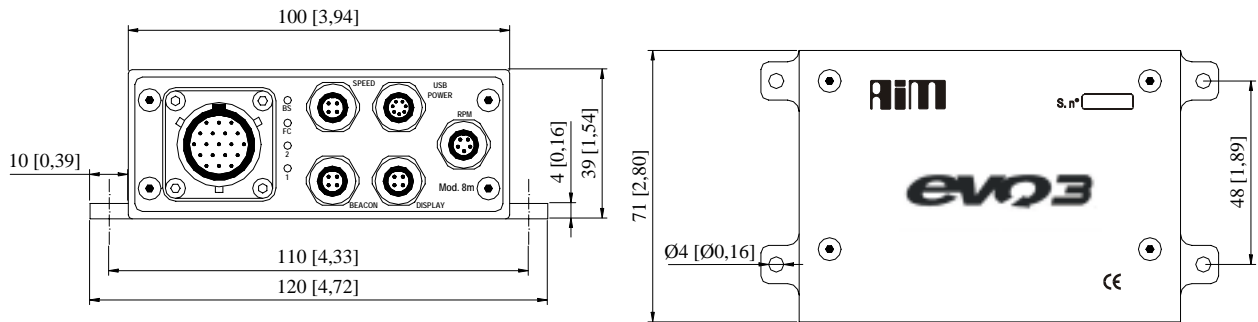


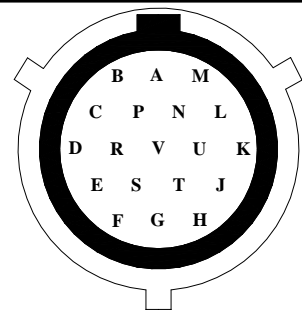
CONSTRUCTIVE DOCUMENTATION	27/03/2003	WIRING	EVO 3 MS 8 channels
Notes: general-purpose wiring for EVO 3 MS (8 channels). Version 1.00			



Dimensions in millimetres [inches]

Logger's pinout

Pin	Signal	Pin	Signal
A	+ Analog input 1	L	+ Analog input 5
B	- Analog input 1 (GND)	M	- Analog input 5 (GND)
C	V reference	N	V battery
D	+ Analog input 2	S	+ Analog input 6
E	- Analog input 2 (GND)	T	+ Analog input 7
F	+ Analog input 3	U	- Analog input 6 & 7 (GND)
G	- Analog input 3 (GND)	V	V battery
H	V reference	P	+ Analog input 8
J	+ Analog input 4	R	- Analog input 8 (GND)
K	- Analog input 4 (GND)		



19 Pin MS female connector pinout: outside view

Connector details (Beacon channel)

Pin	Function	Pin	Function
1	Magnetic / Optic codified lap	3	V battery
2	GND	4	Optic not codified lap

Connector details (Display channel)

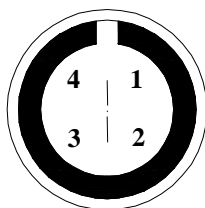
Pin	Function	Pin	Function
1	I2C SCL	3	V battery
2	GND	4	I2C SDA

Connector details (Speed channel)

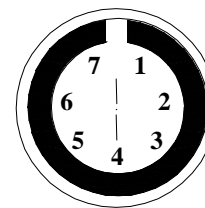
Pin	Function	Pin	Function
1	"Speed 1" signal	3	V battery
2	GND	4	"Speed 2" signal

Connector details (USB/Power channel)

Pin	Function	Pin	Function
1	D+	5	+12 V Charge in
2	D-	6	Power Log in
3	n.c.	7	Vext or Vbat out
4	GND		



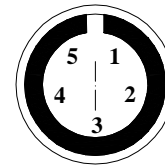
4 Pins female Binder connector: outside view



7 Pins female Binder connector: outside view

Connector details (RPM channel)

Pin	Signal	Pin	Signal
1	RPM spark plug	4	RPM 150-400V (coil input)
2	GND	5	RPM 8-50V (square wave)
3	V battery		



5 Pins female Binder connector:
outside view

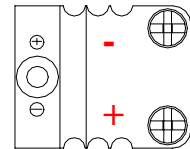
How to connect a thermocouple

Thermocouples may be connected on one of the 8 analog inputs. It is reminded that you may connect up to 8 thermocouples on the 8 analog inputs.

It is reminded to use **compensated cable** to connect the **MS connector** to the **Mignon connector** (shown in the following picture).

See the following table in order to correctly connect a thermocouple (in this example, for instance, the thermocouple has been installed on Channel 1).

Pin MS	Signal	Pin Mignon	Cable colour
A	+ Analog input 1	+	Yellow
B	- Analog input 1 (GND)	-	Red



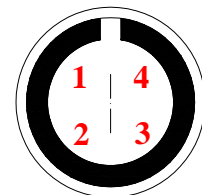
Mignon connector pinout: top
side view

How to connect a VDO sensor

VDO sensors (pressure and temperature) may be connected on one of the 8 analog inputs. It is reminded that you may connect up to 8 VDO sensors on the 8 analog inputs.

See the following table in order to correctly connect a VDO pressure sensor (in this example, for instance, the sensor has been installed on Channel 3).

Pin MS	Signal	Pin Binder	Cable colour
F	+ Analog input 3	1	White
G	- Analog input 3 (GND)	2	Black
	Not connected	3	
C	V reference	4	Blue



Binder 719 female pinout: solder
termination view

Case 1: you want to connect an AIM VDO pressure sensor

If you bought an AIM VDO pressure sensor, inside the sensor's connector it is mounted an SMD resistance between pins number 1 and 4. The value of this resistance is **1.8 kΩ 1%**.

Case 2: you want to connect an “on-board” VDO sensor (pressure and temperature)

If you want to connect an “on-board” VDO sensor (i.e. a sensor you bought from another manufacturer), you have to mount the SMD resistance inside the input cable's Binder connector. The resistance must be installed, as previously shown, between pins number 1 and 4 (i.e. between signals “+ analog input 1÷8” and “V reference”).

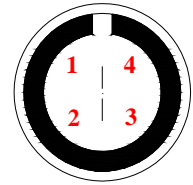
The value of this resistance is not a unique value, but depends on the sensor's characteristics and manufacturer. In this case it is suggested to contact AIM in order to have the correct information concerning the resistance's value.

How to connect a potentiometer

Potentiometers may be connected on one of the 8 analog inputs. It is reminded that you may connect up to 8 potentiometers on the 8 analog inputs.

See the following table in order to correctly connect a potentiometer (in this example, for instance, the sensor has been installed on Channel 4).

Pin MS	Signal	Pin Binder	Cable colour
J	+ Analog input 4	1	White
K	- Analog input 4 (GND)	2	Black
	Not connected	3	
C	V reference	4	Blue

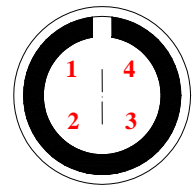


Binder 719 female pinout: solder termination view

How to connect the external Gyroscope

See the following table in order to correctly connect the Gyroscope (in this example, for instance, the sensor has been installed on Channel 5).

Pin MS	Signal	Pin Binder	Cable colour
L	+ Analog input 5	1	White
M	- Analog input 5 (GND)	2	Black
N	+ V battery (output)	3	Red
	Not connected	4	



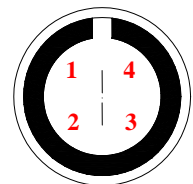
Binder 719 female pinout: solder termination view

How to connect the “on-board” Gear sensor

The gear sensor is usually an “on-board” sensor which is powered by the vehicle’s battery: in order to correctly sample the engaged gear it is enough to connect the gear signal on the correct connector’s pin.

See the following table in order to correctly connect the “on-board” gear sensor (in this example, for instance, the sensor has been installed on Channel 6).

Pin MS	Signal	Pin Binder	Cable colour
S	+ Analog input 6	1	White
U	- Analog input 6 & 7 (GND)	2	Black
	Not connected	3	
	Not connected	4	



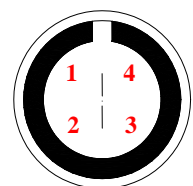
Binder 719 female pinout: solder termination view

How to connect the Lambda sond

The Lambda sond is an “on-board” sensor: in order to correctly sample the lambda sond, it is enough to connect the sensor’s signal on the correct connector’s pin.

See the following table in order to correctly connect the “on-board” lambda sensor (in this example, for instance, the sensor has been installed on Channel 7).

Pin MS	Signal	Pin Binder	Cable colour
T	+ Analog input 7	1	White
	Not connected	2	
	Not connected	3	
	Not connected	4	



Binder 719 female pinout: solder termination view

How to connect the RPM sensor

The RPM signal may be sampled from the ECU, from the coil or from the spark plug.

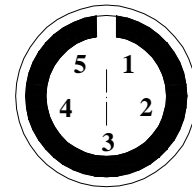
- The RPM signal sampled from the ECU is ,usually, a 12 Volts square wave signal and must be connected on pin “5”;
- The RPM signal sampled from the coil must be connected on pin “4”;
- The RPM signal sampled from the spark plug is a very high voltage input (this input is usually used on 2-strokes one-cylinder karts)

It is reminded

- **NOT to connect the RPM coil signal on pin “5”.**
- **To connect either the RPM signal from the coil or the RPM signal from the ECU, NOT BOTH (this event creates shortcuts).**

See the following table in order to correctly measure the RPM channel.

Pin Binder	Signal
1	Not connected
2	GND
3	Not connected
4	RPM signal 150-400V (coil input)
5	RPM signal 8-50V (square wave, ECU input)



5 Pins male Binder 712 connector:
solder termination view

How to power the logger using the “USB/Power” device box

The gauge must be powered by an external 9÷15 V power source.

The AIM “USB/Power” device box consists in:

- 1 ON/OFF led;
- 1 female Binder 712 connector with 4 pins, used for USB data download;
- 1 wiring, terminated with a 7 pins male Binder connector, used to connect the “USB/Power” device box to the EVO3;
- 1 Red/Black wiring, used to power the EVO3.



AIM “USB/Power” device box

In the following tables it is shown the “USB/POWER” device box pinout.

Battery charge wiring

Cable colour	Function
Red	+ V battery (input)
Black	GND

USB download connector

Pin	Function
1	D +
2	GND
3	D -
4	GND

“EVO 3 connection” wiring

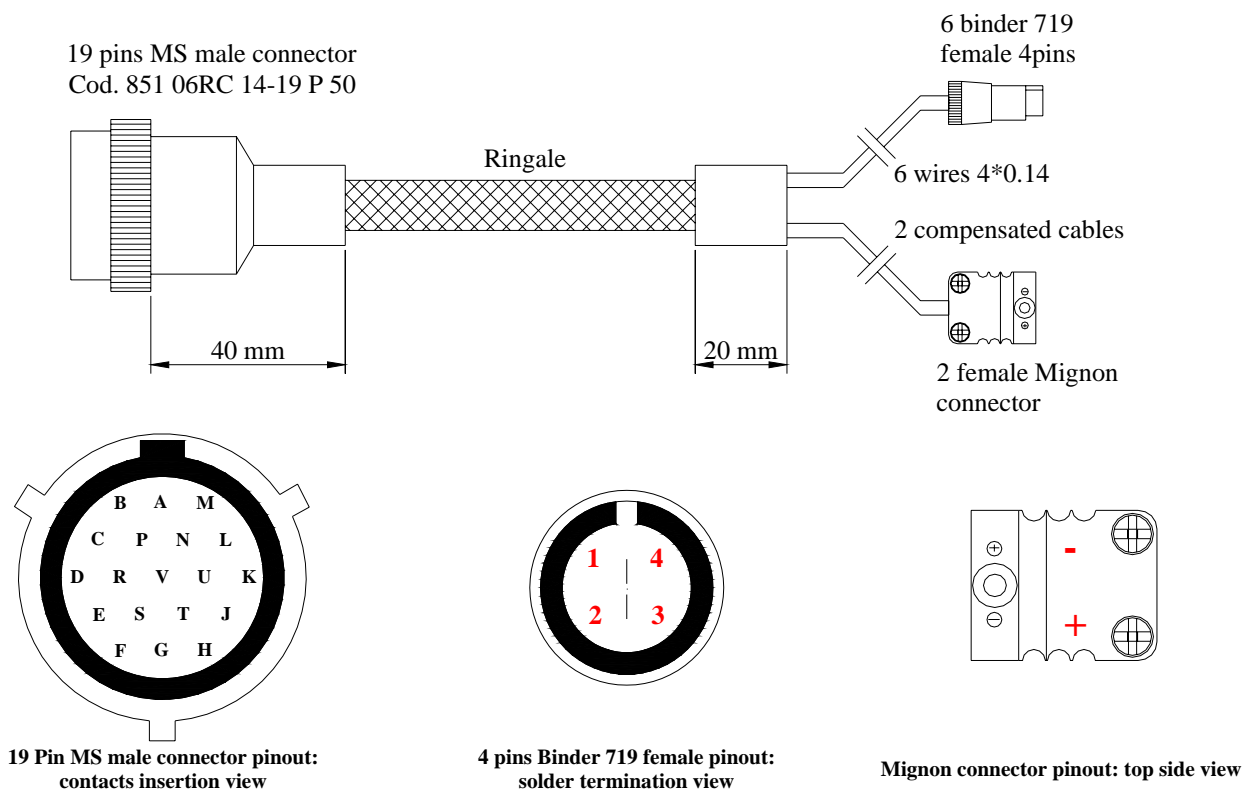
Pin Binder	Function	Cable colour	Pin Hirose
1	D +	Violet	1
2	D -	Green	2
3	GND	Black	7
4	GND	Yellow	3
5	+12 V charge in	Grey	4
6	Power log in	Blue	5
7	Vext or Vbat out	Red	6

Example of EVO3 MS (8 channels) wiring

Here above it is shown an example of a wiring for an **EVO3 MS (8 channels)**.

- A thermocouple has been installed on channels #1 and #2; it is reminded to use a piece of compensated cable.
- A VDO pressure sensor has been installed on channel #3.
- A potentiometer has been installed on channel #4.
- An external Gyroscope has been installed on channel #5.
- An “on-board” gear sensor has been installed on channel #6.
- A Lambda sond sensor has been installed on channel #7.

See the following drawing and tables for further information.



Channel name	Pin MS	Signal	Pin Mignon	Cable colour
Channel_1	A	+ Analog input 1	+	Yellow
Thermocouple	B	- Analog input 1 (GND)	-	Red
Channel_2	D	+ Analog input 2	+	Yellow
Thermocouple	E	- Analog input 2 (GND)	-	Red



Channel name	Pin MS	Signal	Pin Binder	Cable colour
Channel_3 VDO sensor	F	+ Analog input 3	1	White
	G	- Analog input 3 (GND)	2	Black
		Not connected	3	
	C	V reference	4	Blue
Channel_4 Potentiometer	J	+ Analog input 4	1	White
	K	- Analog input 4 (GND)	2	Black
		Not connected	3	
	C	V reference	4	Blue
Channel_5 Gyroscope	L	+ Analog input 5	1	White
	M	- Analog input 5 (GND)	2	Black
	N	V battery	3	Red
		Not connected	4	
Channel_6 "On board" gear	S	+ Analog input 6	1	White
	U	- Analog input 6 & 7 (GND)	2	Black
		Not connected	3	
		Not connected	4	
Channel_7 Lambda sond	T	+ Analog input 7	1	White
		Not connected	2	
		Not connected	3	
		Not connected	4	
Channel_8 Free channel	P	+ Analog input 8	1	White
	R	- Analog input 8 (GND)	2	Black
	V	V battery	3	Red
	H	V reference	4	Blue