



FichtelBahn

Open Car -
System



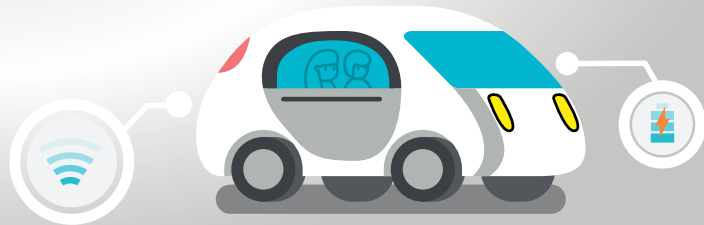
www.OpenCarSystem.de

Made in Germany



Did you ever dream of having real road traffic on the layout to get an even more realistic impression?
We show you how easy this can be with the...

OpenCar-System



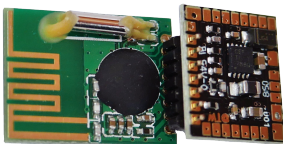
What is the OpenCar-System?

The **OpenCar-System** is an open alternative for controlling cars digitally based on the mechanical method of the Faller Car System ©. There are no conditions for using a certain road structure or scale implied by the system.

An **OpenCar-Decoder** including radio frequency module needs to be installed in every vehicle.

The decoder receives a signal, decodes it into a command, adjusts the engine and controls the LED lights.

The present distance control acts automatically if the safety gap to the preceding vehicle is too small and adjusts the speed control.



RF module with OpenCar-Decoder V5
(horizontal fitting)

Distance control (ASR)

Vehicle detects a preceding vehicle and keeps distance. The vehicle stops behind the car in front if it comes to a halt.

125 speed steps

Drive characteristics can be set individually - like different safety distances - as well as acceleration and braking behaviour for cars and lorries.

Radio link

Direct 2.4 GHz connection to base station. Control, configuration and position feedback are possible through wireless connection. No need for infrared diodes along the pathway.



Position feedback

With FeedCar it is possible to send a position feedback with the decoder address attached via RF link additionally to point detectors below the road surface. Vehicle 'red' drives in harbour road.

Battery status

Transmission of charge level. The computer can advise the vehicle to head to the charging station in time and resume when the battery has been charged.

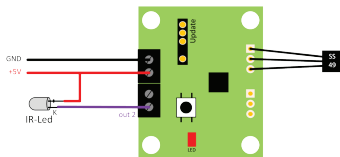
Settings

All parameters can be changed via radio link while driving (POM read & write), flashing lights for emergency vehicles, sound and driving noise, assignment of function keys and driving lanes.

Position feedback with FeedCar

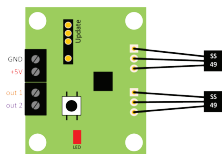
The usual approach would be to use reed contacts in many places to get feedback of passing vehicles. But this is not a reliable solution. The supervising system receives a message “a vehicle passes reporting location”. But it does not detect which vehicle it is. If a vehicle is lost, passes a sensor without reporting or took a wrong turn, the following vehicle will take its place. Without active feedback the controlling system will communicate with the wrong receiver from that point onwards.

A combination of active and passive feedback is the solution to that problem



active feedback IRM

FeedCars with IRM function (Modus 2-3) need to be placed behind a junction. A passing vehicle triggers an action through a SS49E sensor and receives an infrared sender number (comparable to a street name). The OpenCar-Decoder reports this place coupled with its vehicle number to the controlling system via the radio link. This notification will be handled by the system like a RailCom track occupancy report. Lost vehicles can then be identified by the system.



passive feedback with SS49E sensors

Along the road every 50 to 100 cm another magnetic sensor should be placed and connected to the FeedCar (modus 1). Compared to a digital TLE4905 this analogue SS49E type has a highly sensitive input. As a result vehicles can be detected safely even at high speeds. The possibility to mount the sensor under the magnetic strip is the key advantage of the SS49E sensor. That reduces the complexity of road construction substantially.

Settings

Configuration and updates possible through configuration tool

Analog input

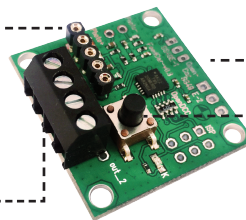
2x inputs for SS49E magnetic field sensors

Calibration

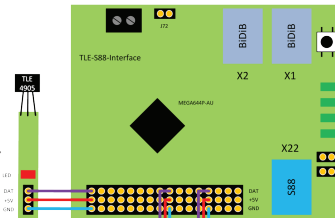
Magnetic strip / magnetic interferences will be ignored afterwards

Digital output

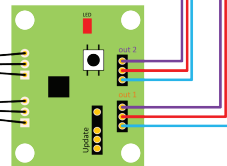
2x digital outputs for input modules e.g. TLE-s88-BiDiB interface



TLE4905 hall sensor








SS49E magnetic sensor

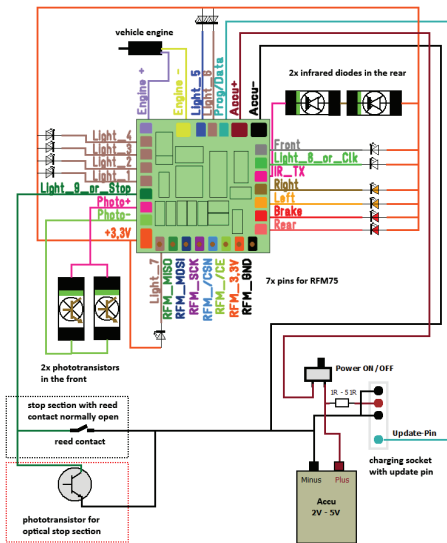


The OpenCar-Decoder

The **OpenCar-Decoder** is similar to a locomotive decoder but its intended use is in a road vehicle and not a rail vehicle. The decoder has been optimised to meet the different requirements on the road.

	Art.-Nr. 900873 28,90 €	Art.-Nr. 900870 19,90 €	Art.-Nr. 900871 19,90 €	Art.-Nr. 900872 24,90 €	Art.-Nr. 900863 3,90 €
	V5	V3	V3-Trailer	OCS-Sound	RFM75-S
					
	Motor vehicle	Motor vehicle	Trailer	Sound	RF module
Infrared distance control (ASR)	✓	✓	✓		
2,4 GHz radio link (bidirectional)	external RFM75-S	external RFM75-S			✓
LED light outputs	14x	9x	9x	8x	
Servomotor outputs	1x				
Motor load control embedded	✓	external			
Speed steps	125	125			
POM (Read & write while moving)	✓	✓			
Transmission of vehicle data	✓	✓			
Firmware update through interface	✓	✓		✓	
Sound files on MicroSD card				127 Sounds	
Dimensions (LxBxH)	11 x 13 x 3mm 0.43 x 0.51 x 0.11 in	11 x 13 x 3mm 0.43 x 0.51 x 0.11 in	11 x 13 x 3mm 0.43 x 0.51 x 0.11 in	20 x 18 x 4mm 0.78 x . 0.70 x 0.16 in	13 x 17 x 3mm 0.51 x 0.67 x 0.11 in

The connection diagram of an OpenCar-Decoder



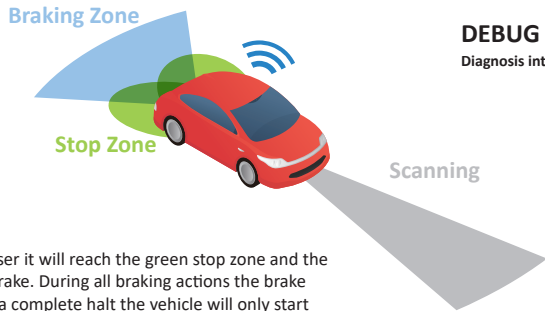
Distance control (ASR)

The **OpenCar-System** uses infrared light for autonomous vehicle control. At its rear the vehicle sends two different signals in periodic intervals. The intensities of the two signals are different to enable a following vehicle to detect these in different distances.

A following vehicle scans the environment ahead for the signals. It follows the vehicle and tries to stay outside the blue zone by adapting its speed.

If the preceding vehicle stops or the following vehicle cannot keep the distance, it will enter the blue zone and start to brake to V_{min} .

If the vehicle comes even closer it will reach the green stop zone and the vehicle does an emergency brake. During all braking actions the brake lights are lit. After coming to a complete halt the vehicle will only start again as soon as the preceding vehicle left the green zone.



The Base Station – Communication in both ways

BiDiB-RF-Basis

The **RF base station** transmits the commands via radio link to all vehicles on the layout. The base station supports different connection possibilities: connection to the BiDiBus, to an existing DCC command station or in combination with a MULTIMAUS®.

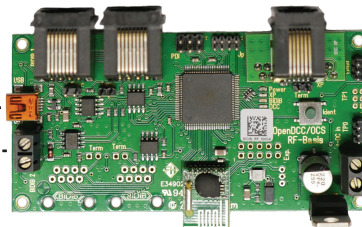
BiDiB interface

bidirectional interface for real-time control of all vehicle functions and feedback of position, charge level und vehicle data.



DEBUG interface

Diagnosis interface for analysis



MULTIMAUS®

Allows the use of XpressNet handset controls, e.g. the Roco MULTIMAUS®



XpressNet

Supply

14V to 18V DC voltage



2,4 GHz radio link

Motion commands and vehicle data can be exchanged via a bidirectional connection between the RF base station und every vehicle.

DCC interface

DCC rail signal for operating with a DCC command station



System overview – at a glance

BiDiB-IF2

USB to BiDiB® interface with integrated DCC command station: Button for emergency stop with status indicator

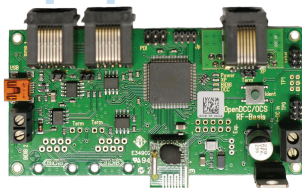
Art.-Nr. 300900
69,90 €



BiDiB-RF-Basis

RF base station for the OpenCar-System (see p. 5)

Art.-Nr. 900866
89,90 €



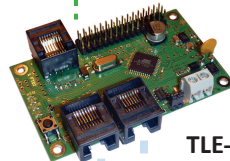
1-16 Inputs
for position messages
in the roadway

TLE connection
with supply
voltage

TLE-s88-BiDiB Interface

Detection of vehicle positions via hall sensors, reed contacts or in connection with the FeedCar

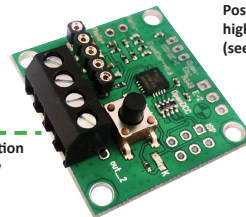
Art.-Nr. 400200
49,90 €

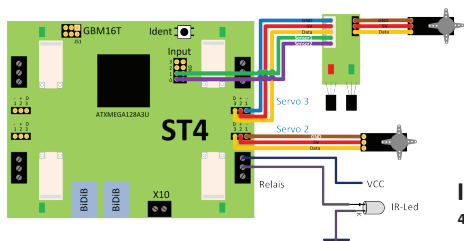


FeedCar

Position feedback via OpenCar RF or with highly sensitive magnetic field sensors (see p. 3)

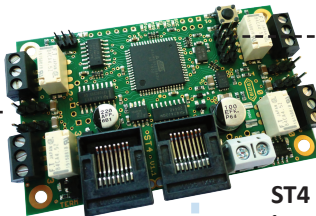
Art.-Nr. 900891
ab 9,99 €





Servo outputs

4x servo outputs, free configuration of travel and speed



Relay output

4x changeover switches for magnetic or infrared stop sections

Inputs

4x Inputs for servo position feedback

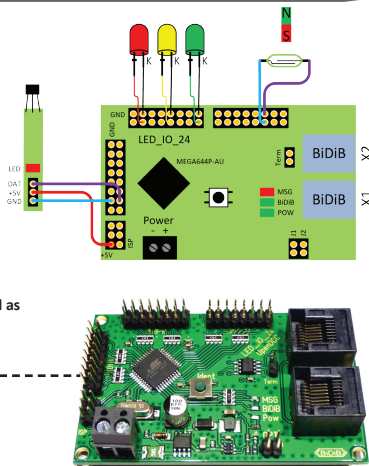
ST4

for controlling infrared stop sections, magnetic stop sections and for servo road turnouts with or without position feedback

Art.-Nr. 200300
59,90 €

IO-Ports

24 ports that can be used as output or input



LED-IO-24

for controlling infrared stop sections, traffic lights and capturing point detectors

Art.-Nr. 400210
49,90 €

BiDiB

... more BiDiB® modules can be found in the FichtelBahn range with varying features e.g. LightControl for illumination.

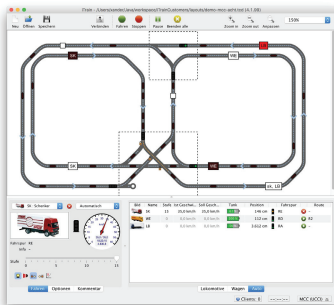


Layout operation with software – easier than ever

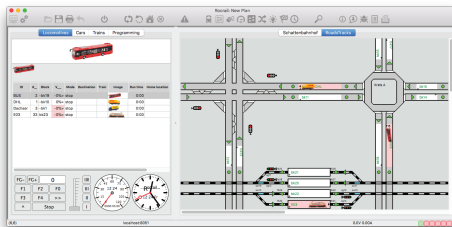
The **OpenCar-System** allows you an easy and simple operation of your models. It is supported by many computer based layout control programs renowned in the sector.

The **OpenCar-System** has the major advantage of a very reliable operation by using the BiDiBus for communication. Through this kind of communication the layout control program receives the current states extremely fast.

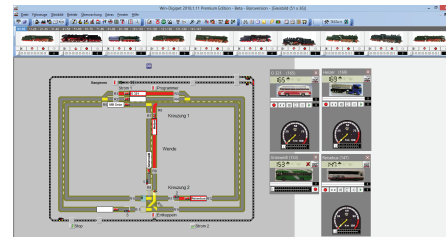
iTrain / iCar



Rocrail



WinDigiPet



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Subject to technical modifications.

