

Rug-Rel Components & Systems

USER MANUAL FOR In Vehicle Crew Console

Part No.: 0313-000-274



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(This manual is prepared in accordance with the Standard JSS 0251-01:
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Table of Contents:

<i>First aid in the case of electric shock.....</i>	<i>4</i>
<i>Procedures to be followed for artificial respiration</i>	<i>5</i>
CHAPTER I	6
1.1 System Specifications.....	8
1.2 Mechanical Specifications	8
1.3 Cables	9
1.4 General Assembly Drawing	9
1.5 Legends of the unit	10
CHAPTER II	11
2.1 Block Diagram of Crew Console:	11
2.2 Test Procedure:	11
CHAPTER III	12
3.1 Maintenance Procedures	12
CHAPTER IV	13
4.1 Package Contents	13
4.2 Restriction on mode of transportation etc.....	13
4.3 Packing procedures	13

Table of Figures:

Figure 1: Front ISO view of system	6
Figure 2 : Side view of system	7
Figure 3 : Side view of system	7
Figure 4: General Assembly Drawing of system	9
Figure 5: Legends on the Unit.....	10
Figure 6: Block Diagram of the system	11

List of Tables:

Table 1: Connector details of the Unit.....	6
Table 2: System Specifications.....	8
Table 3: Mechanical Specifications.....	8



First aid in the case of electric shock



Shock is a common work-related danger associated while working with electricity. A person who has stopped breathing is not necessarily dead but is in immediate danger. Life is dependent on oxygen, which is breathed into the lungs and then carried by the blood to every body cell. Since body cells cannot store oxygen and since the blood can hold only a limited amount (and only for a short time), death will certainly happen from continued lack of breathing.

However, the heart may continue to beat for some more time even after breathing has stopped, and the blood may still be circulated to the body cells. Since the blood, for a short time, can supply oxygen, the body cells will not die immediately. The chance to rescue the victim's life will be there for some more minutes.

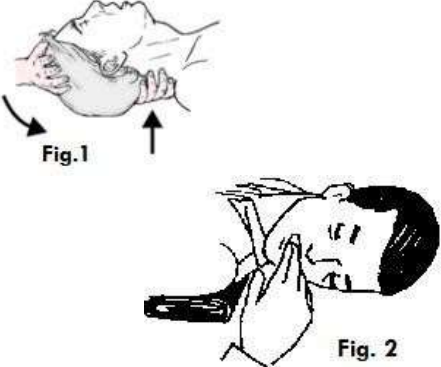
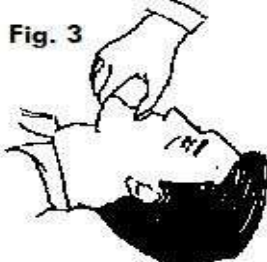
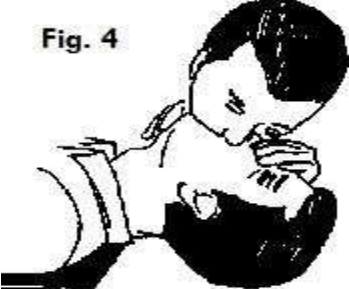
The process by which a person who has stopped breathing can be saved is called artificial respiration. The purpose of artificial respiration is to force air out of the lungs and into the lungs, in rhythmic alternation, until natural breathing is reestablished. Records show that seven out of ten victims of electric shock were revived when artificial respiration was started in less than three minutes. After three minutes, the chances of recovery decrease rapidly.

Artificial ventilation should be given only when the breathing has stopped. Do not give artificial ventilation to any person who is breathing naturally. You should not assume that an individual who is unconscious due to electrical shock has stopped breathing. To confirm whether someone suffering from an electrical shock is breathing, place your hands on the person's sides at the level of the lowest ribs. If the victim is breathing, you will usually be able to feel movement.

Once it has been confirmed that breathing has stopped, the person nearest the victim should start the artificial respiration without delay and get medical aid. The delay for giving artificial respiration being at the most should be the time taken to remove the victim from the source of electricity. Removal of victim from the source of shock must be taken quickly and must be done with great care; otherwise, there may be two victims instead.

1. Observe first. Don't touch. The person may still be in contact with the electrical source. Touching the person may pass the current through the rescuer.
2. Protect the rescuer with dry insulating material.
3. Turn off the source of electricity, if possible. If not, move the source away from the rescuer and the affected person using a non-conducting materials like cardboard, plastic or wood, dry rope or dry clothing. Use a dry board, belt, clothing, or other available non- conductive material to free the victim from electrical contact. DO NOT touch the victim until the source of electricity has been removed.
4. Once the victim has been removed from the electrical source, it should be confirmed first that the person is breathing or not. If the person is not breathing, a method of artificial respiration is used.

Procedures to be followed for artificial respiration

<p>1. Place the victim in the lying on back position.</p> <p>a. Keep the air passage clear by turning the head to one side, open the patient's mouth and clear water, saline, mucus or blood that might have accumulated in the back of the throat. (Fig.1 & 2)</p>	 <p>Fig.1</p> <p>Fig. 2</p>
<p>2. If the jaw is stiff, try to force open the mouth by putting pressure on the gum behind the last molar tooth of the lower jaw. When the upper air passages are cleared, tilt the head backward and force the jaw forward from the angles of the jaw in front of the ears. This would prevent mechanical obstructions to the upper air passages. (Fig. 2-3)</p>	 <p>Fig. 3</p>
<p>3. Then hold the chin up and forward with one hand and pinch the nostrils of the victim with the other.</p> <p>4. Take a very deep breath and apply your mouth to that of the victim and blow into his mouth until the chest of the victim moves up indicating filling of the lungs (Fig. 4) (Never allow the chin to hang down).</p>	 <p>Fig. 4</p>
<p>5. When the chest has moved up, withdraw your mouth and allow the chest to go down.</p>	
<p>6. Repeat this process every three to four seconds until the victim begins to breathe again or until he is taken over by a medical attendant. This method can be continued in an ambulance during the transport of the patient from the site of accident to the nearest medical centre.</p>	
<p>7. By then sent someone for doctor/medical assistance.</p>	

CHAPTER I

This document describes the Acceptance Test Procedures (ATP) for IN VEHICLE CREW CONSOLE(IVCC). IVCC is a Multi-function Common Console Cabinet developed for tank application. The console houses the hardware required for the operation and control of equipment. IVCC unit consists of a structural framework holding Rugged monitor with bezel keys, SBC, membrane Keyboard, two joy sticks, electrical connectors along with user interfaces and controls.

<i>Sl No</i>	<i>Connector Reference</i>	<i>Signal Type</i>	<i>Signal Name</i>
1	J1	DC Power	I/P Power
2	J2	Ethernet1	ETH-1
3	J3	Ethernet2	ETH-2
4	J4	RS422	RS422
5	J5	Debug	RS422
6	J6	Spare	-
7	J7	USB-1	-
8	J8	USB-2	-

Table 1: Connector details of the Unit



Figure 1: Front ISO view of system

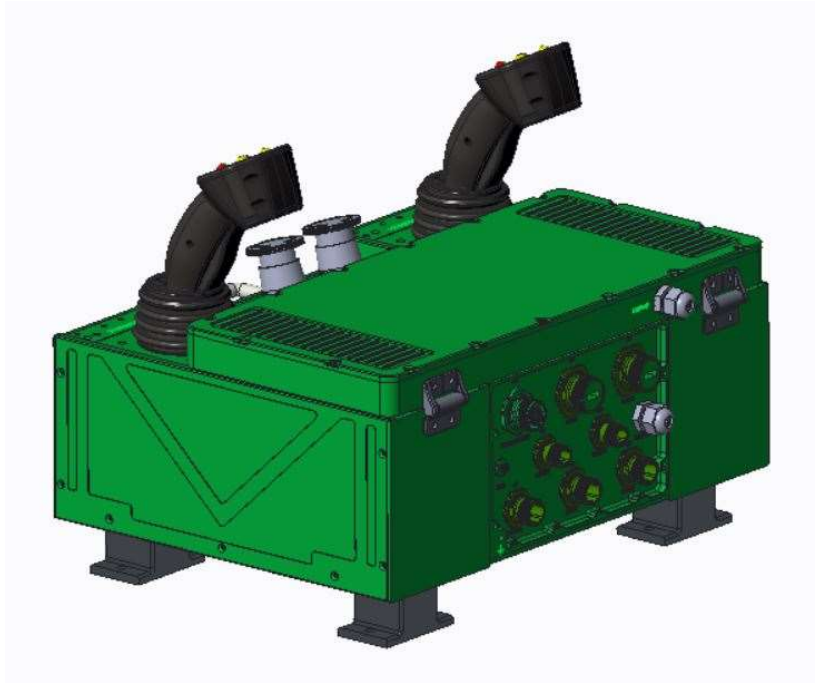


Figure 2 : Side view of system



Figure 3 : Side view of system

1.1 System Specifications

Sl No	Parameter	Specification	Remarks
1	Processor	Intel® 12th Gen Alder Lake-P	
2	RAM	8GB (DDR4)	
3	Ethernet	2 x Intel 2.5 Gigabit LAN ports	
4	Storage	256GB	
5	I/O Port	RS422: 02 no USB: ≥ 02 no's Audio port: 01	
6	OS	Ubuntu 22.04	
7	Monitor	10.2", 1920 x 1080 resolution, 1000nits with 28 bezel keys	
8	Joystick	02nos	
GENERAL SPECIFICATIONS			
9	Power	18-32V DC	
10	Operating Temperature	-20°C to +60°C	
11	IP Rating	IP65	
12	EMI/EMC	MIL STD 461G (Ground, Army)	
13	Environmental Spec	JSS 55555	
14	Dust Caps	Dust caps with Nylon beads to be provided for all external interfaces	

Table 2: System Specifications

1.2 Mechanical Specifications

Description		
1.	Dimensions	300±5%X400±5%X200±5%(LXWXH)
2.	Weight	12Kg
3.	Color	

Table 3: Mechanical Specifications

1.3 Cables

The system level wiring is based on the basic interconnect between the power supplies, various modules and external connectors. For these wiring the cables used are of MIL grade PTFE cables.

1.4 General Assembly Drawing

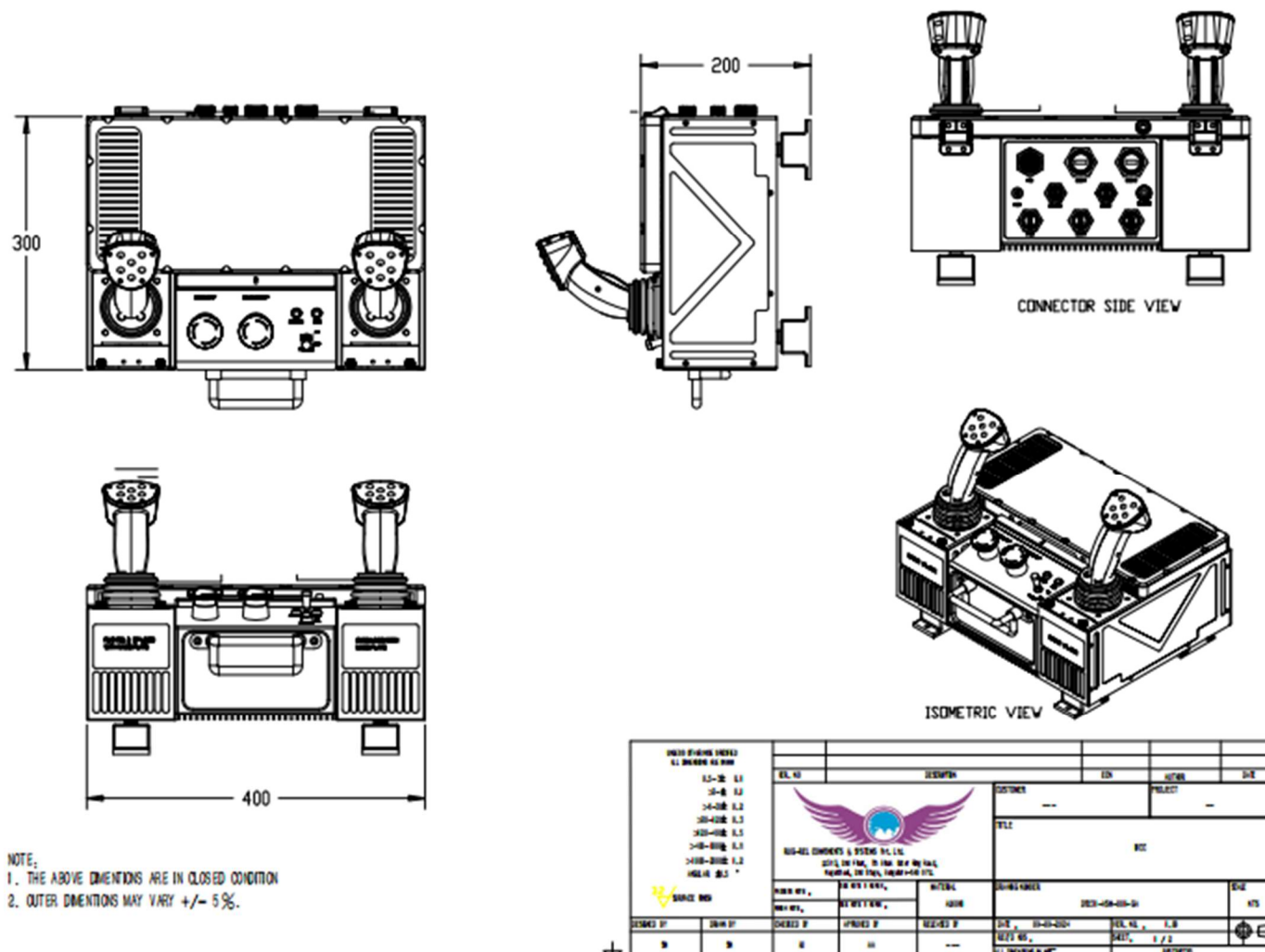


Figure 4: General Assembly Drawing of system

1.5 Legends of the unit

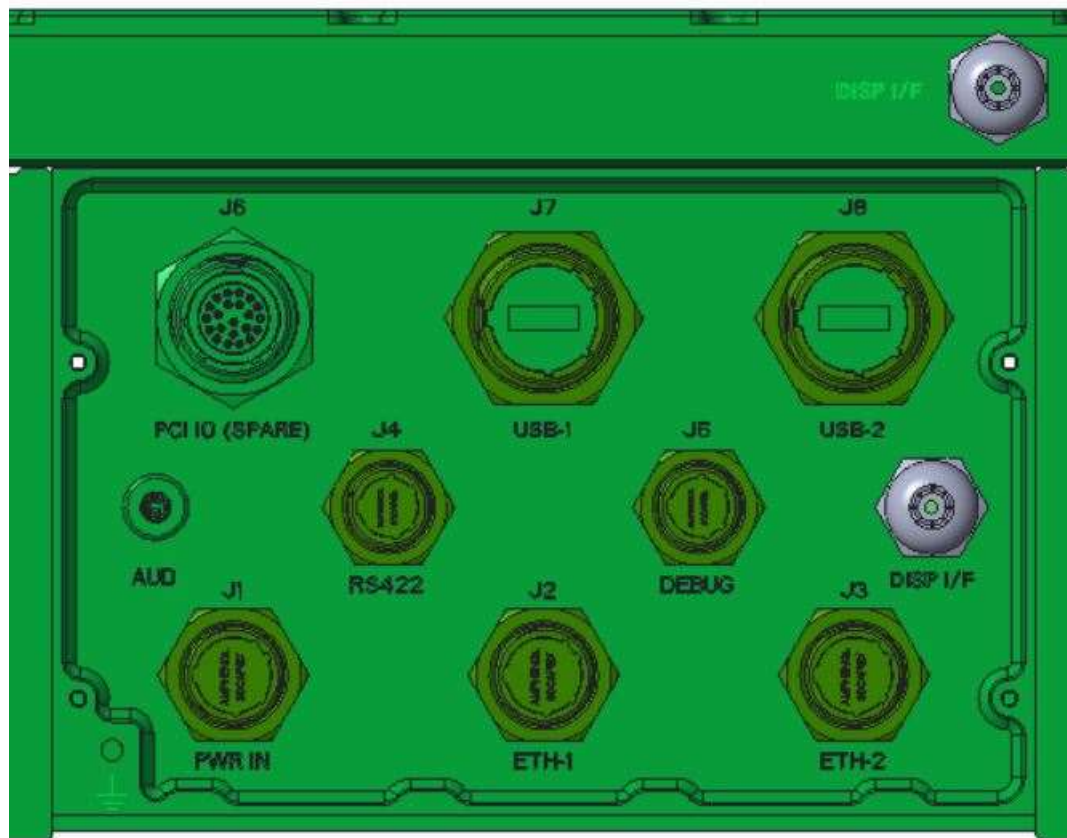


Figure 5: Legends on the Unit

CHAPTER II

2.1 Block Diagram of Crew Console:

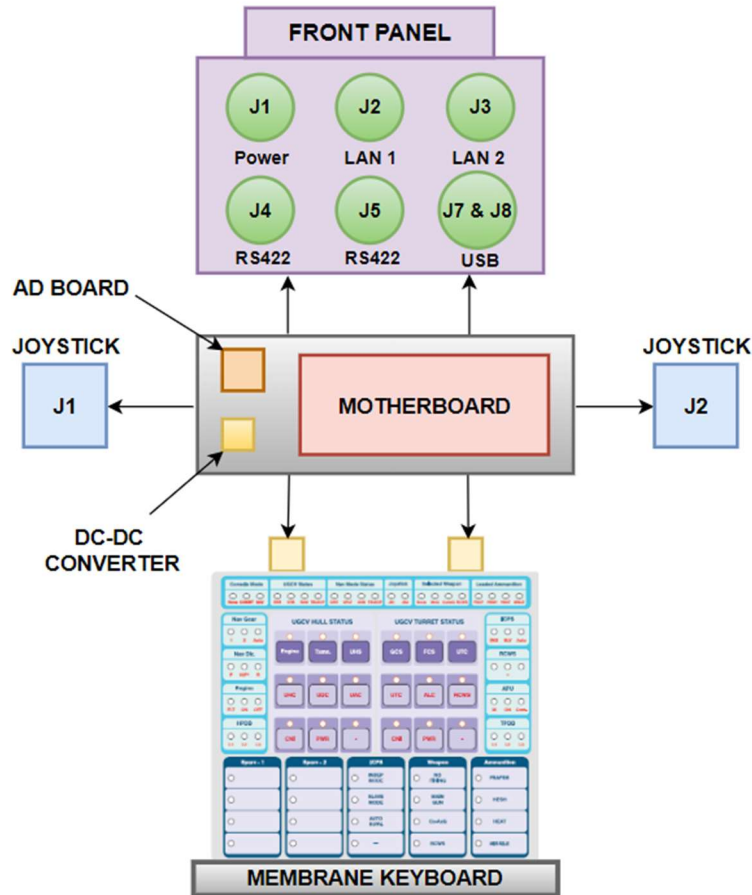


Figure 6: Block Diagram of the system

2.2 Test Procedure:

Power on the system with below mentioned Procedure:

- The unit takes input of 28V DC.
- Before beginning the testing of system ensure the power mating cable is harnessed as per the latest ICD.
- Set the Voltage of External power supply to 28V DC.
- Connect the power cable (J1) between power connector & External power supply.
- Switch ON the external power supply.
- When Toggle switch is switched ON, the green LED on the external interface panel will glow, confirming that the system will begin the boot up process on the SBC.

CHAPTER III

3.1 Maintenance Procedures

- **General Cleaning Instructions**

Never Spray or Squirt any liquid onto any unit component. If a Spray is needed, spray the liquid onto the cloth and wipe those. Use a Vacuum to suck up dirt, dust or hair around the Unit. Do not use vacuum inside the system as it generates static electricity that can damage the system. Be cautious while using any cleaning solvents because some solvents can damage the electronic components inside the unit.

- **Precaution before starting maintenance procedures**

Ensure that the power is switched OFF and the power cords disconnected from the main switch, before installation or removal of any internal components.

CHAPTER IV

Miscellaneous

4.1 Package Contents

Crew Console with rugged Chassis.

1. Mating Connectors for all the connectors.
2. Dust Caps for all the connectors.
3. Delivery Challan.
4. Test Reports.
5. User Manual.

4.2 Restriction on mode of transportation etc.

If you need to ship this chassis for any reason including returning it to Rug-Rel Components & Systems for warranty service, follow those shipping instructions given below in 6.3 (Packing procedures). Failure to follow these instructions may damage the system.

The specification for packing the product shall be entirely at the discretion of the Company who shall have the right to pack all products in such a manner and with such materials and in such quantities as it in its absolute discretion thinks fit and shall not be obliged to comply with any packaging instructions given by anybody.

4.3 Packing procedures

- a. If the unit need to be shipped back to Rug-Rel Components & Systems, the original packing material should be used sealed adequately to ensure safety of the unit in shipping. Repack the unit as it originally received from us.
- b. Ensure packing fillers that you use should be made of moisture resistant material only.
- c. It must be shipped with all modules in place.
- d. No cables or connectors should be attached to the front/rear of the chassis.
- e. A foam piece should be placed over the rear of the unit.
- f. Ensure weight is distributed evenly within the crate.
- g. Pack contents tightly within the carton, or crate. In this way the container wall is given added strength and harmful destruction of system during shipping is avoided.
- h. Prepare ferrous surfaces with a rust inhibitor to enable your product to arrive at its destination free from rust or corrosion.