

# DATASHEET

## AUTOMOTIVE ACCESSORIES

## CABLES

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## 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 which 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. See 2.1.

There are also cable stumps available for every sensor model. See 2.2.

### 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 <sup>1</sup>	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 <sup>2</sup>	DRVEGRD 169 UMRR-96 Type 153	2x CAN, Sensor Power, BroadR Reach, Media Converter Power Supply; Sensor Connector
Plug & Play Cable for UMRR-11 <sup>3</sup>	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*

<sup>1</sup> Previously referred to as CABLE-FF002D

<sup>2</sup> Previously referred to as CABLE-FF0035 and successor of CABLE-FF0025

<sup>3</sup> 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.

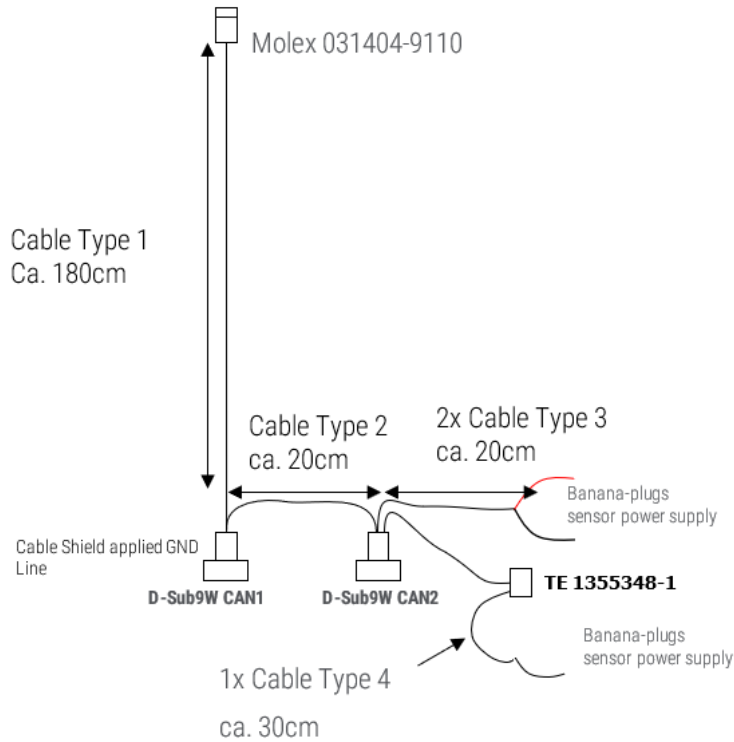
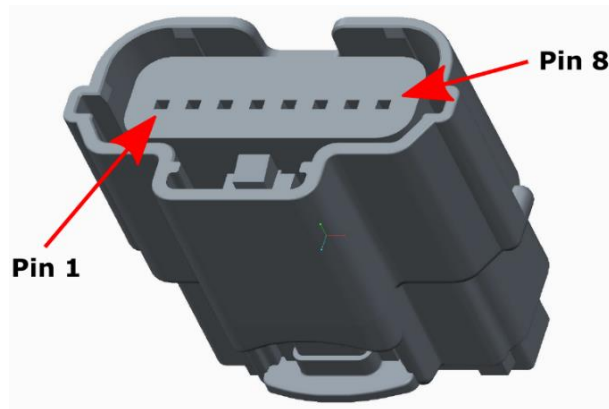
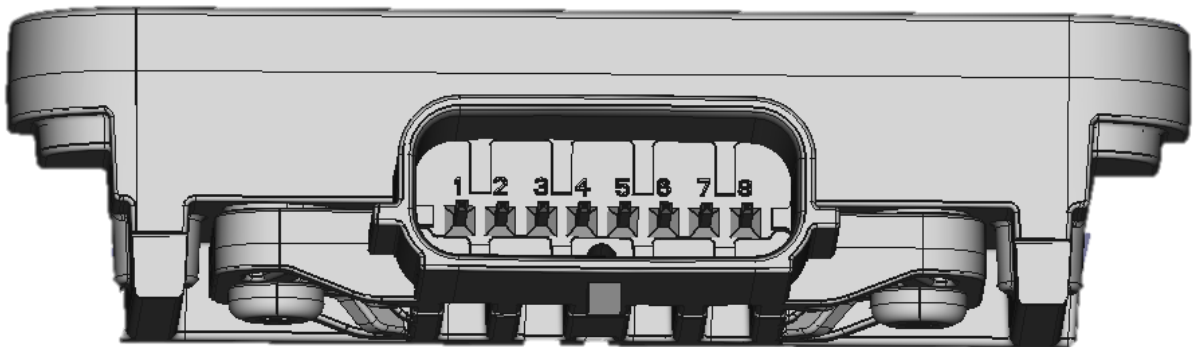


Figure 1 - Schematic Description with Cable Length

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+				1	Red
		(TE 1355348-1)					

**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.

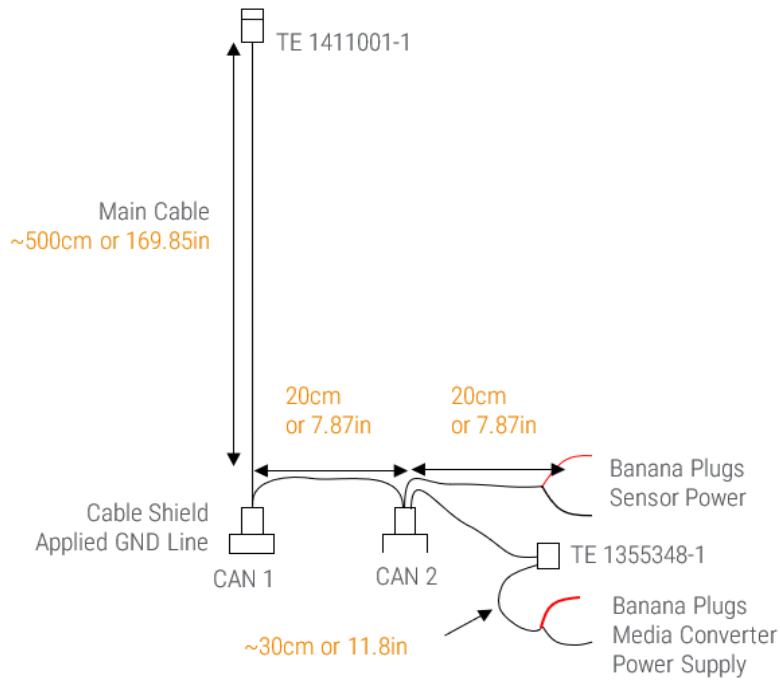
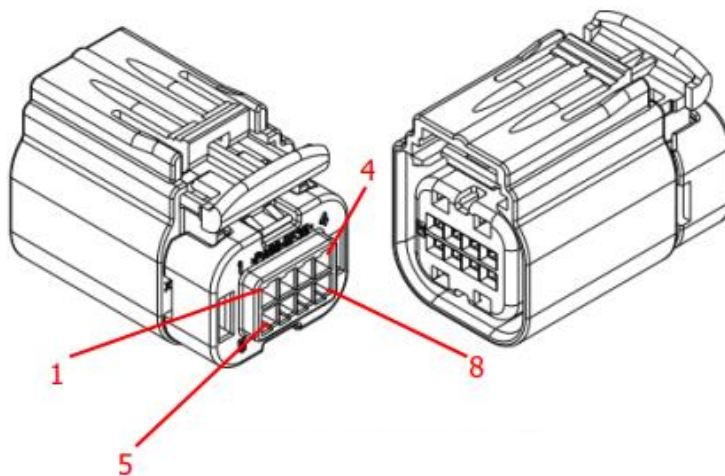


Figure 5 - Illustration of the cable length and connectors

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.

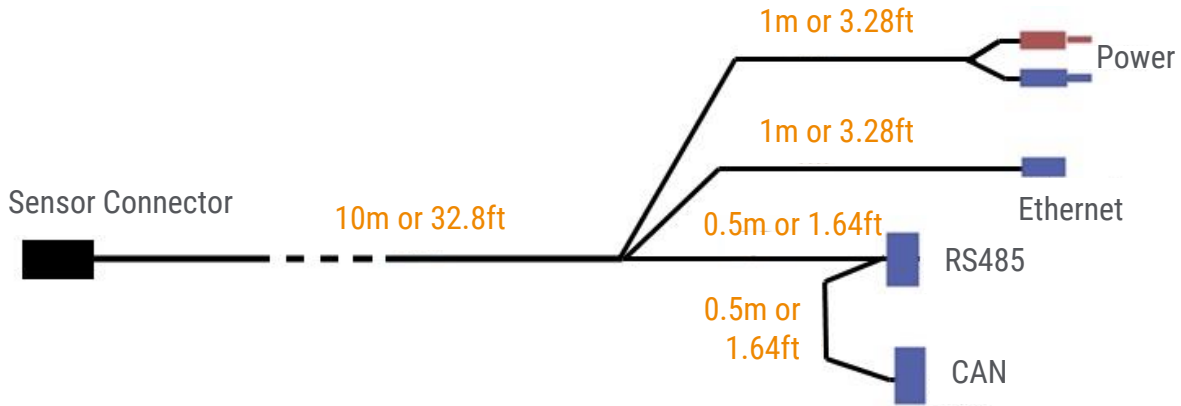


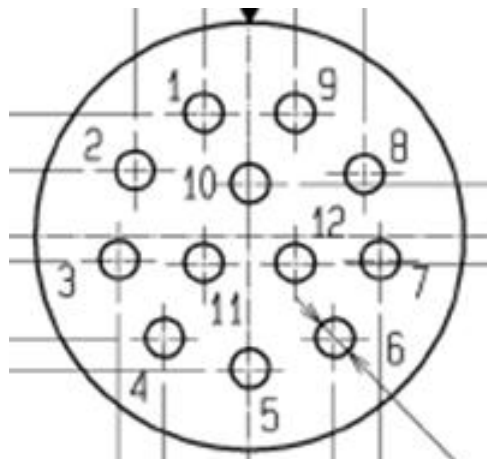
Figure 8 - Illustration of the cable length and connectors

#### 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 CABLE STUMPS

The cable stumps allow for flexibly connecting a smartmicro sensor.

The following types are available:

Cable Type	Sensor Compatibility	Connecting To
Cable stump for DRVEGRD 171 and DRVEGRD 152 <sup>4</sup>	DRVEGRD 171 DRVEGRD 152	Sensor Connector
Cable stump for DRVEGRD 169 and UMRR-96 Type 153 <sup>5</sup>	DRVEGRD 169 UMRR-96 Type 153	Sensor Connector
Cable stump for UMRR-11 Type 132 Automotive <sup>6</sup>	UMRR-11 Type 132 Automotive	Sensor Connector

<sup>4</sup> Previously referred to as CABLE-FF0039

<sup>5</sup> Previously referred to as CABLE-FF0031

<sup>6</sup> Previously referred to as CABLE-0C0301

### 2.2.1 CABLE STUMP FOR DRVEGRD 171 AND DRVEGRD 152

The cable stump 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	0.50mm <sup>2</sup> - 0.75mm <sup>2</sup>
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 CABLE STUMP FOR DRVEGRD 169 AND UMRR-96 TYPE 153

The cable stump 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	0.50mm <sup>2</sup> - 0.75mm <sup>2</sup>
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 CABLE STUMP CABLE FOR UMRR-11 TYPE 132 AUTOMOTIVE

The Cable stump 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

### 3 LEGAL DISCLAIMER NOTICE

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