

▣ 첨부 서류

1. Concept

RMCU 3G is mobile tracker only for Hyundai Heavy Industries (hereinafter referred to as HHI) machine. It is used 2 GSM bands GSM/GPRS/EDGE (850/1900 MHz) and 3 UMTS/HSPA bands (800/AWS1700/2100 MHz) and Orbcomm low Earth orbit communications satellites. And it has a 12 pin connector, a mobile connector and a GPS connector, a SAT connector. It communicates with other HHI Unit through RS232 or SAE J1939 CAN.

2. Specification

Electrical Specification	
DC Power Ratings	Supply Voltage : Min 9V, Typ 12~27V, Max 34V Supply Current : 100mA @ 24V
Power Consumption	Traffic : Typ 100mA, Max 130mA @ 24V Idle : 60mA @ 24V
Environmental Specification	
Temperature range	-30°C~75°C (operational) -40°C~75°C (storage)
Humidity (operating)	80% (60°C) relative humidity (non-condensing)
Vibration (operating)	5 Hz to 500 Hz sinusoidal, 1.5G
Drop	No damages after 60-inch drop over concrete floor
RF Specification	
Operating frequency	UMTS-FDD (Uplink / Downlink) Band II (1850-1910 / 1930-1990 MHz) Band IV (1710-1755/2110-2155 MHz) Band V (824-849/869-894 MHz) GSM/EDGE(Uplink / Downlink) GSM850(824.2-849.2 / 869.2-894.2 MHz) PCS(1850.2-1909.8 / 1930.2-1989.8 MHz) Satellites Transmit Freq : 148.000 to 150.050Mhz Receive Freq : 137.000 to 138.000Mhz
Transmitter output power	Class 4(2 W, 33 dBm) @ GSM 850 Class 1(1 W, 30 dBm) @ GSM 1900 Class 3(0.25 W, 24 dBm) @ UMTS Class E2(0.5 W, 27 dBm) @ EDGE 850 Class E2(0.4 W, 26 dBm) @ EDGE 1900 Satellites (5W min. – 10W max)
Reference sensitivity	-108 dBm @ UMTS

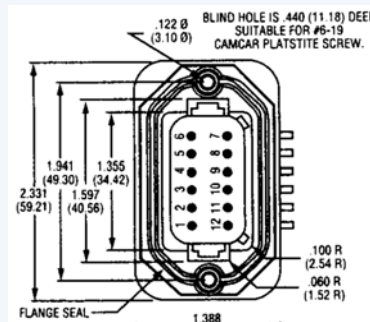
		-107 dBm @ GSM 850 MHz -106 dBm @ PCS1900 MHz
Mechanical Specification		
Dimensions	156 x 201 x 79.4 mm	
Weight	600g	
Modem Interface Connector(12Pin)	MODEM Connector : Part No: DT13-12P (제조사:Deutsch)	
Antenna Connector	Mobile, Satellites : TNC Connector GPS : SMA connector	
Mounting hole	4 positions (4 holes)	
Screw(Mounting)	M13 Diameter 2mm, Length 11mm or 13mm, Head diameter 3.5mm.	
Antenna Specification		
Frequency	Mobile Tx : 824 ~ 849, 1710 ~ 1785, 1850 ~ 1910 MHz Rx : 869 ~ 894, 1805 ~ 1880, 1930 ~ 1990 MHz Satellites 150MHz ± 5MHz	
Impedance	50Ω±Normal	
VSWR	USC/GSM850/ WCDMA V	Less Than 2.7:1
	DCS/WCDMA III	Less Than 2.85:1
	GPCS/USPCS/ WCDMA II	Less Than 3.58:1
	GPS	Less Than 2.0
	VHF	Less Than 2.0
Radiation Pattern	Omni-Directional	
Polarization	Vertical	
Gain	< 5 dBi	

3. Pin map

- RMCU 3G has a 12 pin connector for communication with external unit.

In/Out	Signal Name			Signal Name	In/Out
O	LOG_TX	6	7	LOG_RX	I
	GND	5	8	CAN_S	
O	MTS_TX	4	9	MTS_RX	I
	CAN_H	3	10	FW_E	I
	KEY_IG	2	11	CAN_L	
	BAT	1	12	GND	

<Pin map>



<Pin order>

Pin Description

Pin	Signal Name	Type	Voltage, Current	Description
UART(RS-232 Interface) Pins				
4	MTS_TX	Output		Transmit data from the RMCU to the MCU
9	MTS_RX	Input		Receive data from the RMCU to the MCU
6	LOG_TX	Output		Transmit data from the RMCU to the PC
7	LOG_RX	Input		Receive data from the RMCU to the PC
Miscellaneous Control Pins				
10	FW_E	Input		
Power and Ground Pins				
1	BAT	Power		Power Supply Pins 12~24V, 1A
2	KEY_IG	Power		Power Supply Pins 12~24V, 1A
5	GND	Ground		
12	GND	Ground		
CAN Pins				
3	CAN_H			CAN High
11	CAN_L			CAN Low
8	CAN_S			CAN Shield
Reserved Pins				
6	Reserved			
7	Reserved			

Component

- RMCU Dual 3G

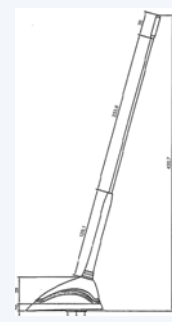
- Mobile / GPS Antenna / SAT / GPS Antenna



<RMCU Dual 3G>



<Mobile Antenna>



<SAT/GPS Antenna>

FCC Information to User

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to 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 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.