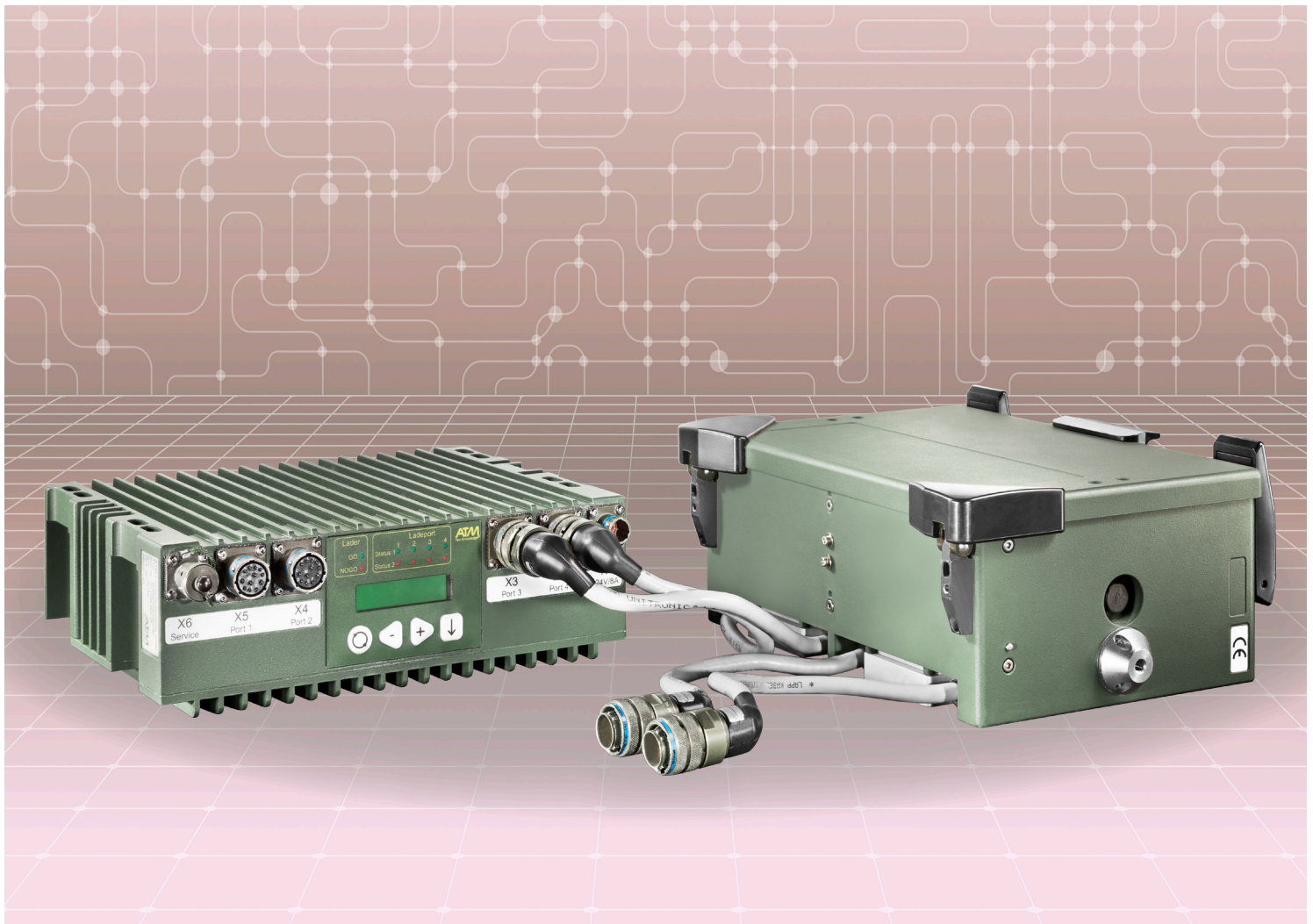


Robust charging and testing device for batteries used in military missions

Today's military operations are performed on a global stage. Managing them, as well as the rapidly changing face of deployment scenarios and the increased demands placed on armed forces mobility, means overcoming the challenges presented by technology. For dismounted troops, the ability to recharge the equipment batteries they are travelling with is essential for keeping their mobile applications up and running within remote regions – or in other words, essential to survival. As a result, charging devices are expected to offer better and better performance all the time.



Now, ATM ComputerSysteme GmbH has introduced its battery charger: a charging and discharging station for equipment batteries used in mobile units. Certified as compliant with military standards, it has an on-board voltage supply and is microprocessor-controlled. The battery charger wards off water and dust, resists salt fog, holds up against varying

pressure and temperature levels, and performs even when subjected to heavy shocks and vibrations.

The device has already proven what it can do in military applications. As part of the equipment used on the JFST FENNEK, it ensures that mobile units can remain available during reconnaissance

operations. The German army uses the ATM battery charger under the working name „Bordnetzgespeicher universeller Batterieladegerätesatz für Ausrüstungsbatterien“ („On-board voltage-supplied universal battery charging device assembly for equipment batteries“).

Intelligent technology recognises battery type

The battery charger consists of the universal battery charging device itself, the charging cradle holder for mobile use in vehicles, as well as charging cradles for different battery types.

Its ability to charge up to four different types of batteries at the same time makes the battery charger an indispensable tool during missions that are constantly on the move. At present, the battery charger supports equipment batteries for Nyxus observation gear and PRC-148 radios, as well as BB-2590 batteries. However, the intention is for it to accommodate a much wider range of batteries used in missions in the future, since the charging device does not require any technical modifications to accommodate other battery types or new battery types. This is thanks to the intelligent charging cradle, which has every battery parameter used in the charging and discharging process programmed into it in a way that allows them to be read out for the charging device. As a result, any changes that ATM makes to the battery charger to accommodate battery type requirements will simply involve adapting the mechanical and electrical components of the charging cradle. Not only that, but these changes will only need to be carried out once for each battery type. This makes the ATM battery charger completely welcoming to new methods of design and technology. ATM is working on providing support for additional battery types even as we speak.

Charging and testing – even with stationary vehicles

Assuming the battery charging device is switched on, the charging process starts automatically as soon as a charging cradle with a battery is inserted in the charging cradle holder. For this purpose, the charging device fetches the parameters it needs from the charging cradle, so there is no need for any manual settings or even for any specialist knowledge. The intelligent charging electronics ensure the battery is charged to an optimum level at all times. At the same time, the electronics prevent battery packs from overcharging.

As the charging process is able to take place even when the engine is switched off, it does not need the vehicle's propulsion system to be running. And the ATM battery charger looks after the vehicle battery itself too: to prevent it from deep discharging, the charger monitors the vehicle's on-board voltage and blocks the charging process below a 22 V on-board voltage level.

The cyclic charging function enables the user to identify whether a battery that has been inserted is still providing the necessary capacity. During cyclic charging, the charging device determines the residual capacity by carrying out discharging and charging twice. If this capacity is outside of a defined value, the battery is deemed to be faulty. A display shows this information in a clear format.

Plain text display provides an overview of information

During the charging process, the backlit LC display on the charging device shows plain text information about the selected battery, in addition to the GO/NOGO indicator on the

charging cradle. The backlit display has a 2x16-position character area and provides information including up-to-date measured values, error messages from the device or battery, and help text in German. And because any of the ATM battery charger's display elements can be darkened, they can be incorporated into camouflage measures – with no interruption in the charging process.

To support these enhanced operating features, the battery charger also provides four push buttons that the operator can use to start cycling or activate camouflage mode, for example.

Adapted to customers, adapted to needs

To enable use on the JFST FENNEK, ATM has designed a box-shaped charging cradle holder that accommodates both the secondary batteries that troops carry with them and the charging cradles themselves. The closed design protects the batteries during transport and poses no risk to the soldiers in the vehicle. Additionally, the shape and design of the charging cradle holder can be adapted to suit customer requirements as well as the space available in the vehicle.

The ATM battery charger offers yet another advantage in that there is no need for any other charging devices that can only accommodate a particular type of battery – saving space in the vehicle as a result. Thanks to this standardised approach, the device opens up opportunities for integrating other vehicle applications.