McLaren ELECTRONIC SYSTEMS

WIRELESS STRAIN GAUGE SYSTEM

AC COUPLED

The AC coupled wireless strain gauge system uses a low-power radio link up to two transfer digitised strain measurements to a stationary antenna mounted nearby. Signals from the antenna are passed to a receiver where they are decoded and output as CAN bus messages.

The strain measurements are also available in analogue output form.

The system consists of a strain gauge transmitter and external battery unit, a receive antenna and a tyre strain receiver. The strain gauge elements are provided by the customer and are not deliverables.

Electrical

SGT Transmitter
- 10bit resolution
- Accuracy ±1% RO
- Non-linearity ±1% RO
- Hysteresis ±1% RO
- Repeatability ±1% RO
- Nominal resistance 120ohm ±2%
- Temperature effect on zero balance ±0.3% RO/°C
- Temperature effect on zero output ±0.2% RO/°C
- Sample rate 5000 samples/s on each channel
- Bandwidth 0.1Hz – 2.5kHz
- RF characteristics:
  Nominal centre frequency 433.92MHz
  Transmission bandwidth 2MHz

The transmitter has three operating modes: sleep, standby and full rate

Each transmitter will be factory configured with a 'corner ID' corresponding to the location where it will be fitted.

SGR Receiver
- Supply voltage 8 to 16Vdc (unit is protected against reverse polarity and transients)
- Supply current 105mA typical @ 12V
- RF input 50ohm
- CAN bus 2.0B active, 1Mbps
- RS232 57.6kbps for configuration
- Three diagnostic LEDs on case: processor status, CAN Busy and RF channel
- Configurable parameters: corner ID, receiver attenuation setting and CAN base ID

SGT-B External Battery Unit
- CR2 battery
- 3.0V nominal voltage

Application

- Measurement of strain gauge on the car, eg tyre strain gauge

Mechanical

SGT Transmitter
- Black anodised aluminium case
- Weight 33g including flying lead
- Resistant to standard Motorsport fluids

SGT-B Battery unit
- Black anodised aluminium case
- Weight 35g including battery
- Resistant to standard Motorsport fluids

SGR Receiver
- Black anodised aluminium case
- Weight 115g
- Resistant to standard Motorsport fluids
- 434 MHz helical antenna, approx 79mm long x 15mm diameter, with SMA female connector

06/08/09

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Connection

SGT Transmitter
- Strain gauge connector ECN FF 304 XLM
- Antenna connector via case-mounted bulkhead SMC socket
- Battery connector FGN FF 304 YLC

SGT-B Battery unit
- FGN FF 304 XLM

SGR Receiver
- Main unit connector AS2-10-35PN
- Antenna connector 25SMA-50-2-6/111 NE

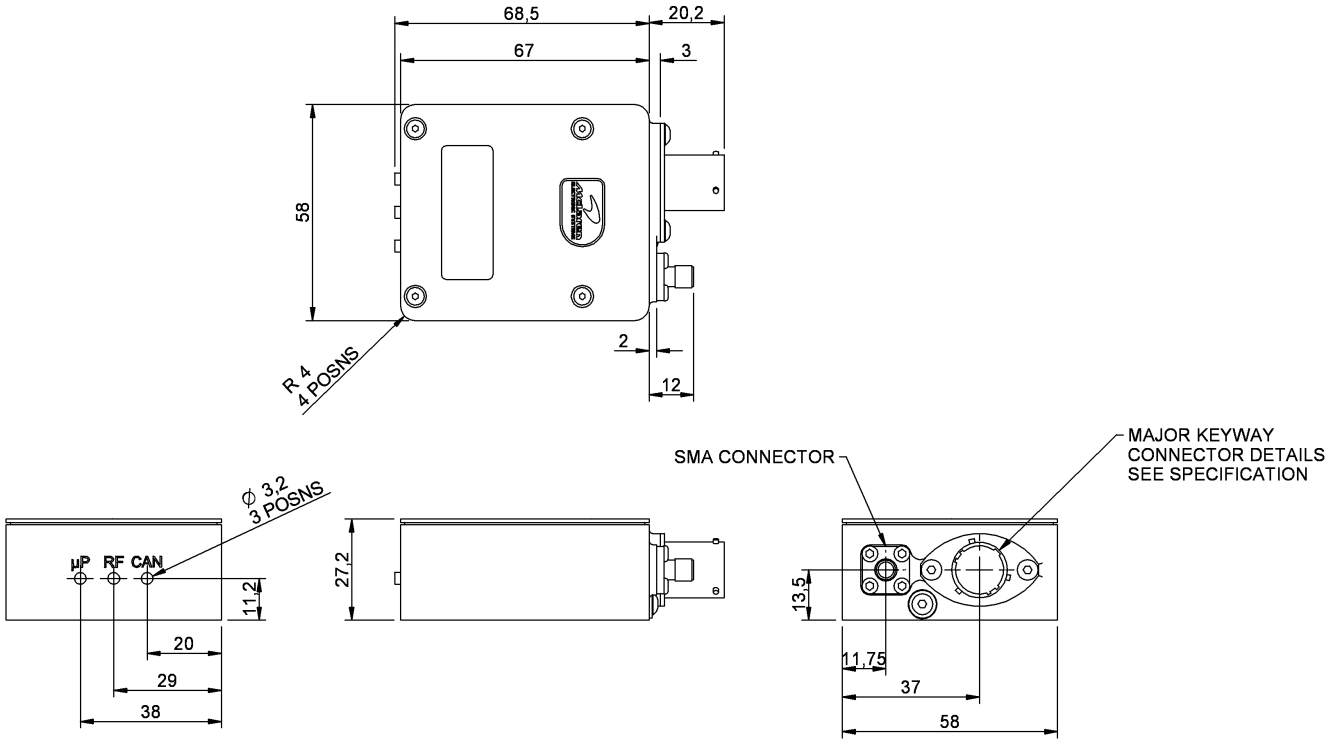
For pin-out details, please contact MESL.

Environmental

SGT Transmitter
- Resistant to standard Motorsport fluids
- Operating temperature 0 to + 85°C
- Storage temperature 0 to + 85°C
- Vibration 40 to 2500Hz @ 40g 8hrs per axis
- Shock 50g(max), 1/2sine for 11ms, 5 times per axis

SGT-B Battery unit
- Operating temperature 0 to + 85°C (battery life may be reduced by up to 20% at low temperatures)
- Storage temperature 0 to + 85°C
- Vibration 40 to 2500Hz @ 40g 8hrs per axis
- Shock 50g(max), 1/2sine for 11ms, 5 times per axis

SGR Receiver
- Operating temperature 0 to + 85°C
- Storage temperature -20 to + 85°C
- Vibration random spectrum for 2hrs in 1 axis



Description	Order Code
SGR strain gauge receiver	O 030 205 007 000
Receiver ANA/CAN/PWR connection cable	O 030 205 990 000
1.5m antenna extension cable	O 030 205 990 004

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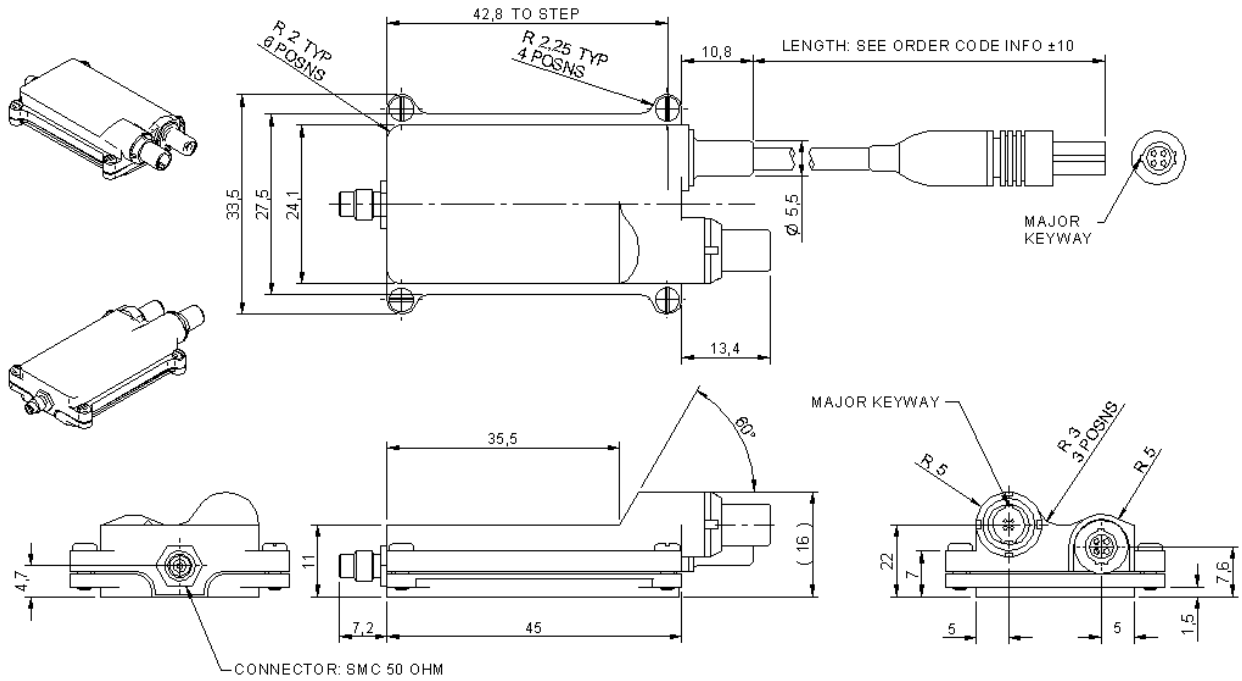
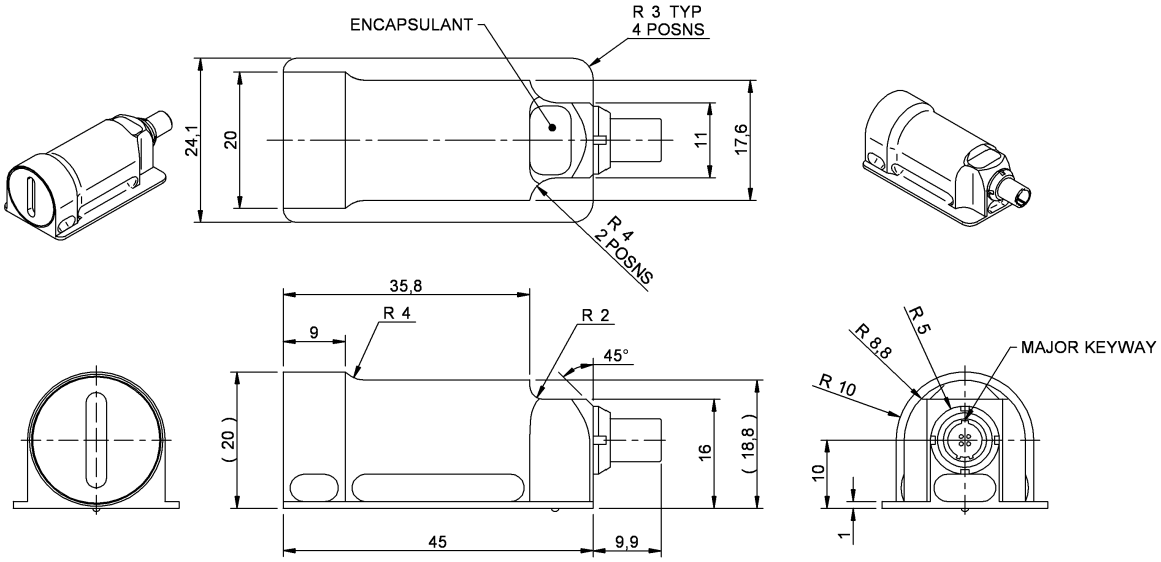
WIRELESS STRAIN GAUGE SYSTEM AC COUPLED



Description	Order Code
SGT strain gauge transmitter	O 030 205 008 000
Transmit antenna	O 030 205 990 003



Description	Order Code
SGT-B external battery pack	O 030 205 008 001
Spare battery	O 030 205 990 005

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