ATEX Certified Cells

OWNER'S MANUAL

EnerSys®
Power/Full Solutions

www.enersys.com

CONTENTS

INTRODUCTION

The information contained in this document is critical for safe handling and proper use of the ATEX certified cells. It contains a global system specification as well as related safety measures, codes of behavior, a guideline for commissioning and recommended maintenance. This document must be retained and available for users working with and responsible for the battery. All users are responsible for ensuring that all applications of the system are appropriate and safe, based on conditions anticipated or encountered during operation.

This owner's manual contains important safety instructions. Read and understand the sections on safety and operation of the battery before operating the battery and the equipment into which it is installed.

It is the owner's responsibility to ensure the use of this documentation and all related activities comply with applicable legal requirements in their respective countries.

This owner's manual is not intended to substitute for any training on handling and operating the ATEX certified cells that may be required by local laws and/or industry standards. Proper instruction and training of all users must be ensured prior to any contact with the battery system.

For service, contact your sales representative or call:

EnerSys EMEA
EH Europe GmbH
Baarerstrasse 18
6300 Zug, Switzerland
Tel: +41 44 215 74 10

EnerSys World Headquarters
2366 Bernville Road
Reading, PA 19605, USA
Tel: +1-610-208-1991
+1-800-538-3627

EnerSys APAC
No. 85, Tuas Avenue 1
Singapore 639518
+65 6558 7333

www.enersys.com

Your Safety and the Safety of others is Very Important

⚠ WARNING You can be killed or seriously injured if you don't follow these instructions.

INFORMATION

EC Declaration of Compliance

Ex cells for vehicle drive batteries

EnerSys® hereby confirms that these cells (see below for description with serial number and number of the EC type-examination certificate, SIRA certification service, notified body number 2813) comply with the provisions of Directive 2014/34/EU Devices and Protection Systems for Intended Use in Areas at the Risk of Explosion. The fundamental health and safety requirements are fulfilled by compliance with the norms: IEC 60079-0, IEC 60079-7, IEC 61241-0, and IEC 61241-1.

Signed: _____ (ATEX/IECEx authorised manager)

Serial No.: _____

Ex cell type: _____

EC type examination certificate: SIRA 01 ATEX 30 _____ U

IECEx Certificate of conformity: IECEx SIR 07.006 _____ U

This declaration certifies compliance with the above directives but does not contain an assurance of properties within the legal meaning. The safety notes of the product documentation supplied must be observed.

This Owner's Manual contains notes for the mounting and the safe operation of the Ex cells in vehicle batteries.

The Ex cells are components defined within the Directive 2014/34/EU (ATEX/IECEx).

For the production and use as a battery, further requirements of the Directive must be fulfilled, which are not covered by the component certification of the cells and are not covered by the content of this Owner's Manual.

SAFETY & LABELING

Safety Notes

The use of various cell models inside one battery is not permissible. This also applies to design sizes of the same type, performance, and capacities.

The Ex cells fulfill the safety requirements in the event of intended use.

The Special Terms and Conditions for Safe Application following EC Type Examination Certificate Number:
SIRA 01ATEX3016U, SIRA 01ATEX3019U, SIRA 03ATEX3087U, SIRA 03ATEX3090U and
IECEx Certificate of Conformity Number:
IECEx SIR07.0061U, IECEx SIR07.0062U, IECEx SIR07.0063U, IECEx SIR07.0064U must be fulfilled.

If the cells are built together as batteries, at a minimum the conditions set out in EN 60079-7, EN IEC60079-7 must be observed:

- General information
- Battery container
- Cells
- Connector
- Charging cells
- Discharging cells
- Including other ignition protection types
- Switching off and transport
- Secondary batteries
- Insulation resistance
- Shock test
- Ventilation

Labeling and Area of Application

This Owner's Manual applies to cells following EC Type Examination Certificate and IECEx Certificate of Conformity Number:

- IECEx SIR07.0061U—SIRA 01ATEX3016U Type B Lead Acid Motive Power cells (PzB, PzMB)
- IECEx SIR07.0062U—SIRA 01ATEX3019U Type D Lead Acid Motive Power cells (PzS, PzM)
- IECEx SIR07.0063U—SIRA 03ATEX3087U Type B Evolution® Lead Acid Motive Power cells (PzVB)
- IECEx SIR07.0064U—SIRA 03ATEX3090U Type D Evolution® Lead Acid Motive Power cells (PzV) and NexSys®TPPL cells (NxS)

The U character behind the certificate number indicates that this certificate must not be mistaken for a certificate intended for a device or protective system. This component certificate may only be used as the basis for a device or protective system certification. The certificates indicated therefore only refer to the conception and type testing of the specified component cells in compliance with Directive 2014/34/EU. To produce and circulate the cells, the manufacturer must fulfill other requirements of the Directive, which are not covered by these certificates.

This gives rise to the necessity that a final installation operation must have fulfilled the requirements as an ATEX and IECEx-certified business and able persons.

M2 Ex eb I
II 2G Ex eb IIC T6 II 2D Ex IIIC T80°C
Ex eb I
Ex eb IIC T6
Ex tb IIIC T80°C

These Ex cells may be used in the following areas only:

- Explosion group I Category M2/Mb mining
- Explosion group II Category 2 and 3 [Zone 1 2G/Gb, Zone 2 3G/Gc (Gas)]
- Explosion group III Category 2 and 3 [Zone 21 D/Db, Zone 22 3D/Dc (Dust)]

ASSEMBLY & COMMISSIONING

Assembly

When mounting, the cells must be always lifted by all posts simultaneously with insulated hanging equipment.

Ex cells may only be connected in a row (serial connection). No parallel connection is allowed. During mounting, the correct polarity must be observed. For the electrical wiring, only components authorised by EnerSys® may be used. Optional aquamatic system and electrolyte circulation must be wired following EnerSys requirements, e.g. "comply with the electrical wiring". Request corresponding information, if required.

NOTE: The connection technology, aquamatic system, and electrolyte circulation are part of the cell component test and approval and must therefore not be modified!

All components should be obtained from EnerSys.

End connections and intermediate take-offs may also only be carried out with approved components. New, unused screws M 10 x 20 with the prescribed screw lock must be used: torque wrench 25 + 2 Nm! It is mandatory to ensure correct contacting and thread engagement.

The connections to the lid must be tightened. To ensure IP protection, a lid without any holes must be used.

When using connector caps with a hole (only on the negative pole for voltage measurement), the connector chamber must be filled with grease, such as Berutox M 21 KN.

Electronic components cannot be used in the vicinity of an ATEX/IECEx battery, such as under any lid or close to the cell.

Only Ex cells of the same type, size, and capacity may be wired together.

The Ex cells must be installed firmly in the battery container. Any possible clearances must be filled with stable acid-proof filling material. The use of cell boxes or foam-like filling material is not permissible.

Commissioning

For the commissioning of the Ex cells, the Owner's Manual for Perfect Plus™, Water Less®, Evolution®, or NexSys® TPPL must be observed (see www.enersys.com).

In addition, the Owner's Manual of the device or protective system, in which these Ex cells are integrated, applies.

Lead-acid cells, in particular flooded cells, can only be stored for a limited period without regular recharging. New cells should be fully charged on delivery. Perfect Plus™ and Water Less® cells must be recharged every 6 weeks at the latest, Evolution® and NexSys® TPPL cells should be recharged within 3 months.

When reassembling batteries, only cells of the same state of charge and cells that are ATEX labeled should be wired together. The open-circuit voltage of the cells should be at least 2.13 V/cell in a fully charged condition.

Operation and Charging

Never charge an Ex battery or cells in a zoned area at any time.

For charging and operation, the Owner's Manual of the normal battery design can be used (see www.enersys.com). In addition, the Owner's Manual of the device or protective system, in which these Ex cells are integrated, applies.

Identification Values of the Ex Cells:

Maximum permissible nominal voltage in battery system:	500 V
Ambient temperature range:	-20 to 40 °C
Maximum permissible temperature of the battery cells:	55 °C
Rated current:	0.2 C_5

Assignment:			
Nominal Capacity C_5		Connection Cross-Section	Rated Current
up to	315 Ah	25 mm²	63 A
up to	440 Ah	35 mm²	88 A
up to	630 Ah	50 mm²	126 A
up to	880 Ah	70 mm²	176 A
up to	1550 Ah	95 mm²	310 A

Only approved charging devices and approved charging characteristics may be used. When integrating charging devices in the vehicle and when charging the batteries in areas at risk of explosion, the charging system must be integrated with the compliance assessment according to EN 60079-7.

Batteries that have reached a higher temperature than 40 °C by the end of charging must be cooled down to 40 °C before use in areas at risk of explosion.

Maintenance and Repairs

Only approved EnerSys original spare parts and components may be used. Only cells that carry an ATEX label of a manufacturer with the same type, size, and capacity may be used as a replacement.

In addition, the Owner's Manual of the device or protective system, in which these Ex cells are integrated, applies.

To conduct this work, the rules of EN 60079-19 must be observed. The rework must only be carried out by suitably qualified personnel and must be documented, and the device or protective system must be identified with a corresponding R label.

NOTES & DISPOSAL

Normative Notes to be Observed (extract)

Directive	1999/92/EC
Directive	2014/34/EU
DIN EN 1127-1	Explosive atmospheres—Explosion prevention and protection—Part 1: Basic concepts and methodology
DIN EN 1175-1	Safety of industrial trucks—Electrical requirements Part 1: General requirements for battery powered trucks
DIN EN 60079-0	Explosive atmospheres—Part 0: Equipment—General requirements.
DIN EN 60079-7	Explosive atmospheres—Part 7: Equipment protection by increased safety “e”
DIN EN 60079-19	Explosive atmospheres—Part 19: Equipment repair, overhaul, and reclamation
DIN EN 61241-0	Electrical apparatus for use in the presence of combustible dust—Part 0: General requirements
DIN EN 61241-1	Electrical apparatus for use in the presence of combustible dust—Part 1: Type of protection “tD”
DIN EN 62485-3	Safety requirements for secondary batteries and battery installations—Part 3: Traction batteries

Battery must be recycled

Disposal and back to the manufacturer!
Always dispose of the battery container and cells through your local service depot. Do not attempt to dismantle the battery or the cells in any way. Once the product has failed and is no longer repairable, store it outside the zoned area until removed for reclaim.
Batteries with this sign must be recycled.
Batteries that are not returned for the recycling process must be disposed of as hazardous waste!
When using motive power batteries and chargers, the operator must comply with the current standards, laws, rules, and regulations in force in the country of use!

This document is an original version published in the English language and shall be considered the authoritative reference. In the event of any inconsistency or discrepancy between the English version and a translated version, the English version shall prevail.

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EMEA-EN-OM-ATEX-CELL-0725

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