temperature

These devices are designed to operate in the temperature range
of -30°C to +55°C under maximum intensity as described in table
of § 2.7.

2.6 Permissible material temperature

Temperature comprised between - 30°C and + 85°C. In use, without
manipulation, the lower limit temperature is -45°C.

2. VIKING 3 ATEX - IECEx (cont.)

2.7 Rated current

These values are based on the main supply of 5 adjacent blocks,
it is necessary to include heating of conductors and terminal blocks
when installed in order to fit with limit temperatures (maximum
dissipable power into enclosure for desired temperature of the whole
and maximum permissible temperature of terminal block material).

Table according to connected conductor.

Cross-section conductor (mm ²)	Rated current (A)
4	23
6	30
10	42
16	57

⚠ The intensity in the block shall not exceed the intensity corres-
ponding to its nominal cross section (§ 2.4.1).

2.8 Operating voltage of terminal blocks

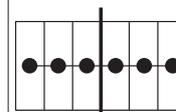
Blocks(*)	Operating voltage according to EN 60079-7(art. 4.3 and 4.4 safety "e")
1 level	500 V
2 levels	250 V

(*) Le dernier des blocs d'une même taille doit être équipé de sa cloison terminale
d'isolement.

2.9 Operating voltage with accessories

The use of an isolation and separating divider Cat. Nos. 0 375 95/96
is mandatory between 2 shunted groups of terminal blocks. In some
cases, operating voltage value decreases as described in following
table:

Blocks	End of comb	
	Uncut	Cut
Pitch of 5 mm 1 level	500 V	500 V
Pitch of 6 mm 1 entry - 1 outlet	500 V	400 V
Pitch of 6 mm 1 entry - 2 outlets 2 entries - 2 outlets	500 V	500 V
Pitch of 8 mm	400 V ⁽¹⁾	Forbidden
Pitch of 10 mm	400 V ⁽¹⁾	Forbidden
Pitch of 12 mm	500 V	Forbidden
2 levels	250 V	250 V



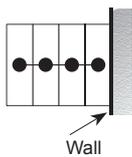
Separating
and isolating
divider

⁽¹⁾ Without divider

2. VIKING 3 ATEX - IECEX (cont.)

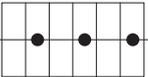
2.9 Operating voltage with accessories (suite)

A separating and isolating divider Cat. Nos. 0 375 95/96 shall be interposed between a block of shunted terminal blocks and a non insulating wall. In some cases, operating voltage value decreases as described in following table:

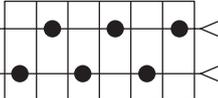
	Blocks	End of comb	
		Uncut	Cut
	Pitch of 5 mm 1 entry - 1 outlet	500 V	250 V
	Pitch of 5 mm 1 entry - 2 outlets 2 entries - 2 outlets	500 V	125 V
	Pitch of 6 mm 1 level	500 V	125 V
	Pitch of 8 mm	125 V ⁽¹⁾	Forbidden
	Pitch of 10 mm	125 V ⁽¹⁾	Forbidden
	Pitch of 12 mm	250 V	Forbidden
	2 levels	250 V	250 V

⁽¹⁾Without divider

Interposition of block between shunted blocks decreases initial operating voltage value as described in table below.

	Blocks	Type of interposed blocks	
		Protective conductor (metal foil foot)	Other blocks
	Pitch of 5 mm 1 level	250 V	400 V
	Pitch of 6 mm 1 level	250 V	400 V
	Pitch of 8 mm	250 V	400 V
	2 levels	-	250 V

The use of insulated combs for a parallel "alternated" equipotential connection decreases initial operating voltage value of terminal blocks as described in table below.

	Pitch of 5 mm	125 V
	Pitch of 6 mm	125 V
	Pitch of 8 mm	125 V
	2 levels ⁽²⁾	125 V

⁽²⁾On upper level only