

FLYBOX®



CAN-BRIDGE
For Rotax® i-Series Engines

**Installation and User Manual, Safety
Instructions and Warning Booklet**

**This product is not TSO'd and cannot be installed into
traditional FAA Part 23 and similarly Type-Certificate Aircraft**

ROTAX® is the registered trademark of BRP-Rotax GmbH & Co

Document A2019
CAN-BRIDGE
Revision# 1.0, 18/01/2019

**Symbols used in the Installation and User Manual,
Safety Instructions and Warning Booklet**



NOTE: Used to highlight important informations.



CAUTION: Used to warn the user and indicate a potentially hazardous situation or improper use of the product.



WARNING: Used to indicate a dangerous situation that can cause personal injury or death if the instruction is disregarded.



WARNING: These instructions must be provided to users before use, and retained for ready reference by the user. The user must read, understand (or have explained) and heed all instructions and warnings supplied with this product and with those products intended for use in association with it. Always keep a copy of the Installation and User Manual, Safety Instructions and Warning Booklet on the aircraft. In case of change of ownership, the Installation and User Manual, Safety Instructions and Warning Booklet must be delivered together with all of the other papers.



WARNING: This device is intended to be installed on NON-TYPE CERTIFIED AIRCRAFT ONLY, as it does NOT require any air operator's certificate. Refer to your national aviation authorities to check if this device can be installed on your aircraft.



WARNING: Read the Installation and User Manual, Safety Instructions and Warning Booklet before installing the device on your aircraft and follow the procedure described therein.



WARNING: It is the pilot's responsibility to test this device before operating the aircraft and to make sure nobody is using it unless properly instructed and authorized to do so.



WARNING: Once the installation process is completed, it is extremely important to test the device before taking off to make sure it works properly. Therefore, we strongly suggest to double check all of the electronic instruments available on the aircraft and to turn them on to verify they function correctly.



WARNING: This device is operated through a software which from time to time can be updated and/or subject to change. Please, always refer to the Installation and User Manual, Safety Instructions and Warning Booklet for the last updated version of the software available at www.flyboxavionics.it



WARNING: It is the responsibility of the installer to properly install the device on the aircraft. In case of calibration, or any technical or functional customization of the device, the responsibility lies with individual who carried out such operation.

FAILURE TO DO SO MAY RESULT IN SERIOUS INJURY
OR DEATH.



WARNING: Alterations, additions, or repairs not performed by the instrument manufacturer or by a person or organization authorized by the manufacturer shall negate any warranty.



NOTE: The consumer decides of his own free will if the purchased product is suitable and safe for his need. If the consumer do not agree with the notices contained in this Installation and user Manual, Safety Instructions and Warning Booklet, do not install this device in his aircraft.



NOTE: Flybox Avionics reserves the right to change or improve its products as well as terms, conditions, and notices under which their products are offered without prior notice.



NOTE: The Installation and User Manual, Safety Instructions and Warning Booklet will be updated annually if needed.

All changes or updates will be published on our website www.flyboxavionics.com in the "support" section.



NOTE: Upon receipt of the instrument it is advisable to register on our website www.flyboxavionics.com in the "product registration" section.

The Registration data will be used only to send important news or information about available firmware updates or to communicate safety informations about the instrument.

Purpose of the device

In the 912iS-915iS installation manuals, Rotax® recommends using engine instruments that have 2 separate CAN buses. This is to avoid the pilot loses all the engine informations in case of malfunction of one of the CAN channels. Most of the instruments on the market today have only one CAN channel. The 2 Rotax® channels are usually connected in parallel to send the data of the 2 ECUs to the instrument.

If both CAN interfaces are connected together and plugged to an indicating instrument with only one input, an error on one of the interfaces can occur or a short circuit on the data management can cause that non more data can be supplied to the indicating instrument.

CAN-BRIDGE reads the signals of the 2 CAN buses keeping them physically separate and sends all the informations to the engine instruments that have only one CAN input. This avoids to lose all the informations in case of malfunction or short circuit of one of the 2 CAN buses, respecting Rotax® indications.

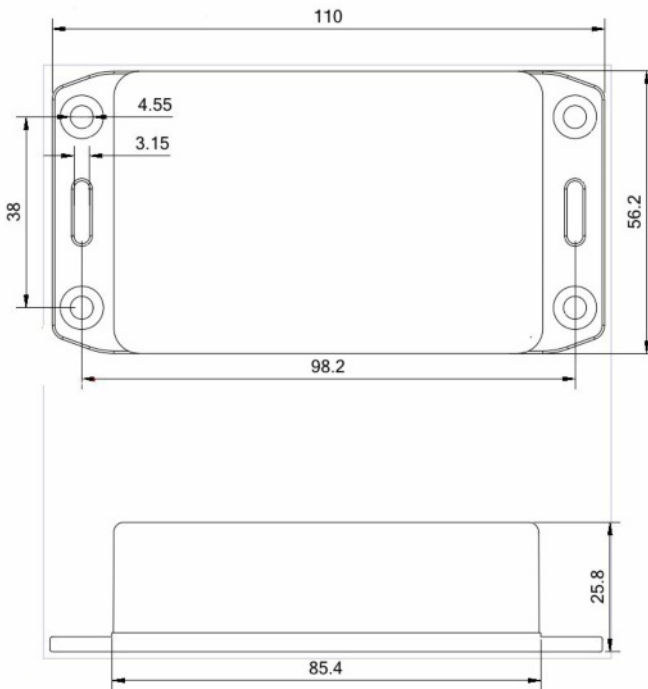
Mechanical Installation

Install the CAN-BRIDGE in a dry environment following the mechanical instructions below.



CAUTION: Do not expose the device to temperatures higher than 70°C.

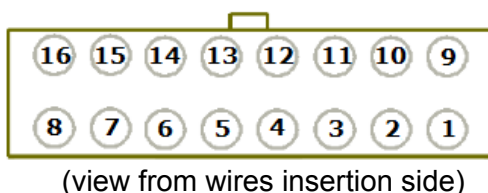
Do not expose the CAN-BRIDGE to water.



CAN-BRIDGE - Installation and User Manual,
Safety Instructions and Warning Booklet

Electrical Installation

The electrical connections are made through the 16-pin connector (Molex minifit-jr type), which is supplied with the corresponding flying connector and the pins to be crimped to the cables.



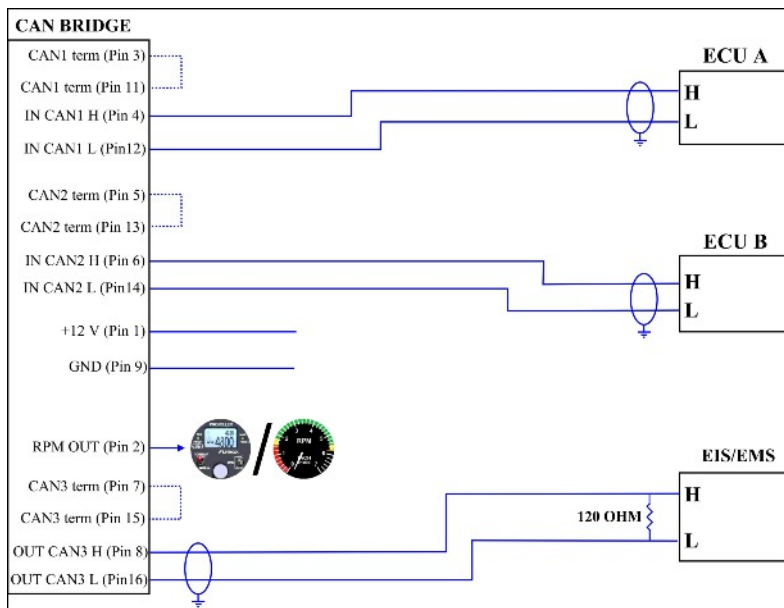
Pin n°	Signal description
1	+ main power supply
2	RPM tachometer signal output
3	120 OHM resistive termination for CANBUS1 (connect to pin 11 to activate it)
4	Input CAN1_H (From Rotax® ECU A)
5	120 OHM resistive termination for CANBUS2 (connect to pin 13 to activate it)
6	Input CAN2_H (From Rotax® ECU B)
7	120 OHM resistive termination for CANBUS3 (connect to pin 15 to activate it)
8	Output CAN3_H
	table continue on the next page >>

Pin n°	Signal description
	<<continuation of the table on the previous page
9	GND main power supply
10	(Not Used)
11	CANBUS1 termination
12	Input CAN1_L (From Rotax® ECU A)
13	CANBUS2 termination
14	Input CAN2_L (From Rotax® ECU B)
15	CANBUS3 termination
16	Output CAN3_L

CAN BUS Wiring Informations

The basic electrical architecture of a CAN bus consists of a single twisted or shielded wire pair with a device connected at each end. Each end must be terminated with a 120 ohm resistor, that in the case of CAN-BRIDGE are integrated inside the instruments so that the installer should simply connect together two pins on the connector to perform the required terminations.

For Rotax® 912iS and 915iS Engines



The RPM/OUT signal, pin 2, can be used to operate external devices such as analog tachometers or regulators for constant speed propellers. The signal is a pulse of 1 mS, 30 V, which is generated with a frequency proportional to the RPM read on the CAN-bus.

Jumpers enable the relevant terminating resistors.
Comply with the standards for CAN bus line terminations.

TECHNICAL SPECIFICATIONS

- ABS plastic case, not waterproof.
- Dimensions: 110 x 56 x 26 mm.
- Weight: 80gr.
- Supply voltage: 10 ~ 30 V
- Supply current: 30mA.
- Open-collector PNP output (max 250mA).
- Operating temperature range: -20 ~ +70°C.
- Humidity: 90% max (without condensation).



WARNING:

A power supply exceeding the limits indicated or voltage peaks that exceed the limits may cause malfunction or permanent damage to the device.

WARRANTY

Product support and warranty informations can be found at www.flyboxavionics.it

Flybox® warrants this Product to be free from defects in materials and workmanship for 12 months from date of delivery. The inactivity of the Products determined by periods of repair does not involve the extension of the warranty period.

This warranty covers only defects in material and workmanship found in the products under normal use and service when the product has been properly installed and maintained. This warranty does not cover failures due to abuse, misuse, accident, improper maintenance, failures to follow improper instructions or due to unauthorized alterations or repairs or use with equipments with which the Products is not intended to be used. Flybox Avionics, after verification of the complaint and confirmation that the defect is covered by warranty, at its sole discretion, will either replace or repair the Products at no costs for the customer.

This warranty doesn't cover cosmetic or incidental damages.

Shipping costs, taxes, custom fee, any other duties and any costs incurred while removing, reinstalling or troubleshooting the Products, shall be at customer's charge.

TO THE EXTENT PERMITTED BY LAW, THE WARRANTIES AND REMEDIES CONTAINED HEREIN ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES EXPRESS, IMPLIED, OR STATUTORY, INCLUDING ANY LIABILITY ARISING UNDER ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, STATUTORY OR OTHERWISE. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, WHICH MAY VARY BASED ON YOUR JURISDICTION.

TO THE EXTENT PERMITTED BY LAW, IN NO EVENT SHALL UPRIGHT BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, WHETHER RESULTING FROM THE USE, MISUSE, OR INABILITY TO USE THIS PRODUCT. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.

Out of warranty repairs

Products that can not be repaired under warranty as out of the maximum term or that do not work for reasons that would have been covered by warranty, can be repaired at a flat rate as described on the site. For out-of-warranty eligible damages, the repair must be assessed for each individual case.

Term of Use and Disclaimer

Limitation of Liability

In no event shall MICROEL s.r.l. be liable for any direct, indirect, punitive, incidental, special consequential damages whatsoever arising out of or connected with the use or misuse of its products.

Entire Obligation

The TERM OF USE, WARRANTY AND DISCLAIMER document states the entire obligation of MICROEL S.r.l. with respect to the products. If any part of this disclaimer is determined to be void, invalid, unenforceable or illegal, including, but not limited to the warranty disclaimers and liability disclaimers and liability limitations set forth above, then the invalid or unenforceable provision will be deemed superseded by a valid, enforceable provision that most closely matches the intent of the original provision and the remainder of the agreement shall remain in full force and effect.

General

This disclaimer statement is governed by the laws of ITALY. You hereby consent to the exclusive jurisdiction and venue of the Courts of competent jurisdiction, ITALY, in all disputes arising out of or relating to the use of this product. Use of this product is unauthorized in any jurisdiction that does not give effect to all provisions of these terms and conditions, including without limitation this paragraph.

Date	Revision	Description
02/2019	1.0	First release

WARNING: All photos, data, drawings, instruments layouts, technical solutions and data representation you find in this document or watching at FLYBOX® instruments working and/or you can access by means of any other media, including web sites, are sole property of MICROEL s.r.l., cannot be copied or imitate without a written permission of MICROEL s.r.l. itself and are protected by law, even by means of extended international copyright and/or specific patents deposited. Any infringement of this statement and of MICROEL s.r.l. intellectual property will be prosecuted.

©2019 Microel s.r.l. – all rights reserved.

This product is distributed by:
LUCIANO SORLINI SPA
Via G. Marconi 33/35
25080 Carzago di Calvagnese della Riviera (BS) - Italy
Tel. +39 (0) 30601033 - Fax +39 (0) 30601463
www.sorlini.com

Flybox® is a registred brand of Microel s.r.l.- Italy
www.flyboxavionics.it

Via Mortara 192-194
27038 Robbio (PV) - ITALY
Tel +39 (0) 384670602 - Fax +39 (0) 384671830
www.flyboxavionics.it