REMOTE CONTROLLER FOR HEAVY DUTY

"IRON" SERIES

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PRECAUTIONS

· Please read the manual carefully including features and specifications before use.
· Use the product for the design purpose.
· Do not diassemble or convert the product.
· Repair or customer services cannot be provided in actual fields.
· Contact to the manufacturer or seller for any kind of troubleshooting.
· Use an external fuse when supply power to the product.
· Do not apply any physical shock to avoid damage or malfunction for the product.

USER REQUIREMENTS

· A user shall have a basic electrical knowledge to control equipments.
· A user shall have an experience to communicate via CAN.

OVERVIEW

· "IRON series" is a remote controller to safe control heavy duty (Aerial Lift Truck, Crane, Pumper, Tower Crane, Excavator, Tractor, etc.) remotely.
· IRON series uses 447MHz frequency with a function for changing channel to avoid frequency interferences.
· User can monitor equipment's conditions received via 2.4GHz frequency ZigBee communication on a transmitter of IRON series with built-in LCD display.
· A low-power designed transmitter of IRON series can be used for 12 hours continuously on a single charge.

FEATURES

- Easy-to-use analog stick controller
- AirCell shoulder strap
- Adjustable analog stick sensitivities
- Enough usable time on a single charge
- Controller Area Network (CAN) support

COMPONENTS

Transmitter (Controller) ---------- 1 EA
Receiver ---------- 1 EA
Battery Charger ---------- 1 EA
Shoulder Strap ---------- 1 EA
Valve Control Unit ---------- 1 EA

SPECIFICATIONS

■ Transmitter

ITEM	DESCRIPTIONS
Display	128 x 64 Graphics Liquid Crystal Display (Optional)
Radio Frequency	447 MHz
ZigBee Frequency	2.4 GHz
Battery	Li-ion 18650 3.7V 3,000mAh
Battery Duration	more than 12 hours
Operating Temperature	-20 ... +70 celsius
Waterproof Level	same level as IP65
Weight	1.7 kilograms

■ Receiver

ITEM	DESCRIPTIONS
Indicator	7x LED
Power Source	6 ... 26 Vdc (3A max.)
Digital Communication	CANbus
Relay Output	Relay 10A + MOSFET SW 3A
Operating Temperature	-20 ... +70 celsius
Waterproof Level	same level as IP65
Weight	0.4 kilograms

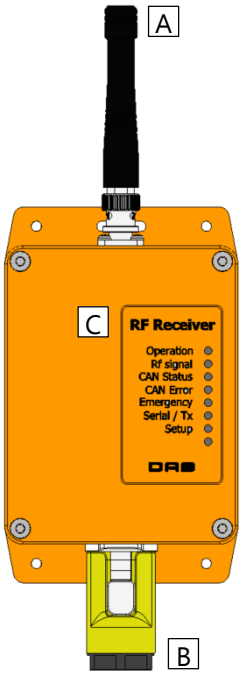
■ Valve Control Unit

ITEM	DESCRIPTIONS
Model No.	CANModule V7
Power Source	10 ... 30 Vdc
Digital Communication	CANbus

PRODUCT LAYOUT

◀ TRANSMITTER

1	POWER ON/OFF BUTTON
2	EMERGENCY STOP S/W
3	LCD MONITOR (OPTIONAL)
4	LED INDICATOR
5	TOGGLE S/W
6	2-AXIS ANALOG STCK
7	1-AXIS ANALOG STICK
8	ENGINE STOP BUTTON
9	ENGINE START BUTTON
10	KEY-LOCK / HARNESS
11	COMM. START BUTTON
12	BATTERY HOLDER
13	STRAP CLASP

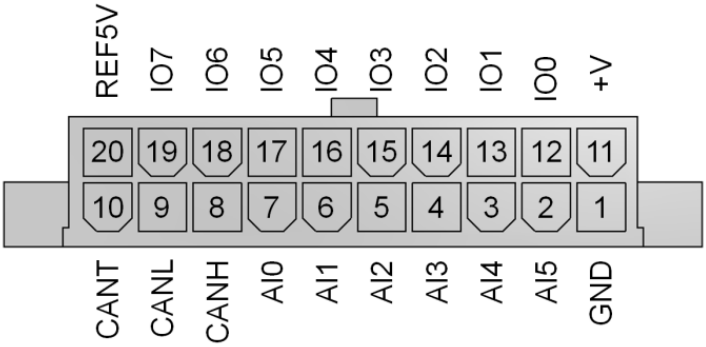


◀ RECEIVER

A	ANTENNA
B	CONNECTOR
C	LED INDICATOR

PRODUCT LAYOUT

◀ VALVE CONTROL UNIT



PIN NO.	DEFINITION	DESCRIPTIONS
1	GND	GND
2	VO1L	Output : Valve1_LOW
3	VO2L	Output : Valve2_LOW
4	VO3L	Output : Valve3_LOW
5	VO4L	Output : Valve4_LOW
6	VO5L	Output : Valve5_LOW
7	VO6L	Output : Emergency
8	CAN_H	CANbus_HIGH
9	CAN_L	CANbus_LOW
10	CAN_T	CANbus_Terminating Resistance
11	V+	V+
12	VO1H	Output : Valve1_HIGH
13	VO2H	Output : Valve2_HIGH
14	VO3H	Output : Valve3_HIGH
15	VO4H	Output : Valve4_HIGH
16	VO5H	Output : Valve5_HIGH
17	VO6H	Output : Horn
18	VO7H	Output : Linak_HIGH
19	VO7L	Output : Linak_LOW
20	GND	GND

CAUTION FOR USE

· Please be acquainted with the user's manual and equipment's functions and specifications before use.
· An equipment can be operated by a transmitter even user has no-sight.
· Please turn off a transmitter when not using.
· Please detach a Key-Lock when leaving from a transmitter.

· Emergency Stop Switch shall be checked before use.
· Do not use without emergency stop function surely operational.

· Please inspect a transmitter before use.
· Do not use a transmitter has any damage or shocked.

HOW TO USE TRANSMITTER

PREPARING AND START

1. Check the battery state of charge.
2. Press the power button [1] while beeps 3 times.
 - Power button will be illuminated.
 - LED indicator [4] will blink fastly green color.
3. Release the emergency stop switch [2] on the transmitter.
4. Press the communication start button [11].
5. Check the equipment is operated by the transmitter.
 · The equipment can be moved at this step.
 · Keep safe around the user and the equipment.
6. Press the emergency stop switch and check the equipment is stopped.
 · In case of the equipment is moving even the emergency stop switch is locked, remove the battery of the transmitter immediately and contact to an technical expert.
7. Release the emergency stop switch and press the comm. start button.

HOW TO USE TRANSMITTER

STOP OPERATION

1. Press the emergency stop switch [2] on the transmitter.
2. Pree the power button [1] while beep once.
3. Detach the Key-Lock [10].

· Please keep Key-Lock in safe place to avoid to anyone use.

EMERGENCY STOP

1. Press the emergency stop switch [2] on the transmitter.
2. When the emergency situation is stopped, release the emergency stop switch again.

LED INDICATOR STATUS

· Green color constantly on : the transmitter is on, not operating.
· Green color blinking : the transmitter is operating.

LOW-BATTERY WARNING

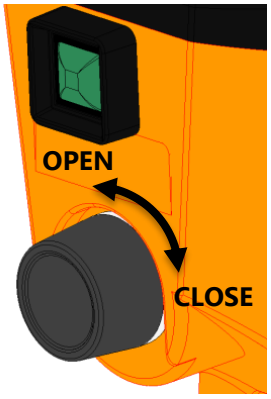
1. When low-battery is sensed, buzzer will beep twice and beep every second after 30 seconds to 1 minute.
2. The transmitter will be turned off.

· Keep safe around the user and the equipment while warning.

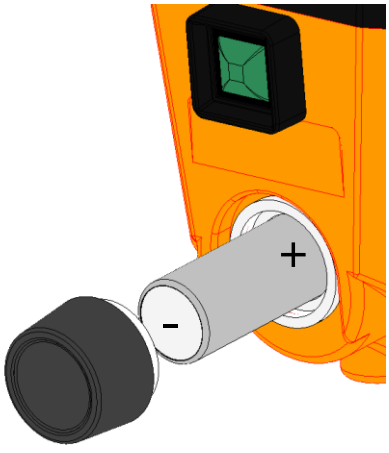
3. Replace or re-charge the battery and re-start operating.

HOW TO USE TRANSMITTER

BATTERY REPLACEMENT



1. Open the battery cover [12].



2. Replace the battery to a charged battery.
   - · Please be careful polarities of the battery.
   - · Battery : Li-ion 18650 3.7V 3,000mAh

3. Close the battery cover.

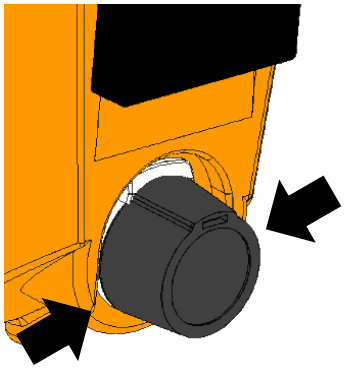
BATTERY CHARGING

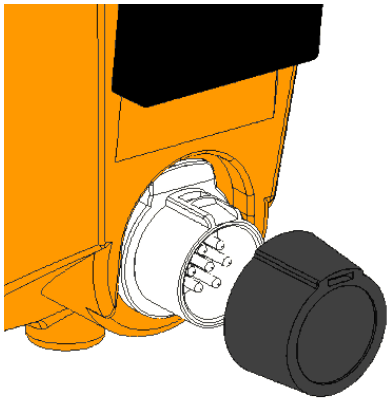
1. Insert a discharged battery into a charger.
   - · Please be careful polarities of the battery.
2. Connect USB charging cable to a ADC adapter or a cigar jack adapter.
3. Progress of charging will be displayed on LCD.

HOW TO USE TRANSMITTER

DETACH KEY-LOCK

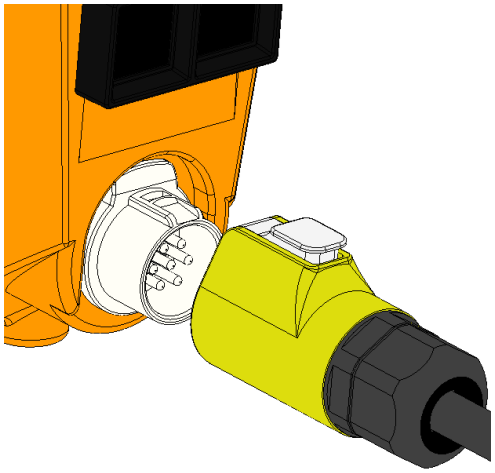
Press both side of the Key-Lock [10] and pull out.

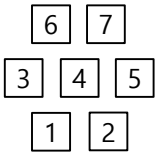




CONNECT TO PC (FOR DEBUGGING)

Connect a debugging plug to the Key-Lock connector [10].



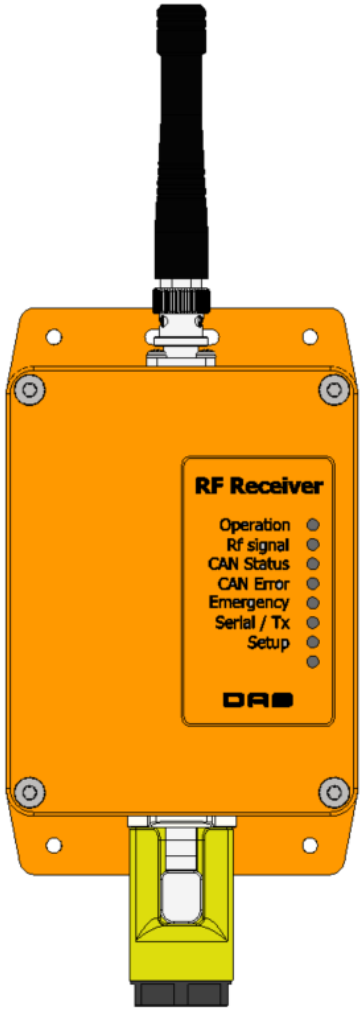


PIN MAP

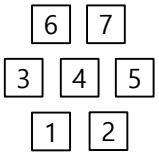
PIN NO.	DEFINITION
1	CAN L
2	CAN H
3	+3.3V
4	GND
5	V+
6	RS232 Tx
7	RS232 Rx

*Debugging plug is not provided for general users.

RECEIVER INSTALLATION



1. Turn off the equipment before install.
2. Attach the receiver at a installing place and fix by screw bolts or welding.
3. Connect cable plug to the receptacle on the bottom of receiver.
4. Turn on the equipment.
   - LED indicator [Operation] will be on.
5. Operate a transmitter.
   - LED indicator [RF Signal] will be blinking.



PIN MAP

PIN NO.	DEFINITION
1	CAN L
2	CAN H
3	+3.3V
4	GND
5	V+
6	RS232 Tx
7	RS232 Rx

CAUTION FOR WELDING

· Disconnect every connectors of the electic device before weld.
· Welding devices generate high voltage and current. The product and the equipment can be damaged by the electric shock of them.
· Please weld carefully by properly safety procedure even the power source is disconnected.
· The ground connection of welding shall be connected near the spot.

TROUBLE-SHOOTING

TRANSMITTER IS NOT WORKING

· Check the battery state of charge.
· Check the receiver is powered on.
· Check the Key-Lock is attached correctly. In case of Key-Lock is detached when start, the illumination of power button will be blinking twice.

TRANSMITTER IS NOT TRANSMITTING

(LED indicator on the transmitter is not blinking.)
· Check the battery state of charge.

EQUIPMENT IS NOT WORKING BY TRANSMITTER

· Check the operating position is within effective transmitting-receiving distance.
· Check the receiver is powered on.
· Check a shortage on valve output wire circuit.
· In case of the frequency channel of transmitter-receiver is not matching, re-start the transmitter-receiver.

EQUIPMENT IS NOT WORKING OCCASIONALLY

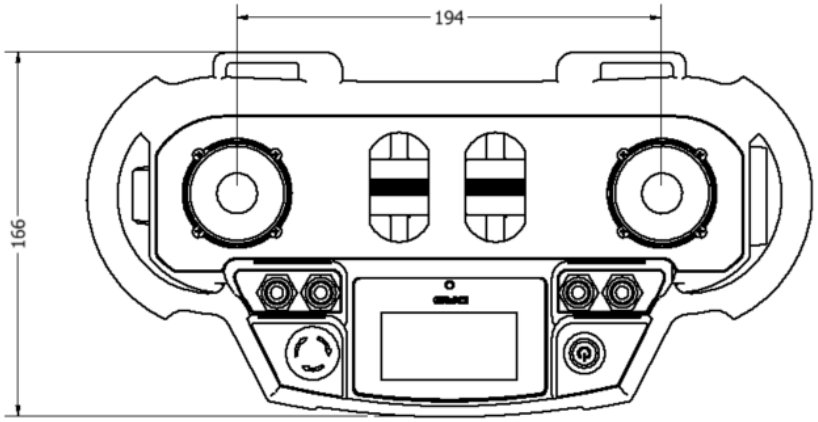
· Check the coupling of receiver and antenna.
· Check the connection of receiver and connector.
· Check wiring connections of the receiver and the equipment.
· Check the ground connection of receiver.
· Check the transmitting-receiving is crossed.

CHARGING IS NOT WORKING

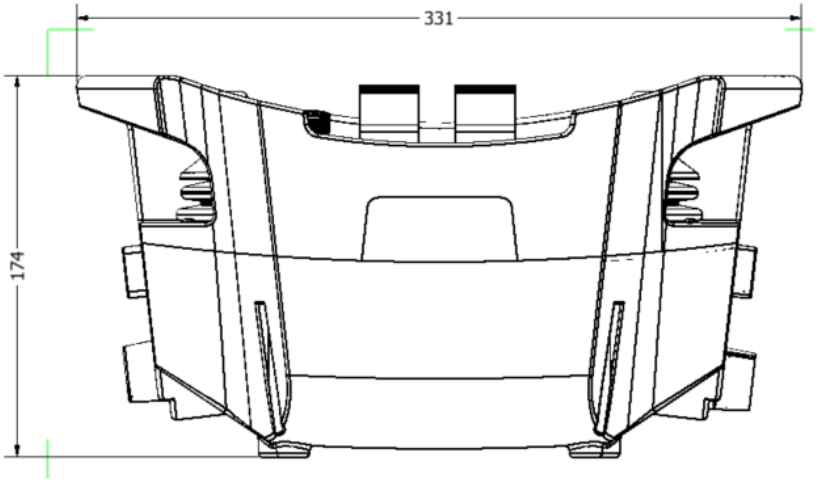
· Check the charger is powered on.
· Check polarities of the battery.

DIMENSIONS - TRANSMITTER

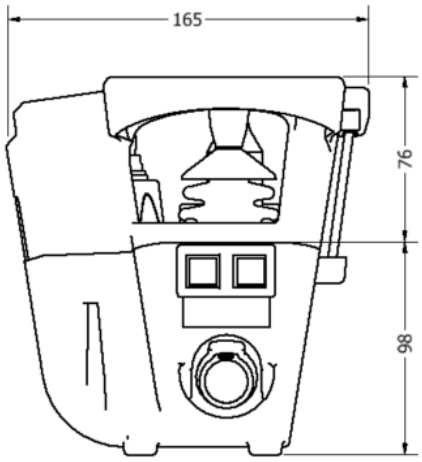
TOP VIEW



FRONT VIEW

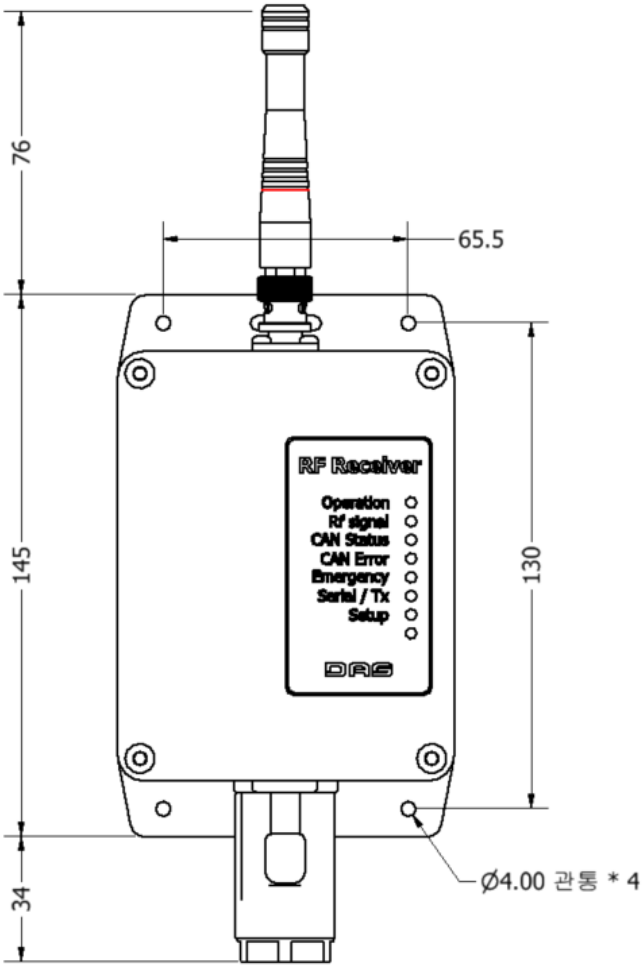


SIDE VIEW



DIMENSIONS - RECEIVER

TOP VIEW



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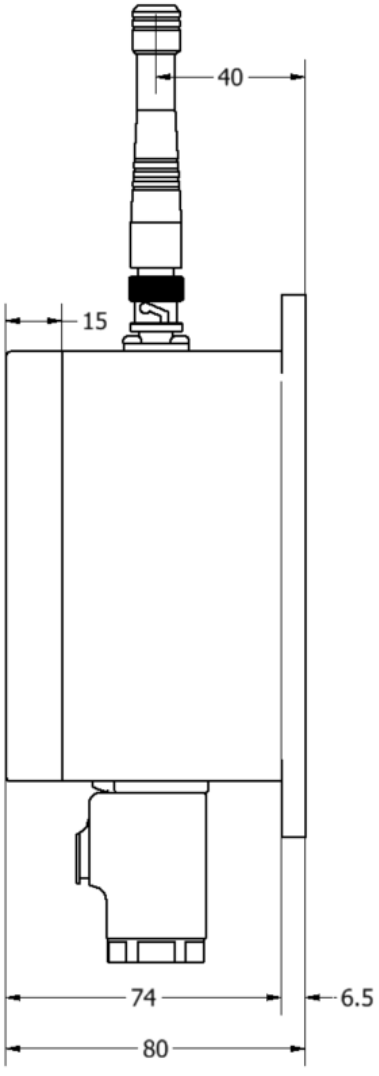
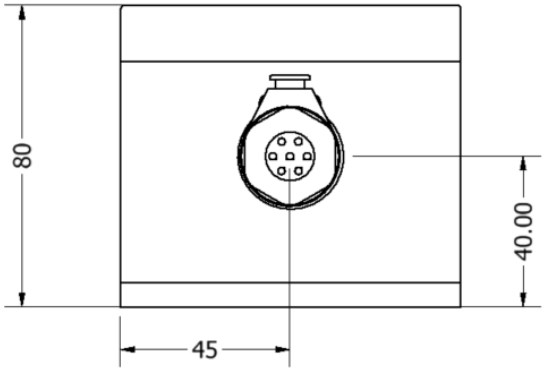


REAR VIEW



WARRANTY

· 12 months warranty is provided after released.
· Warranty provided only in case of using for designed purpose correctly.
· Warranty provided only for malfunctions, defects or design deficiencies of the product during the warranty period.
· The manufacturer has not any responsibilities for damages or losses of related products, devices or a equipment.
· Damaged by any kind of natural disaster, user's carelessness, abnormal power sources, diassembling or converting the product or in case of warranty termination is excluded from this warranty.

CONTACT US

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