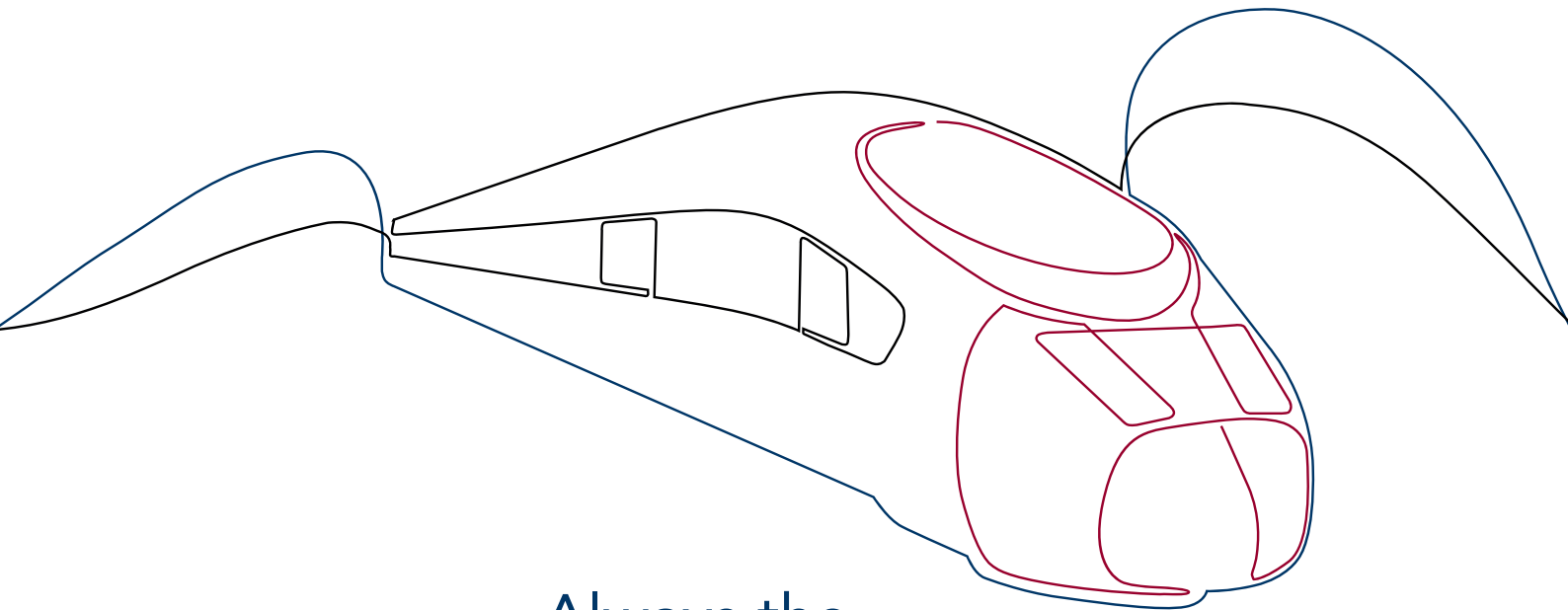


ETHERNET UPGRADE SOLUTIONS



Always the
right connection



Quality Standard: All products are subject to an extensive quality test in the final inspection phase. Of course, we are certified according to current industry-specific standards.

ETHERNET UPGRADE SOLUTIONS

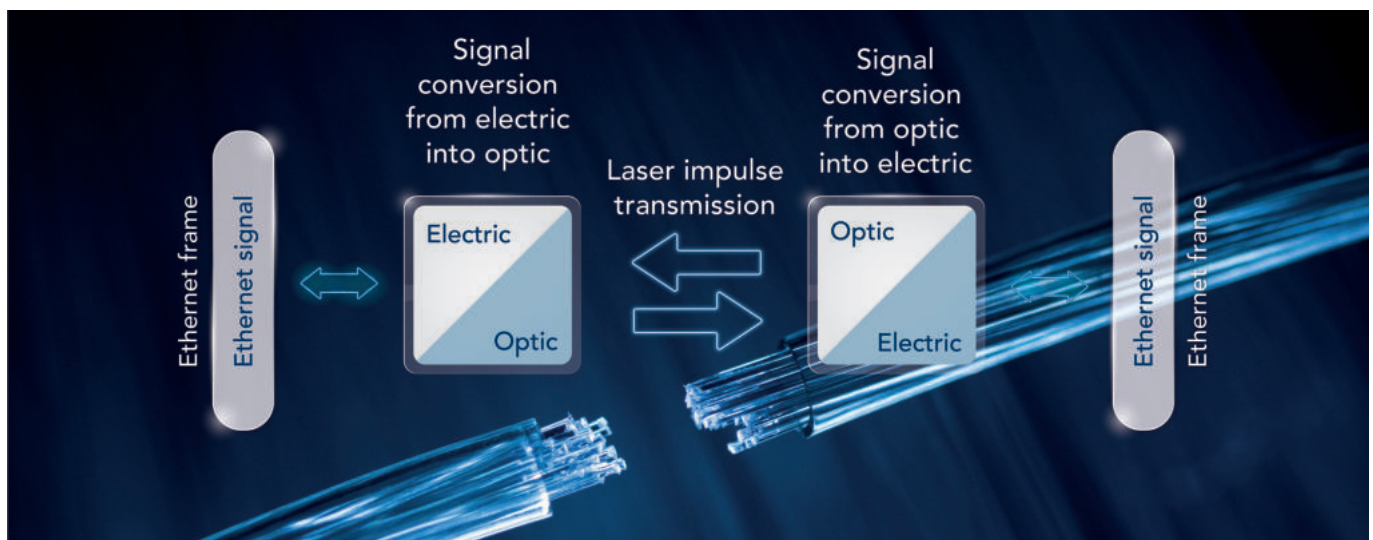
era-transceiver[®]

DATA PULSES WITHOUT WEAR

Product info

The *era-transceiver*[®] is a unique contactless system for high-speed data transmission with 100% galvanic separation, which means there is no mechanical wear on the contact itself. Therefore, you benefit from a longer operating life and cost savings over the entire product life cycle.

The *era-transceiver*[®] is an optimal data transmission solution for both the initial equipment of new vehicles and for retrofitting (Plug & Play ETHERNET, ETHERNET-UPGRADE-SOLUTION) of existing fleets and older rail vehicle models.



Transmission principle *era-transceiver*[®]

The incoming electrical Ethernet signal is converted into an optical signal. The optical signal is received on the opposite side and converted back into an electrical signal. The level and timing are corrected in the process (data clock recovery). Galvanic separation is achieved via the interface.

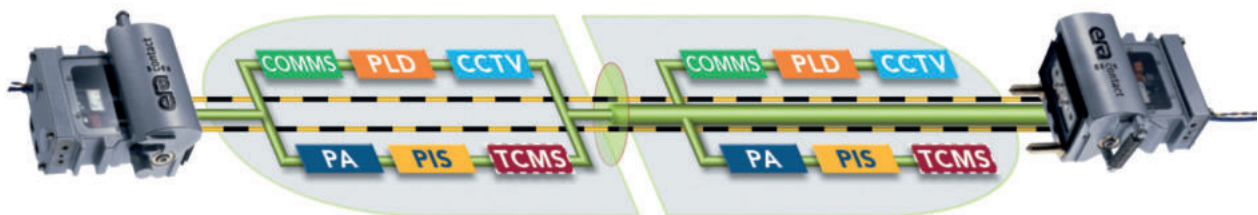
Optical signals are free of EMC interference, potential shifts and insensitive to relative movements. The transmission link operates in full duplex mode, i.e. simultaneous sending and reception of data is guaranteed.

ETHERNET UPGRADE SOLUTIONS

era-transceiver® PRODUCT FAMILY

era-contact produces the 100 MBit/s and 1000 MBit/s variants in series.

Data rate	100 MBit/s	1000 MBit/s
Data interface	RJ45 M12 D-coded	M12, X-coded, SC Multimode
Cable requirement	min. CAT 5	min. CAT 7
Power supply	24... 48 V DC	24 ... 48 V DC, 110 DC
Power consumption in general	< 5 W	< 5 W
Operating temperature range	RJ45: -25 ... +85 °C M12: -40... +85 °C	-40 ... +85 °C
Bit error rate	< 10 ⁻¹²	< 10 ⁻¹²



- PA** Public Address
- PIS** Passenger Information System
- CCTV** Closed Circuit Television
- COMMS** Communications Systems
- PLD** Passenger Load Determination
- TCMS** Train Control Management System

ETHERNET UPGRADE SOLUTIONS

era-transceiver[®]

SERIES SOLUTION FOR ELECTRICAL COUPLERS

The *era-transceiver*[®] is directly installed in automatic couplers for original equipment.

The optical interface corresponds to the position where common contacts are otherwise being installed. The *era-transceiver*[®] unit is easy to mount.

era-contact always manufactures according to customer-specific requirements.



Series solution for electrical couplers includes:

Option 1 – era-contact's electrical coupler with integrated *era-transceiver*[®]

Option 2 – *era-transceiver*[®] as a mounting option, i.e. the existing electrical coupler is being extended. No modification to the contact block itself is necessary.

For more information about coupler extension see: **Plug & Play ETHERNET, ETHERNET-UPGRADE-SOLUTION.**

Your advantage:

- No additional installation space is required since the *era-transceiver*[®] is integrated into the contact block
- "State of the Art" – no more retrofitting necessary
- Field tested
- After sales service

Note: The Ethernet solution in the original equipment can only be ordered via Voith Turbo GmbH – ask explicitly for the *era-transceiver*[®].

ETHERNET UPGRADE SOLUTIONS

era-transceiver[®] FIBRE-EXTENSION

Product info

The *era-transceiver*[®] fibre-extension is the solution for space problems in the electrical coupler. The fibre-extension allows flexible positioning within the contact block.

For retrofitting, the *era-transceiver*[®] fibre-extension offers the advantage that existing contact holes can be used. The solution is based on *era-transceiver*[®]-technologie.



era-transceiver[®] fibre-extension includes:

- *era-transceiver*[®]
- Fiber optic cable

Requirements for the *era-transceiver*[®] fibre-extension:

- This solution requires only two fiber contacts in the contact block, which take up as much space as a regular male contact.
- The total number of optical contacts is open and depends on customer requirements and the possible number of optional contact points in the respective couplers
- For retrofitting: existing drilled holes in the contact block
- Increased security against access and manipulation from the outside due to signals that cannot be manipulated (EMC non-critical)

Your advantage

- Contactless data transmission of Ethernet signals
- Finds place everywhere – suitable for all electrical couplers
- Two contacts operate in full duplex mode and send and receive data simultaneously
- The incoming electrical Ethernet signal is converted into an optical signal and back again
→ insensitive to relative movements and EMC
- Easy to clean, no mechanical wear
→ thus longer service life and reduced life cycle costs
- Data transfer rates of 100 Mbit/s or 1 Gbit/s
- Fast and especially contemporary upgrade of older models of rail vehicles

ETHERNET UPGRADE SOLUTIONS

era-transceiver[®]

PLUG & PLAY ETHERNET

Product info

The *Plug & Play ETHERNET* solution is a flexible attachment to existing self-driven couplers.

- ETHERNET is a retrofit solution to transfer large amounts of data without touching the original coupler.
- It can be mounted on the side, on the top or on the bottom.
- It is designed for both pneumatically and electrically operated couplers.



The Plug & Play ETHERNET solution includes:

- *era-transceiver*[®]
- A housing is adapted to the coupler as well as to the given mounting options and the available installation space:
 - top and bottom: 1 housing per coupler
 - lateral: 2 housings per coupler

Requirements for Plug & Play ETHERNET:

- Sufficient installation space, which must be calculated depending on the coupler, but at least an additional circumferential 50 mm
- On the mechanical head there must be mounting possibilities available, e.g. threaded holes, recommendation: M8 - M12

Your advantage:

- A retrofit solution without damaging the original coupler
- A customer-specific adaptation to the circumstances
- A simple solution in response to the increased digital requirements in rail transportation
- A fast and especially contemporary upgrade of older models of rail vehicles



ETHERNET UPGRADE SOLUTIONS

era-transceiver®

ETHERNET-UPGRADE-SOLUTION

Product info

The *ETHERNET-UPGRADE-SOLUTION* is a solution for a simple Ethernet retrofit for existing systems with **swivelled** couplers. The existing electrical coupler remains intact and does not have to be opened (opening often requires new tests of the coupler and renewed approvals). Redundant operation as well as the use of two transmission channels is possible with this solution.

The additional components are attached to the left and right of the existing electrical -coupler. Only a new (and longer) lid is necessary.

The simple assembly can either be carried out by the operator or can be ordered from our service team.



The ETHERNET-UPGRADE-SOLUTION includes:

- era-transceiver®
- Housing is designed according to the installation space
- Control arm is adapted to the new length
- A new, adapted lid in order to protect the era-transceiver® is attached
 - for couplers without their own drive, we offer a self-opening variant
- Optional: assembly by our service team

Requirements for ETHERNET-UPGRADE-SOLUTION:

- Sufficient installation space, which must be calculated depending on the coupler, but at least an additional circumferential 50 mm
- For non-era-contact couplers, the third-party product must be made available or accessible for measurement so that the customer-specific adjustments can be made

Your advantage:

- A retrofit solution for high data transmission in existing systems
- A fast and especially contemporary upgrade of older models of rail vehicles
- Customization also possible for third-party products
- A standalone assembly is possible



ETHERNET UPGRADE SOLUTIONS

era-transceiver®

HANDHELD TEST METER

Product info

The *hand-held* tester makes it possible to test the functionality of existing electrical couplers with one or more era-transceiver® in a direct way, i.e. directly at the coupler.

The transmission rates 100 and 1000 MBit/s can be tested. The test is performed in two phases: In the first quick test, the optical interface of the era-transceiver® is tested. **The special feature:** No additional cabling is required for this test.

In a second test, the optical and electrical interfaces of the era-transceiver® can be checked. However, this requires additional cabling.



Dimensions (LxWxH):	approx. (248x103x38) mm
Weight including batteries:	540 g
Voltage range power supply:	100 to 240 V AC
Input voltage test instrument:	6 V DC
Power plug:	Typ C (European plug)
Transmission rates	100 / 1000 MBit/s
Data interfaces:	RJ45

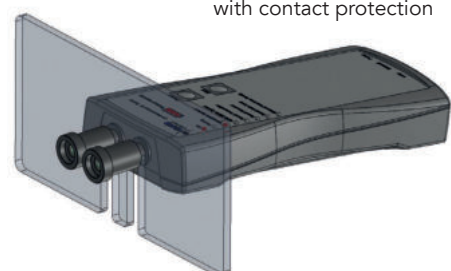
Battery size:	Mignon cells (type: AA)
Number of batteries:	4
Laser class:	1
Protection class:	IP20
Operating temperature range:	-10°C bis 60°C non condensing
Operating humidity range:	0 bis 90% non condensing

The test device incl. storage case



As an additional safety measure, it is possible to use a **contact protection** during the test.

Optional for extended protection: Handheld tester with contact protection





MORE BENEFITS FOR YOU:

- Punctuality
- Consistently high quality all over the world
- Comprehensive service wherever you are in the world
- Years of expertise for your product
- International presence
- On-site engineering service – from prototyping to after-sales
- Original manufacturer
- A team just for you

A company of



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