ST985/986/987/988/989

STRAIN GAUGE AMPLIFIER

USER INFORMATION

(ST541105-002)

Stack Limited, Wedgwood Road, Bicester, Oxfordshire, OX26 4UL, England.
Tel.(01869) 240404 Fax (01869) 245500

INTRODUCTION

The STACK ST685-9 strain gauge amplifiers are purpose designed and built, each one incorporating its own signal conditioning electronics to ensure reliable operation in even the most testing environment.

INSTALLATION

It is essential to ensure that these devices are **NOT** mounted in a position which is close to any devices, or associated wiring, similar to the following:

Suggested Wiring Clearances	Min space ST675-9
Ignition HT & coil leads	75mm (3”)
Radio transmitters	50mm (2”)
Fast switching inductive loads like fuel injectors, hydraulic solenoids.	50mm (2”)
Any powerful source of heat	Shield with reflective material

Mechanical

USING THE 'DUAL-LOCK' FASTENER WITH STACK SENSORS

This is a high opening force 'Velcro-type' fastener system with identical mating halves. It is intended to be used for semi-permanent fixing applications, and is not intended for frequent dismantling.

For best performance, the following precautions should be taken:

Bond strength is dependent upon the amount of adhesive to surface contact development. Firm application pressure develops better adhesive contact and thus improves bond strength.

To obtain maximum adhesion, the bonding surfaces must be clean, dry and well unified. Typical surface cleaning solvents are isopropyl alcohol/water mixture (rubbing alcohol) or heptane. Use proper safety precautions when handling solvents.

Ideal application temperature range is 21-38 Deg.C (70-100 Deg.F). Initial application to surfaces at temperatures below 10 Deg.C (50 Deg.F) is not recommended because the adhesive becomes too firm to adhere readily.

Take one of the supplied pieces of 'dual-lock' fastener, remove the adhesive backing, and attach to the sensor or housing.

Take a second strip of the fastener and attach to the first piece by pushing them together firmly, ensuring correct alignment.

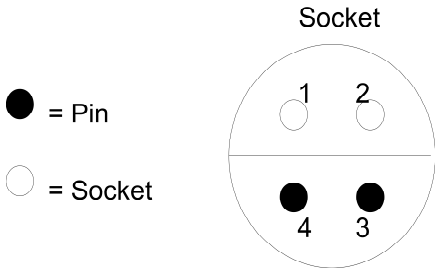
Remove the adhesive backing off the second strip of fastener and attach the sensor or housing to the vehicle in the desired position. Push against the fastener firmly to ensure maximum adhesion.

Do not try to separate the 2 strips of fastener immediately

The acrylic adhesive backing should be given 24 hours to achieve full bond strength.

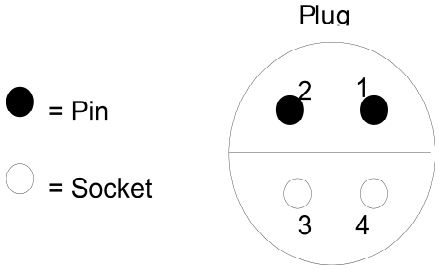
Electrical

The amplifier connects into Stack systems via a four way, Mini Sure Seal (MSS) socket, the larger of the two connectors on the amplifier. It must be connected to a configurable high frequency pulse channel.



Pin Number	Signal Description
1	Signal to Stack Module
2	No connection
3	12v Supply
4	0v

The plug, the smaller of the two connectors, is the connection to the strain gauge.



Pin Number	Signal Description
1	+VE Input
2	5V Supply to bridge
3	-VE Input
4	0V Supply to bridge

To connect a strain gauge, connect the Bridge inputs across the 5V supply and the output of the bridge to the +ve and -ve inputs.

TECHNICAL SPECIFICATION

Supply:	+6.5V to 17.5V @ 20mA
Full scale range:	0 to +5mV Diff. Voltage I/P for ST985
	0 to +10mV Diff. Voltage I/P for ST986
	0 to +20mV Diff. Voltage I/P for ST987
	0 to +50mV Diff. Voltage I/P for ST988
	0 to +100mV Diff. Voltage I/P for ST989
Resolution:	Greater than 0.01mV
Operating Temp. Range:	-20 to +80 degrees Centigrade
Initial Accuracy (Note 1):	±0.5% of Full-scale Range
Accuracy over -20 to +80 DegC:	±1.5% of Full-scale Range
Common mode I/P range:	+1.0V to +3.0V DC
Common mode rejection ratio:	-70dB or better over C.M. I/P range
Input Impedance:	Greater than 10MΩ
Input protection:	Capable of standing ±32V

5V Bridge Supply

Initial accuracy:	5.0V ±0.5%
Accuracy over -20 to +80 degC:	5.0V ±1.0%
Noise voltage:	Less than 0.5mV RMS
Bridge load capability:	270Ω to 10KΩ

Note 1. Conditions at 25 degrees Centigrade, common mode voltage 2.5V