



APPLICATION NOTE

INTRODUCTION TO SMARTSCAN'S SENSOR CABLES

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1. SCOPE

This document introduces the current optional flexible, pre-cut and fixed SmartScan sensors cables.

2. OBJECTIVES

- Familiarize the user with the methodology of using flexible cable between the SmartScan unit and the sensor.
- Familiarize the user with the methodology of using pre-cut cable between the SmartScan unit and the sensor.
- Familiarize the user with the methodology of using fixed cable between the SmartScan unit and the sensor.

3. GENERAL

The improved state-of-the-art SmartScan sensors can ordered with the following options:

- Pre cut cable
- Flexible cable
- Fixed cable

We believe that this improved method will enable you to manage your stock better, decrease your expenses and gain the most from our products.

4. PRE-CUT CABLES (UNCLASSIFIED)

Pre-cut sensor cables are suitable for general purpose applications and can be modified to fit longer length than the one that was ordered. The modifications in the cable length can be made according to following tables:

Table #1: Pre-cut cables range for 25KHz sensors

25KHz sensor pre cut cable length (m/ft)	Coated Aluminum – can be changed to a range of
5m/16.4ft	5m/16.4ft to 50m/164ft
15m/49.21ft	5m/16.4ft to 50m/164ft
25m/82ft	5m/16.4ft to 50m/164ft
35m/114ft	5m/16.4ft to 50m/164ft
50m/164ft	5m/16.4ft to 50m/164ft
75m/246ft	50m/164ft to 100m/328ft
100m/328ft	50m/164ft to 100m/328ft
125m/410ft	100m/328ft to 150m/492ft
150m/492ft	100m/328ft to 150m/492ft
175m/574ft	150m/492ft to 200m/656ft
200m/656ft	150m/492ft to 200m/656ft

Table #2: Pre-cut cables range for 50KHz sensors

50KHz sensor pre cut cable length (m/ft)	Can be changed to a range of (m/ft)
5m/16.4ft	5m/16.4ft to 100m/328ft
15m/49.21ft	5m/16.4ft to 100m/328ft
25m/82ft	5m/16.4ft to 100m/328ft
35m/114ft	5m/16.4ft to 100m/328ft
50m/164ft	5m/16.4ft to 100m/328ft
75m/246ft	5m/16.4ft to 100m/328ft
100m/328ft	5m/16.4ft to 100m/328ft
125m/410ft	100m/328ft to 200m/656ft
150m/492ft	100m/328ft to 200m/656ft
175m/574ft	100m/328ft to 200m/656ft
200m/656ft	100m/328ft to 200m/656ft

ⓘ Note:
 Unclassified Sensors:
 Sensor cable **should not be cut** below the minimal length specified in each category.

5. FLEXIBLE CABLES (UNCLASSIFIED)

Flexible sensor cables are supplied with 5m/16.4ft loose-end cable. However, they can be modified to fit longer length than 5m/16.4ft. The modifications in the cable length can be made according to the following tables:

Table #3: Flexible cables range for 25KHz sensors

Can be changed to a range of	
5m/16.4ft	to 50m/164ft
50m/164ft	to 100m/328ft
100m/328ft	to 150m/492ft
150m/492ft	to 200m/656ft

Table #4: Flexible cables range for 50KHz sensors

Can be changed to a range of	
Up to 100m/328t	
100m/328ft	to 200m/656ft

ⓘ Note:

It is recommended to use a connector when cutting or adding sensor cable.

6. FIXED CABLES (CLASSIFIED)

Table #5: 25 KHz Sensor

Fixed Cable Length (m/ft)
25m/82ft
50m/164ft
75m/246ft
100m/328ft

① Note:

Intrinsically Safe (IS):

IS sensor cable **can not be extended or cut**, except when barriers are connected. See SmartScan user manual for more wiring information.

Table #6: 50 KHz Sensor

Fixed Cable Length (m/ft)
25m/82ft
35m/114.8ft
50m/164ft
75m/246ft
100m/328ft
125m/410ft
150m/492ft
175m/574ft
200m/656ft

① Notes:

Classified Sensors:

Classified sensor cable **can not be extended or cut**. See SmartScan user manual for more wiring information.

7. IMPORTANT NOTES

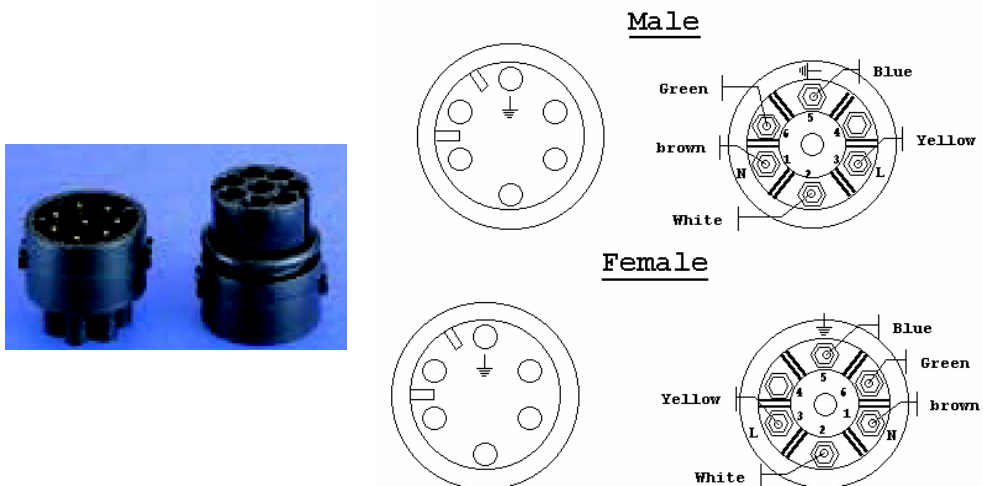
Please pay attention to the following important notes:

1. When using four wires beware not to mix between them. Solid AT color definitions for the four wires are as follows:

White & Yellow	Wired to build-in temperature sensor.
Green & Brown	Wired to the transducer.
Blue	Used as ground. Usually connected to the cable shielding.

In case your own cable has different colors, match each of the colors you have to Solid AT wire colors (according to definitions mentioned before) prior to wiring and then follow with the same order during the entire wiring procedure.

2. It is recommended that you use proper connector when connecting the flexible cable loose-end side to your cable in order to preserve minimum protection. Such connectors are quite common and an example for such connector can be seen below.



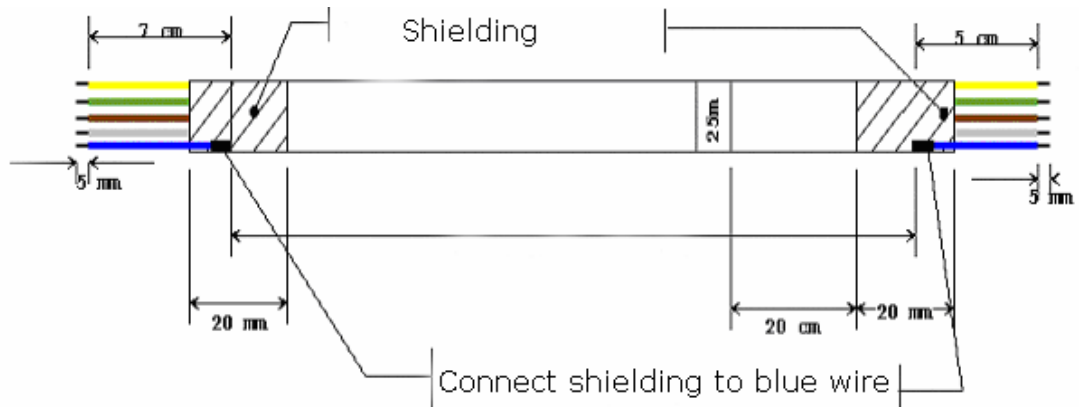
Please note that although both SmartScan unit and SmartScan sensor are IP67/IP65 protected, the cable you lead between the two can be placed in areas that may be flooded with water. In such case, the connector must meet IP68 rating.

The connector must suite the cable specifications (as described in chapter 7) so the pins will not be too thick or thin for the wires.

You must decide in advance which connector pin will be assigned to which color and purpose (as described above in item 1) and use the same pin layout for both male and female sides.

Double-check your pin layout with the colors and designation of each wire, as wrong wiring may damage the sensor and the electrical unit.

3. When using a connector as described above, with your own cable, you must follow manufacturer's instructions describing how to connect your cable to the connector. Manufacturer's usually supply a drawing that describes exactly how to revile the wires and their shielding prior to connecting them to the connector. Such drawing is similar to the one below.



It is extremely important to follow manufacturer guidelines when wiring the cable and the connectors as it may affect the electrical performances of the sensor and the controlling unit.

4. Please contact Solid AT customer support whenever you are not sure whether your cable or connector is suitable. Solid AT can refer you to manufacturers of both cables and connectors.

Note:

The sensor cable should be compatible with the following specifications: 4 wires, 0.75 mm² overall shielded. Sensor cable is compatible with HELUKABEL P.N.16028 (www.helukabel.com).