PRODUCT INFORMATION

AUTOMOTIVE ACCESSORIES

CABLES

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CONTENT

1 USER SAFETY WARNING

Please read the entire document carefully before using the device.

INSTALLATION

Please pay attention to the details below before installing and connecting the device:

- Only use provided or approved equipment for the operation.
- Only skilled and instructed persons shall install and connect the device.
- All connectors are pin-coded and fit in only one position.
- Be cautious when using the device on or around active roadways and pay attention to moving traffic.
- Make sure that test procedures are in accordance with local safety policies and procedures as well as company practices.

OPERATION

Do not operate the cable or any device connected to it is damaged.

Do not dispose electrical and electronic equipment in household trash.

TECHNICAL SERVICE

Only use provided or approved equipment for operation.

Do not attempt to service or repair this device:

- No user-maintainable parts are contained in the device.
- To avoid electrical shock, do not remove or open the cover.
- Unauthorized opening will void all warranties.
- smartmicro is not liable for any damages or harms caused by unauthorized attempts to open or repair the device.

2 PRODUCT SPECIFICATION

There are Plug & Play Cables available for every sensor model.

2.1 PLUG & PLAY CABLES

Plug & Play Cables allow for easily connecting a smartmicro sensor.

The following types are available:

Cable Type	Sensor Compatibility	Connecting To
Plug & Play Cable for DRVEGRD 171 and DRVEGRD 152[1]	DRVEGRD 171 DRVEGRD 152	2x CAN, Sensor Power, BroadR Reach, Media Converter Power Supply; Sensor Connector
Plug & Play Cable for DRVEGRD 169 and UMRR-96 Type 153[2]	DRVEGRD 169 UMRR-96 Type 153	2x CAN, Sensor Power, BroadR Reach, Media Converter Power Supply; Sensor Connector
Plug & Play Cable for UMRR-11[3]	UMRR-11 Type 132 Automotive	Power Supply, RS485 (half or full duplex), Ethernet, CAN, Sensor Connector

Table 1 – Overview of all Plug & Play automotive cables manufactured by smartmicro

[1] Previously referred to as CABLE-FF002D
[2] Previously referred to as CABLE-FF0035 and successor of CABLE-FF0025
[3] Previously referred to as CABLE-0C0200

2.1.1 PLUG & PLAY CABLE FOR DRVEGRD 171 AND DRVEGRD 152

The Plug & Play Cable for DRVEGRD 171 and DRVEGRD 152 (previously referred to as CABLE- FF002D) is compatible with the smartmicro automotive sensor DRVEGRD 171 and DRVEGRD 152.
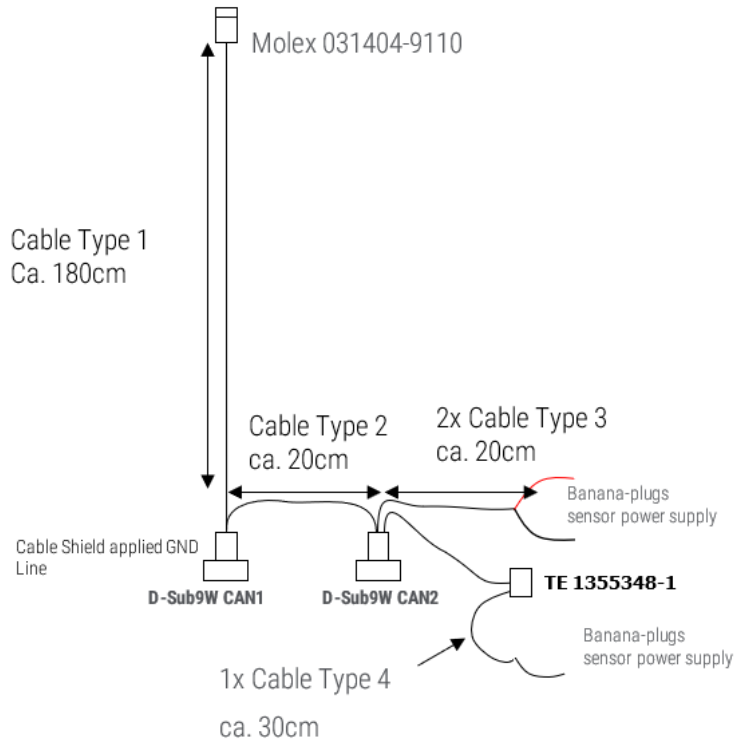

Figure 1 - Schematic Description with Cable Length

Parameter	Typical Values
Length	180cm or 5.9ft (for details see illustration)
Connectors	Sensor Connector: Molex 031404-9110
	CAN1: D-Sub 9 female
	CAN2: D-Sub 9 female
	Automotive Ethernet BroadR TE 1355348-1
	Power (for Sensor) + Power (for TE 1355348-1)
Cable Type	Main: 4-pair Twisted Pair, copper strands, Common shield
	Power: 2 x 2 strands; oval; grey (Power for Sensor and TE 1355348-1)
	Network: Network Cable (BroadR, CAN1, CAN2)
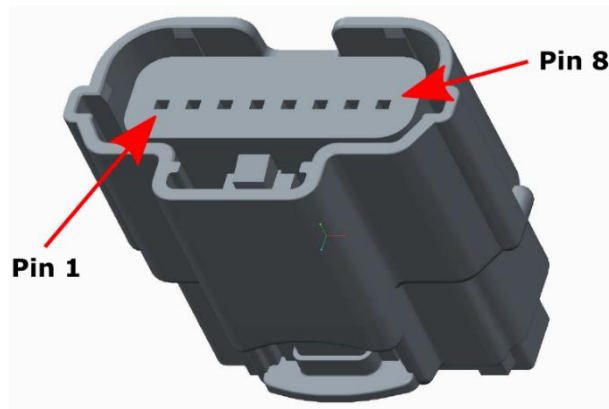
Figure 2 - Cable Connector Molex 031404-9110 Pin-Out
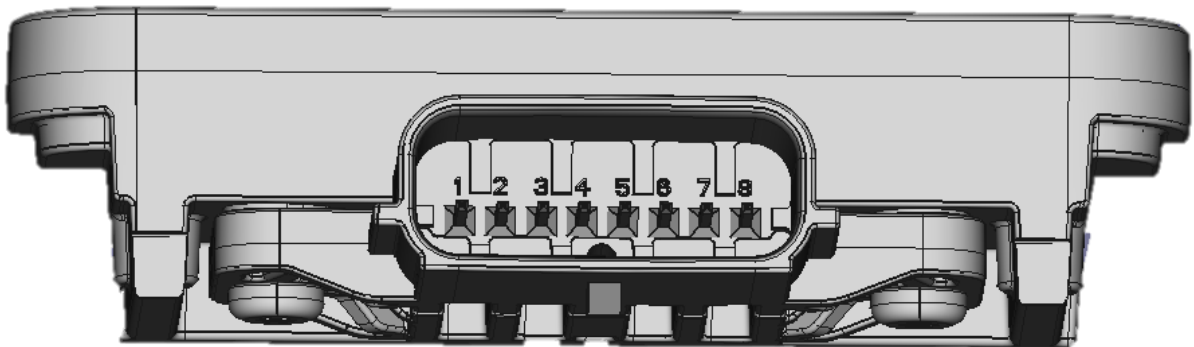
Figure 3 - Sensor Connector Pin-Out

Please note: Numbering 1…8 in Schematic/Figure 3 and Figure 2 are in different order. When connected, Pin 1 in Figure 4 is on Pin 8 in Figure 3

Figure 4 - Product image; cable, including connectors

Molex 031404-9110	Pair	Label	DSUB-9-f CAN1	DSUB-9-f CAN2	Banana plugs Sensor power	TE 1355348-1	Banana plugs TE 1355348-1
PIN 2	1	GND	3	3	Black	10	Black
PIN 4	2	BroadR_P				9	
PIN 6	3	CAN2_H		7			
PIN 5	3	CAN2_L		2			
PIN 1	1	V+ (Sensor)			Red		
PIN 3	2	BroadR_N				8	
PIN 8	4	CAN1_H	7				
PIN 7	4	CAN1_L	2				
SHIELD		SHIELD	3				
		V+ (TE 1355348-1)				1	Red

Please note: Pin-Out between system connector and cable connector is back-to-front.

2.1.2 PLUG & PLAY CABLE FOR DRVEGRD 169 AND UMRR-96 TYPE 153

This Plug & Play Cable is compatible with the automotive sensors DRVEGRD 169 and UMRR-96 Type 153.
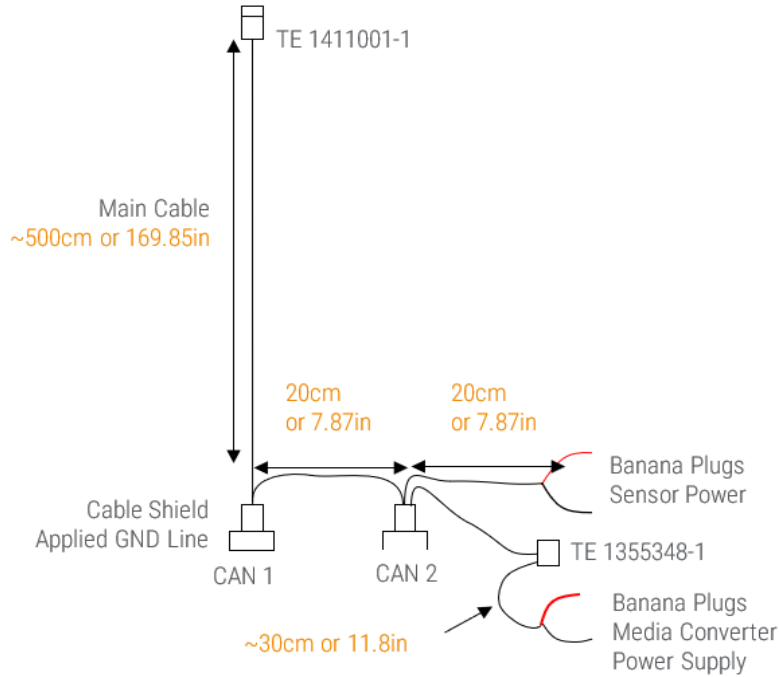
Figure 5 - Illustration of the cable length and connectors

Parameter	Details
Length	570cm or 224.4in (for details see Illustration)
Connectors	2x CAN: D-Sub 9 female
	Body: D-Sub FKH1 from FCT
	TE Connectivity 1438031-1 (see connector assembly Nr.1 below)
	TE Connectivity 1355348-1 (see connector assembly Nr.2 below)
Main Cable	4-pair twisted pair, copper strands, common shield, diameter insulation: 1,4 - 2,06mm
CAN 1 to CAN 2	6-line non-twisted or twisted pair
CAN 2 to Banana Plugs Sensor Power & CAN 2 to TE 1355348-1	2-line
TE 1355348-1 to Banana Plugs Media Converter Power Supply	2x 1-line

Figure 6 – Plug & Play Cable for DRVEGRD 169 and UMRR-96 TYPE 153
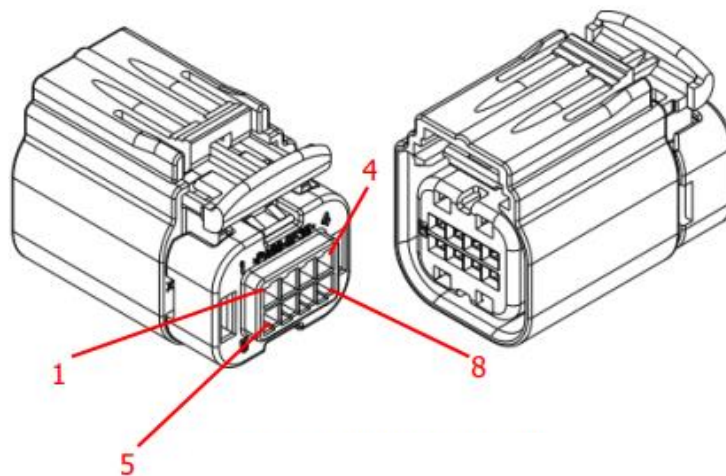
Figure 7 - Sensor connector TE Connectivity 1411001-1

TE 1411001-1	Pair	Label	CAN 1	CAN 2	Banana Plug Sensor Power	TE 1355348-1	Banana Plug Automotive Ethernet Power
1	1	GND	3	3	Black	10	Black
2	2	BroadR_P				9	
3	3	CAN2_H		7			
4	3	CAN2_L		2			
5	1	V+ (Sensor)			Red		
6	2	BroadR_N				8	
7	4	CAN1_H	7				
8	4	CAN1_L	2				
SHIELD	-	SHIELD	3				
		V+ (Autom. Ethernet)				1	Red

Shield and all grounds connected on/before Pin 3 CAN 1.

2.1.3 PLUG & PLAY CABLE FOR UMRR-11 TYPE 132 AUTOMOTIVE

The Plug & Play Cable for UMRR-11 (previously referred to as CABLE-0C0200) is compatible with the smartmicro sensor UMRR-11 Type 132 Automotive.
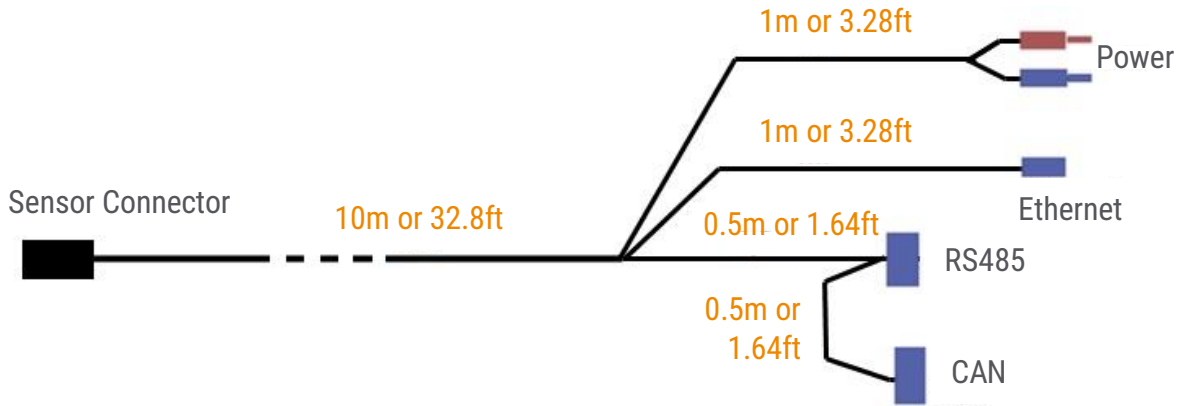
Figure 8 - Illustration of the cable length and connectors

TECHNICAL DATA

Parameter	Typical Values
Length	13m or 42.65ft (for details see illustration)
Connectors	Sensor Connector: HIROSE LF10WBP-12S
	RS485: D-Sub 9 female
	CAN: D-Sub 9 female
	Ethernet
	Power
Cable Type	Main: KU110C12J001, SCRN, 6PAIR
	Power: H03VVH2-F; 2-pin; oval; gray; 1.0m
	Network: Network Cable (LAN, RS485, CAN)

Figure 9 – Plug & Play cable for UMRR-11, including connectors
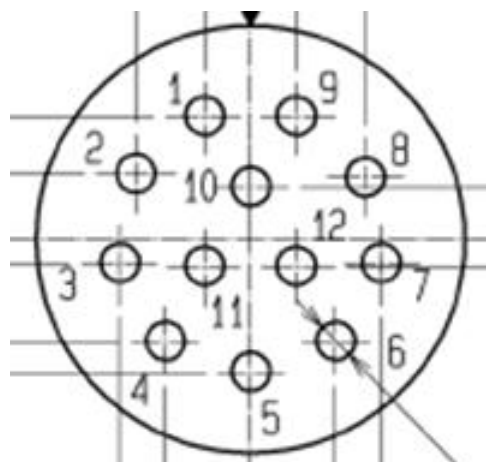
Figure 10 - Sensor connector HRS LF10WBP-12S (rear view)

LAYOUT

Pins	Color		Label	DSUB-9-f CAN		DSUB-9-f RS485	Ethernet	Banana Power
1	grey/red	◈	Copro_Tx1_P				1	
2	red/blue	◆	Copro_Tx1_N				2	
3	pink	◆	Sensor RS485 RX L			1		
4	gray	◈	Sensor RS485 RX H			2		
5	brown	◆	Sensor RS485 TX L			4		
6	white	◇	Sensor RS485 TX H			3		
7	blue	◆	GND	3				black (blue)
8	red	◆	V-Supply					red (brown)
9	black	◆	Copro_Tx2_N				6	
10	violet	◆	Copro_Tx2_P				3	
11	green	◆	CAN_H	7	120 Ω			
12	yellow	◆	CAN_L	2	120 Ω			
	SHIELD							

2.2   OPEN-WIRE CABLES

Open-Wire Cables allow for flexibly connecting a smartmicro sensor.

The following types are available:

Cable Type	Sensor Compatibility	Connecting To
Open-Wire Cable for DRVEGRD 171 and DRVEGRD 152[4]	DRVEGRD 171 DRVEGRD 152	Sensor Connector
Open-Wire Cable for DRVEGRD 169 and UMRR-96 Type 153[5]	DRVEGRD 169 UMRR-96 Type 153	Sensor Connector
Open-Wire Cable for UMRR-11 Type 132 Automotive[6]	UMRR-11 Type 132 Automotive	Sensor Connector

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[4] Previously referred to as CABLE-FF0039
[5] Previously referred to as CABLE-FF0031
[6] Previously referred to as CABLE-0C0301

2.2.1 OPEN-WIRE CABLE FOR DRVEGRD 171 AND DRVEGRD 152

The Open-Wire Cable for DRVEGRD 171 and DRVEGRD 152 (previously referred to as CABLE-FF0039) is compatible with the smartmicro automotive sensors DRVEGRD 171 and DRVEGRD 152. Instead of ready-to-use connectors, this cable has on one side the required sensor connector, and on the other side open wires.

CABLE LENGTH

Total length	approx. 10m (9.70in)
Open end	Peeled exterior insulation approx. 10.0cm (3.93in)
Strands	Stripped and tinned approx. 3.0mm (0.11in)

TECHNICAL DATA

Cable type	4-pair Twisted Pair, copper strands, Common shield
Supplier	not defined, example Product: Farnell 1491457
Wire Area	0.50mm² - 0.75mm²
Diameter insulation	1.4mm − 2.06mm

LAYOUT

Molex 031404-9110	Pair	Color		Label
Pin 1	1	Green	◆	V+ (Sensor)
Pin 2	1	White	◇	GND
Pin 3	2	Yellow	◆	BroadR_N
Pin 4	2	Brown	◆	BroadR_P
Pin 5	3	Pink	◆	CAN2_L
Pin 6	3	Gray	◆	CAN2_H
Pin 7	4	Red	◆	CAN1_L
Pin 8	4	Blue	◆	CAN1_H
SHIELD	-	-		SHIELD

2.2.2 OPEN-WIRE CABLE FOR DRVEGRD 169 AND UMRR-96 TYPE 153

The Open-Wire Cable for DRVEGRD 169 and UMRR-96 Type 153 (previously referred to as CABLE-FF0031) is compatible with the smartmicro automotive sensors DRVEGRD 169 and UMRR-96 Type 153. This cable has the required sensor connector on one side, and open wires on the other side.

CABLE LENGTH

Total length	Approx. 5m (4.85in)
Open end	Peeled exterior insulation approx. 5cm (1.96in)
Strands	Stripped and tinned approx. 5cm (1.96in)

TECHNICAL DATA

Cable type	4-pair Twisted Pair, copper strands, Common shield
Supplier	Not defined, example product: Farnell 1491457
Wire Area	0.50mm² - 0.75mm²
Diameter insulation	1.4mm − 2.06mm

LAYOUT

TE 1411001-1	Pair	Color		Label
Pin 1	1	White	◇	GND
Pin 2	2	Brown	◆	BroadR_P
Pin 3	3	Green	◆	CAN2_H
Pin 4	3	Yellow	◆	CAN2_L
Pin 5	1	Red	◆	V+ (Sensor)
Pin 6	2	Pink	◆	BroadR_N
Pin 7	4	Blue	◆	CAN1_H
Pin 8	4	Gray	◆	CAN1_L
SHIELD	-	-		SHIELD

2.2.3   OPEN-WIRE CABLE FOR UMRR-11 TYPE 132 AUTOMOTIVE

The Open-Wire Cable for UMRR-11 Type 132 Automotive (previously referred to as CABLE-0C0301) is compatible with the smartmicro automotive sensor UMRR-11 Type 132 Automotive. This cable has the required sensor connector on one side, and open wires on the other side.

CABLE LENGTH

Total length	Approx. 5m (4.85in)
Open end	Peeled exterior insulation approx. 10cm (3.93in)
Strands	Stripped and tinned approx. 3.0mm (0.11in)

TECHNICAL DATA

Cable type	Highly flexible PVC-Control Line, shielded, twisted pair, UV-resistant
	Type UL/cUL-LIH 5x(2xAWG26 ST)+1x2xAWG24 C11Y, 12 pole, black
Supplier	Not defined, example product: MEDI Kabel KU110C12J002
Outer diameter	6.50 ±0.25mm (roughly 0.255in)

LAYOUT

HRS LF10WBP-12S	Pair	Color		Label
Pin 1	1	Grey/Red		Eth_Tx1_P
Pin 2		Red/Blue		Eth_Tx1_N
Pin 3	2	Pink		Sensor RS485 RX L
Pin 4		Gray		Sensor RS485 RX H
Pin 5	3	Brown		Sensor RS485 TX L
Pin 6		White		Sensor RS485 TX H
Pin 7	4	Blue		GND
Pin 8		Red		V+ (Sensor)
Pin 9	5	Black		Eth_Tx2_N
Pin 10		Violet		Eth_Tx2_P
Pin 11	6	Green		CAN_H
Pin 12		Yellow		CAN_L
SHIELD	-	-		SHIELD

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