



YAMoRC®
DIGITAL

YD6016ES CURRENT SENSOR

16-CURRENT-SENSING DETECTORS

QUICK START

(2022-09-20)



Designed by Karst Drenth
Made in Germany
Assembled in NL

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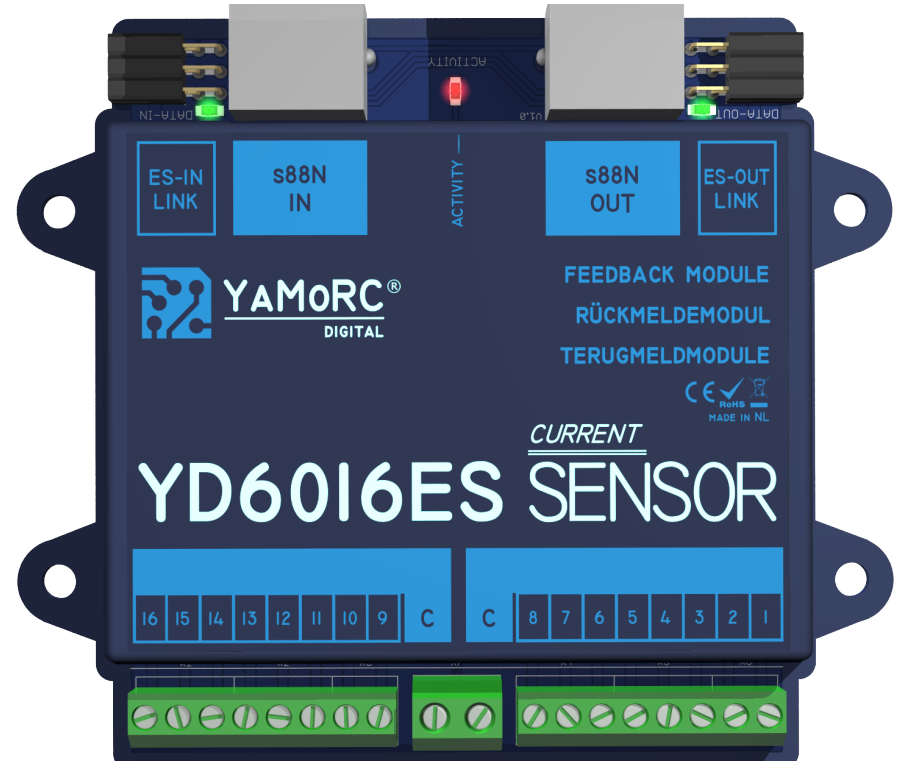
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Description

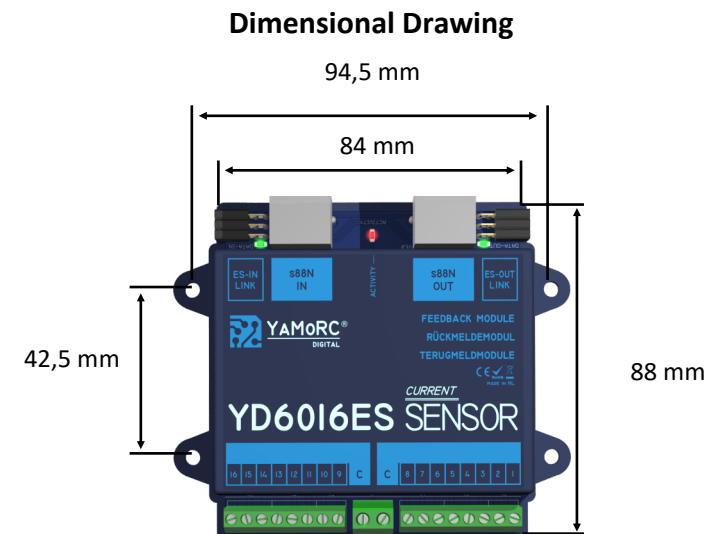
- The **YD6016ES-CS** is the standard s88N feedback module from YaMoRC. Connections are made via normal RJ45 sockets and standard Ethernet patch cables.
- The **YD6016ES-CS** has sixteen feedback inputs. These are divided into two groups with eight inputs. The feedback inputs of the YD6016ES-CS operate according to the current sensor principle and thus detect a consumer. The sensitivity of the feedback inputs is 1 mA current consumption.
- The **YD6016ES-CS** has a capacitive **input filter** at each feedback input. This filter suppresses noise (antenna effect) on long line paths and sections. This effectively suppresses false alarms.
- Via the "ES-IN Link" connection, it is possible to connect another four YD6016ES-CS modules to each other. In addition, the firmware of the YD6016ES-CS can be updated via "ES-Link".
- Via the "s88N IN" connection, the **YD6016ES-CS** can be extended by another four "s88N" modules with 16 feedback inputs.
Attention! Joint use of "ES-OUT Link" and "s88N-OUT" or "ES-IN Link" and "s88N-IN" on the same module is not permitted.
- **Attention!** When using "s88N", please note that the YaMoRC "s88N-Master" is designed for a voltage of 5 V. Operating the YD6016ES-CS on central units that provide a voltage of 12 V at the "s88N master" will therefore destroy the YD6016ES-CS.

Technical Data:

| | |
|--|---|
| Number of feedback inputs | 16 inputs (grouped in two groups of 8) |
| Load capacity of a feedback input | 2 A |
| Total load capacity of all feedback inputs | 8 A |
| Overload resistance of a feedback input | 5 A for 100 ms |
| Sensitivity of the feedback devices | 1 mA Current flow |
| Housing Dimensions | 84 mm x 88 mm x 22 mm |
| Distance Between Holes | 94,5 mm, 42,5 mm |

Mounting

The YD6016ES-CS is mounted via the four mounting holes on the side of the housing.



Important Notes (Including Health & Safety):

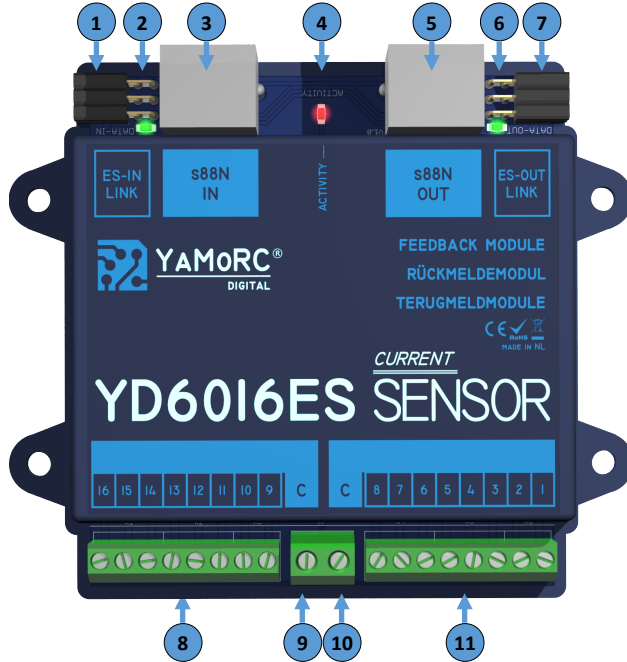
- The YD6016ES-CS is intended exclusively for operation on an electric model railway.
- The YD6016ES-CS is **not** a toy and is therefore **not** suitable for children under 14 years of age.
- **Never** leave the YD6016ES-CS operating without your presence. Please disconnect the product before leaving it unattended.
- Voltage sources (power supplies, transformers, etc.) must comply with the current VDE/EN and CE standards.
- The voltage sources used (power supplies, transformers) must comply with Protection Class 2. Failure to comply may result in serious damage to the YD6016ES-CS. The voltage sources must be marked with this symbol (illustrated below).



Further information on the Protection Class 2 can be found here: <https://www.xppower.com/resources/blog/iec-protection-classes-for-power-supplies>

- Voltage sources must **not** exceed a maximum output current of 3A.
- Voltage sources must be fused in such a way that a cable fire cannot occur in the event of a fault.
- A common ground connection of different voltage sources or circuits is **not** permitted. This will destroy the YD8008.
- It is essential to ensure a sufficient wiring cross-section of the individual connections.
- The connection terminals for "C" are designed for a cross-section of 0.75 mm². All other connection terminals are designed for a cross-section of 0.5 mm².
- Connection work must always be carried out in a de-energized state. Disconnect or switch off LocoNet® and power supply from the control center via "C".
- The YD6016ES-CS must **never** be installed near sources of intense heat, such as radiators or places exposed to direct sunlight. Therefore, install the YD6016ES-CS in a place with sufficient ventilation to be able to dissipate the waste heat.
- The YD6016ES-CS is designed for dry indoor use only. Therefore, do **not** operate the YD6016ES-CS outdoors or in environments with extreme fluctuations in temperature and humidity.
- Do **not** attempt to open the YD8008. Improperly performed actions can lead to the destruction of the YD8008.

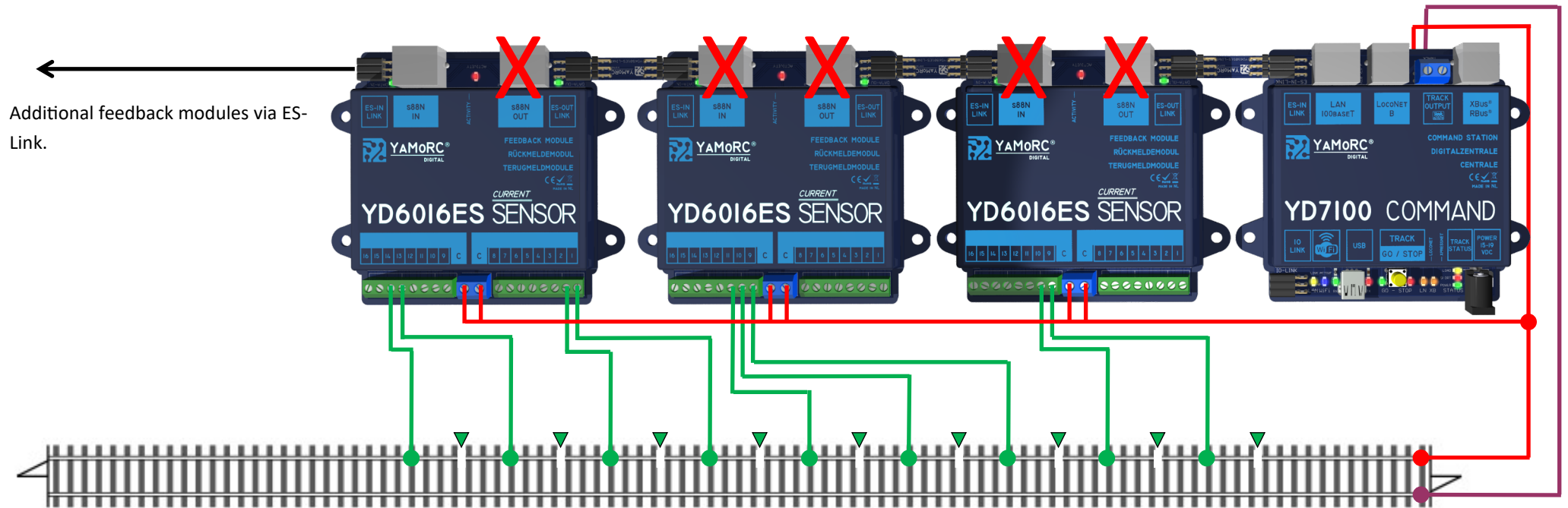
Product/Hardware Overview



| | | |
|---|---------------------------|--|
| 1 | ES-IN Link | Connection for further modules with "ES-Link". Attention! If the "ES-IN Link" is used to connect further feedback modules, the "s88N IN" must not be used at the same time. |
| 2 | Green LED | display Programming process via "ES-IN Link" running |
| 3 | s88N IN Connection | At this connection four more "s88N" standard feedback modules with 16 inputs can be connected to this port. Attention! If the "s88N-IN" is used for the connection of further feedback modules, the "ES-IN Link" must not be used at the same time be used at the same time. |
| 4 | Red LED | Load indication of the feedback devices. The brighter the LED lights up, the higher the current that is detected by the feedback module is detected. |

| | | |
|----|----------------------------|---|
| 5 | s88N OUT Connection | An diesem Anschluss können noch weitere vier s88N Standard Rückmeldemodule mit 16 Eingängen angeschlossen werden. Achtung! Wird der "s88N-OUT" zum Anschluss von weiteren Rückmeldemodulen verwendet darf, der "ES-OUT Link" nicht gleichzeitig verwendet werden. |
| 8 | Green LED | Display Programming process via "ES-Link" running |
| 7 | ES-OUT Link | Connection for further modules with "ES-Link". Attention! If the "ES-OUT Link" is used for the connection of further feedback modules, the "s88N OUT" must not be used at the same time. |
| 8 | 1 : : : 8 | Connection feedback input no. 1 (1st feedback group) Connection feedback input no. 8 |
| 9 | C | Common connection 1st feedback group |
| 10 | C | Common connection 2nd feedback group |
| 11 | 9 : : : 16 | Connection feedback input no. 9 (2st feedback group) Connection feedback input no. 16 |

Connection example of the feedback devices at the 2-wire track and connection of the YD6016ES-CS via "ES-Link"



Maximum expansion: 96 feedback modules, consisting of five feedback modules with 16 inputs each in the entire "ES-Link" string.

Attention! A common use of "ES-OUT Link" and "s88N-OUT" or "ES-IN Link" and "s88N-IN" at the same module is not allowed.

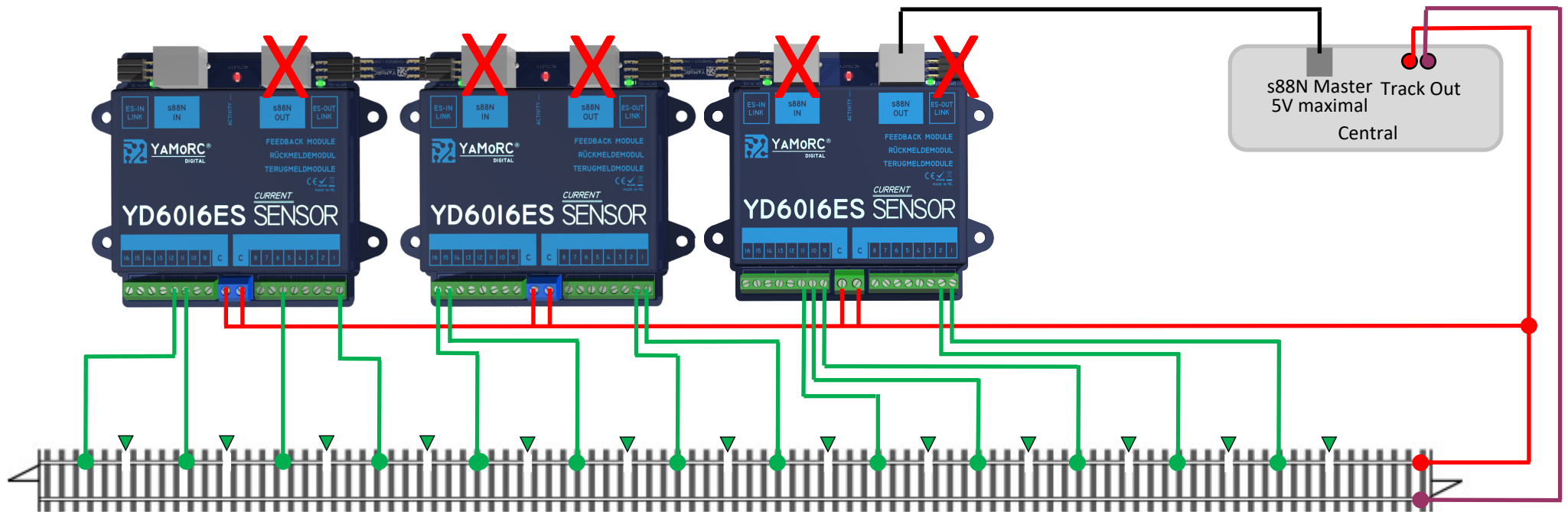
When using "s88N", please note that the YaMoRC "s88N master" is designed for a voltage of 5 V.

Operating the YD6016ES-CS on control centers that provide a voltage of 12 V at the "s88N master" will therefore destroy the YD6016ES.

Attention!

All connection work on the YD6016ES-CS must always be performed in a de-energized state. Disconnect the power supply from the mains and switch off!

Connection example of the feedback on the 2-wire track and connection via s88N to an s88N capable control center



Maximum expansion: 96 feedback modules, consisting of five feedback modules with 16 inputs each in the entire "ES-Link" string.

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Warranty

24 months warranty from date of purchase

Dear Customer,

Congratulations on your purchase from YaMoRC. YaMoRC's high quality products have been manufactured using modern manufacturing processes and have been subjected to careful quality control and tests.

Therefore, when purchasing a YaMoRC product, the company YaMoRC grants you a manufacturer's warranty of 24 months from the date of purchase in addition to the national warranty rights to which you may be legally entitled to, from your YaMoRC specialist dealer as contractual partner.

Warranty conditions:

This warranty applies to all YaMoRC products purchased from a YaMoRC dealer. Warranty services are only provided if proof of purchase is presented. Proof of purchase is the purchase receipt from the YaMoRC specialist dealer. It is therefore recommended to keep your purchase receipt safe.

Content of the guarantee/exclusions:

The warranty includes, at YaMoRC's discretion, the free repair or free replacement of the defective part, which can be proven to be due to design, manufacturing, material or transport faults. For this purpose, you must send the decoder to us properly stamped. Further claims are excluded.

The warranty claims are void:

1. in the case of general wear and tear at expected locations (e.g. screw terminals).
2. in the case of modification of YaMoRC products with parts not approved by the manufacturer.
3. in the case of modification of parts; especially by opening the housing.
4. if the product is used for purposes other than those intended by the manufacturer.
5. if the instructions given by YaMoRC in the operating manual have not been thoroughly read by the user & risked mis-use of the product.

The warranty period is not extended in the case of repair or replacement.

Warranty claims can be made either to your dealer, or by sending the claimed product directly to YaMoRC, together with the warranty certificate, proof of purchase and description of the defect.



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