PREFACE

The M19000 Instrument Cluster / Dashboard is intended to be used on a motor-bike. It is an indicator instrument used to display vehicle speed, RPM, fuel level, gear position and many such vehicle parameters listed in the sections ahead

DISPLAY CONTENT

Number	Description	Function
1	RPM indicator	This will indicate vehicle engine RPM. Multiplying factor is 1000. Range: 0-8000 RPM
2	Speed	This will indicate vehicle speed. Range is 0 – 299 km/hr
3	Gear Position	Gear number is displayed here: N,1,2,3,4,5
4	Clock	This shows clock in [hh:mm] 12H format
5	Temperature	Ambient temperature is indicated in this field Range: -15°C(+5°F) to + 50°C (+122°F)
6	Odometer	The ODO meter is of 6 digits (0 – 999999 Km/mi).
7	ICON list	The following icons are displayed in LCD - Grip warming, Service Alert, TPMS, Generic Alarm, Message alert, Helmet alert, Call alert
8	LED Tale Tales	LED tell-tales are used to indicate warning and such conditions listed in the 'Warning Indicators' section on next page

Operating conditions

S. No.	Specification	Value
1	Operating Voltage	7V to 16V
2	Test Voltage	13.5V
3	Operating current	<1A
4	Dark current/ Parasitic current	≤ 1mA @ 12.6V & 25°C
5	Operating Temperature	-30°C to +85°C
6	Storage Temperature	-40°C to +90°C

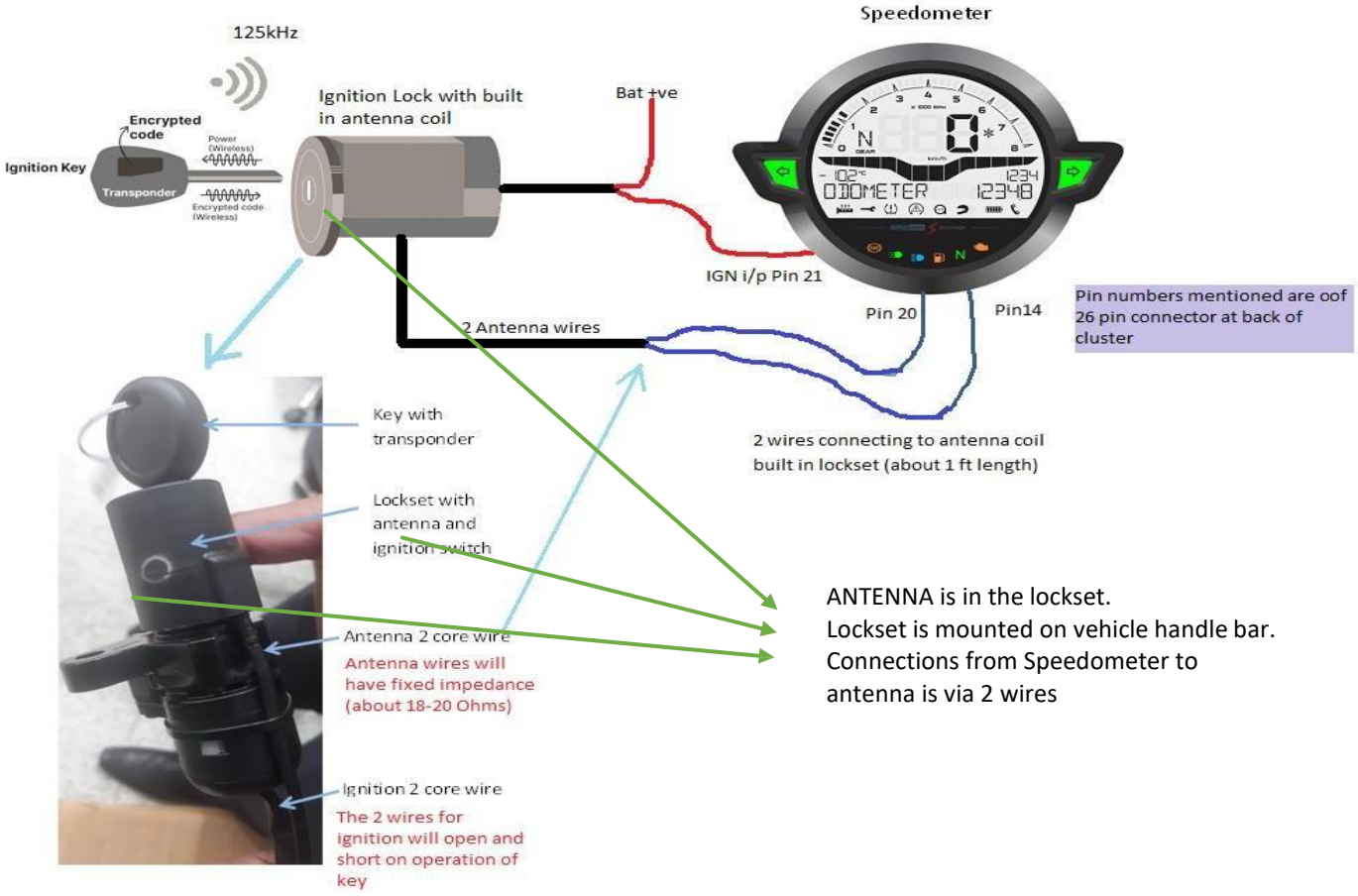
Warning Indicators

Sr. no	Name	Symbol	Colour	Function
1	Left Indicator		Green	This will glow if left indicator switch is pressed
2	Right Indicator		Green	This will glow if right indicator switch is pressed
3	High Beam		Blue	This will glow if high beam is selected
4	Engine		Orange	This will indicate engine fault
5	Fuel Reserve		Orange	This will glow if fuel is at reserve level
6	Neutral		Green	This will glow if gear is in Neutral position
7	ABS		Orange	This will glow if ABS malfunction

Connection Details

Pin No.	Pin Specification	Signal Details	Pin No.	Pin Specification	Signal Details
1	CAN HIGH	can high	14	ANTEENA B	IMMOBILIZER
2	HIGH BEAM	high input	15	AIR TEMPERATURE SENSOR	air temperature sensor input
3	OIL SENSOR	current input	16	NC	nc
4	LEFT INDICATOR COMMAND	current input	17	NC	nc
5	HAZARD	low current input	18	NC	nc
6	GROUND	Gnd	19	BATTERY	battery
7	GROUND	Gnd	20	ANTEENA A	immobilizer
8	CAN LOW	can low	21	IGNITION	Ignition input
9	DRL	high input	22	RIGHT INDICATOR (front)	indicator output
10	FUEL NTC SENSOR	fuel reserve sensor input	23	RIGHT INDICATOR (rear))	indicator output
11	RIGHT INDICATOR COMMAND	current input	24	LEFT INDICATOR (front)	indicator output
12	MODE HW	current input	25	LEFT INDICATOR (rear)	indicator output
13	GROUND	Gnd	26	BATTERY	BATTERY +ve

Immobilizer function



For enhanced safety, the vehicle start is not safeguarded only by mechanical key but also by Immobilizer function. Here digital authentication of valid user is carried out before the vehicle engine can start.

Digital authentication happens as in following steps:

1. The key which contains embedded transponder is placed into the key slot for starting the bike.
2. The transponder key gets within readable distance of read antenna on the keylock.
3. Once ignition key is mover to ON position, the Instrument Cluster/Speedometer/dashboard receives power.
4. It fires the read antenna on keylock to read the digital key code which resides in transponder IC in the key. The controller in the speedometer reads the key code. This read happens at 125kHz frequency. Thus, there is wireless read of key code.
5. This key-code is then compared with the code stored within the cluster. If they match, authentication is successful and engine is commanded to start. If key code doesn't match, vehicle would not start.

This function is enabled only at ignition ON.

Compliance

Caution:

Any changes or modifications not expressly approved by the party responsible for compliance shall invalidate the user's authority to operate the equipment.

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference.
(2) This device must accept any interference received, including interference that may cause undesired operation.

Note:
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.