



A Group CBS Company

USERS MANUAL

RSK-ABL2

Remote Operator for Low Voltage Allen-Bradley Centerline Motor Control Center Units (with large handles)



Distance *is* Safety[®]

WHAT STANDS
BETWEEN YOU
AND ARC-FLASH
DANGER?

WE DO.

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Rev. September 2019

User's Manual for the following RSK models:

RSK-ABL2C and RSK-ABL2W. US Patent 9,666,384

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1.0 Introduction


The RSK-ABL2 is designed to remotely operate the ON/OFF handle on Allen-Bradley motor control center units with large handles.

The RSK-ABL2 is offered in two basic models – a wireless version (RSK-ABL2-W) and a cabled version (RSK-ABL2-C). The advantage of the wireless version is that there are no cables to deal with which makes it more convenient to use. The cabled version is offered because some customers prefer cable operated equipment.

The following items should be included in with your RSK-ABL2:

RSK-ABL2-W	RSK-ABL2-C
RSK-ABL2-W Actuator with battery pre-installed	RSK-ABL2-C Actuator with battery pre-installed
RTL-1 Handheld transmitter with battery pre-installed	RCL-1 Handheld controller
Instruction Manual	30-foot cable (50-foot optional)
Carrying case	Instruction Manual Carrying Case

2.0 Safety Information

 **DANGER**

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- This equipment must only be installed by qualified personnel.
- Only use this equipment after reading and understanding all of the instructions contained in this manual.
- Follow electrical safe work practices. See NFPA 70E or CSA Z462

FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN DEATH OR SERIOUS INJURY

2.1 Arc-blast Hazards

The hazards associated with electrical arc-blasts are well documented. Studies conducted by numerous industries and professional organizations have sought to quantify the intensity of arc blast, the risks to personnel, and various methodologies for mitigating the risks.


Without a doubt, increasing the distance between the arc and a human is the single greatest favorable factor in reducing injuries. Remote operation of electrical equipment is not a cure-all, but rather one more tool available for protecting workers while they are performing electrical switching.

Using the RSK-ABL2 remote operating device for motor control centers may not negate the need for additional personal protective measures. The user is ultimately responsible for evaluating each situation to determine if additional protective measures are needed.

2.2 Battery Hazards

The RSK-ABL2 is battery powered from a custom battery that is installed within the actuator. The total maximum voltage is less than 24VDC. Although this is below the recognized threshold for a shock hazard, there can significant energy stored in the battery pack. Care must be taken to properly handle the battery pack.

The battery pack may contain Lithium or be of the Alkaline type. The type of battery in your RSK-ABL2 can be determined by the label on the side of the battery. Care must be taken when handling the battery and federal regulations must be followed for disposal and shipping of the batteries. Do not ship damaged lithium batteries. Please contact CBS ArcSafe at the address in Section 8.0 if you need more information on the battery pack.

 **WARNING**

THIS EQUIPMENT MAY CONTAIN PRIMARY LITHIUM OR ALKALINE CONTAINING BATTERIES

- All Federal and State regulations must be followed for disposal, transport, and shipment of the batteries and equipment.
- Do NOT attempt to recharge the batteries.

2.3 Magnet Hazards

 **DANGER**

THIS EQUIPMENT UTILIZES A POWERFUL MAGNET TO HOLD IT ON THE MOTOR CONTROL CENTER

Care must be taken to prevent injury when handling the equipment

The magnets that are used on the RSK-ABL2 to hold it on the motor control center produce a strong magnetic field. Care must be taken when handling the RSK-ABL2. The following steps should be followed to assure safe handling:

- The magnets need to be kept at a safe distance from all magnetic storage devices, electronics, credit cards, etc.
- The RSK-ABL2 should be stored with the magnets in the "OFF" position. If left in the "ON" position and brought close to ferromagnetic materials, there will be a sudden and powerful attraction that could present a pinch hazard or equipment damage.
- Do not use the RSK-ABL2 if the magnets have been damaged.

- Do not attempt to service the magnets. There are no user serviceable parts inside the device.
- The magnets contains PTFE lubricant. Contact CBS ArcSafe for MSDS information.
- Always keep the bottom of the magnet free of debris and rust. If needed, wipe with WD40 or light oil.

2.4 Pinch Point Hazards



DANGER

THIS EQUIPMENT HAS MOVING PARTS THAT PRESENT PINCH POINT HAZARDS

Care must be taken to prevent injury when handling the equipment

The RSK-ABL2 is a motorized device with moving parts that will produce the opportunity for pinch point hazards. Steps have been taken in the design to help prevent a pinch point injury. One of these features is the safety switch integrated into the bottom of the unit. This safety switch prevents the RSK-ABL2 from energizing, or remaining energized, unless it is installed on a flat surface. Once the RSK-ABL2 is removed from the motor control center, it will automatically de-energize. However, this alone is not assurance that a pinch point injury cannot take place. In order to prevent a pinch point injury, the following procedures should be followed:

- Install the RSK-ABL2 actuator on the MCC door prior to turning it on.
- Once the RSK-ABL2 is turned ON, do not touch or bring body parts near the actuator.
- Turn OFF the RSK-ABL2 actuator prior to removing it from the MCC door.
- Do NOT attempt to turn the RSK-ABL1 actuator ON unless it is installed and ready to use.

Additionally, the magnets used to hold the RSK-ABL2 actuator on the MCC door could present a pinch hazard. To prevent an injury the follow procedures should be followed:

- Only turn the magnets to the "ON" position when it is firmly against the metal surface of the MCC door.
- Turning the magnets to the "ON" position prior

to installing the RSK-ABL2 could cause a quick uncontrollable attraction to ferromagnetic materials in close proximity and present a serious pinch point injury.

- Store the RSK-ABL2 actuator with the magnets in the "OFF" position.

2.5 Radio Frequency

The wireless version of the RSK-ABL2 uses a radio transmitter and receiver to communicate. The transmitter and receiver operate in the 2.4GHz frequency band and is low power at 1mW. These are commercially available radios that have agency certification through the manufacturer. They are certified with the following agency approvals:

United States – FCC

FCC ID: OUR-XBEE

The enclosed device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (i.) this device may not cause harmful interference and (ii.) this device must accept any interference received, including interference that may cause undesired operation.

Canada – IC

IC: 4214A-XBEE

3.0 Battery Information



WARNING

THIS EQUIPMENT USES A CUSTOM DESIGNED BATTERY PACK

DO NOT attempt to modify the battery pack or to install a battery pack not approved for use in the RSK-ABL1. Doing so could cause equipment damage, fire, or personal injury.

The RSK-ABL2 is powered from a custom battery pack that has been pre-installed in the actuator. It consists of 15 single cell AA batteries connected in series to produce a nominal voltage of 22.5VDC. There are also two additional single cell AA batteries connected in series to produce a nominal voltage of 3.0VDC. The 17 total cells are packaged within the one replaceable battery pack. The 22.5VDC output is fused in the middle of the string to limit the current to 4.0 amps.

The two following battery types are offered with RSK-ABL2:

Lithium/Iron Disulfide – this battery pack has been tested to 1500+ operations before needing to be replaced. The individual cells have an advertised shelf life of 10-20 years depending upon the storage temperature. The advantage to this battery is that it is long lasting and will not require replacement as often as an alkaline battery. The disadvantages are that there are regulations that in certain circumstances could prevent shipping or transporting them by air freight and internationally. See Federal 49 CFR 173.185 and IATA regulations for additional information for shipping and transporting Lithium batteries. See Section 7.0 for additional specifications.

Alkaline – this battery pack has an estimated life of 750 operations before needing to be replaced. The individual cells have an advertised shelf life of one year, which is the disadvantage of this battery. The advantage is that it can be easily shipped by air or internationally.

The type of battery installed in your RSK-ABL2 could be either the Lithium/Iron Disulfide type or the Alkaline depending on which type was ordered. The type of battery installed in your RSK-ABL2 can be determined by the label on the side of the battery.

Both types of battery packs are custom designed to work with the RSK-ABL2 and are only available through CBS ArcSafe. Use only approved battery packs. CBS ArcSafe can provide assistance to assure that you order the correct battery. See Section 8.0 for information to contact CBS ArcSafe.

RTL-1 Remote Transmitter

The RTL-1 is a remote transmitter used with the wireless version of the RSK-ABL2. It is powered by a 9VDC battery. Replace this battery as needed with a commercially available alkaline or lithium 9VDC battery.

RCL-1 Remote Controller

The RCL-1 is a remote controller used with the cabled version of the RSK-ABL2. It is powered from the RSK-ABL2 actuator through the cable and does not contain a battery.

3.1 Removing and Replacing the Battery in the RSK-ABL2 Actuator

The RSK-ABL2 actuator requires a custom battery. Do not attempt to use a non-approved battery. To obtain a replacement battery, see Section 3.0 for detailed

information. To replace the battery, complete the following steps:

STEP 1: Using Phillips screwdriver, remove four screws from battery cover plate.



STEP 2: Remove battery cover plate and slide battery out.



STEP 3: Disconnect battery at connector.



STEP 4: Plug new battery into the connector and slide battery into place. NOTE: The battery will only go in one way. The end where the battery leads exit the battery must go in first.



STEP 5: Replace battery cover.



3.2 Replacing the Battery in Wireless Remote Transmitter

The RTL-1 remote transmitter uses a standard 9V battery. See Section 3.0 for additional information on the 9VDC battery to be used.

To replace the battery, complete the following steps: .

- Remove the battery cover on the back of the transmitter.
- Replace the battery.
- Re-install the battery cover.



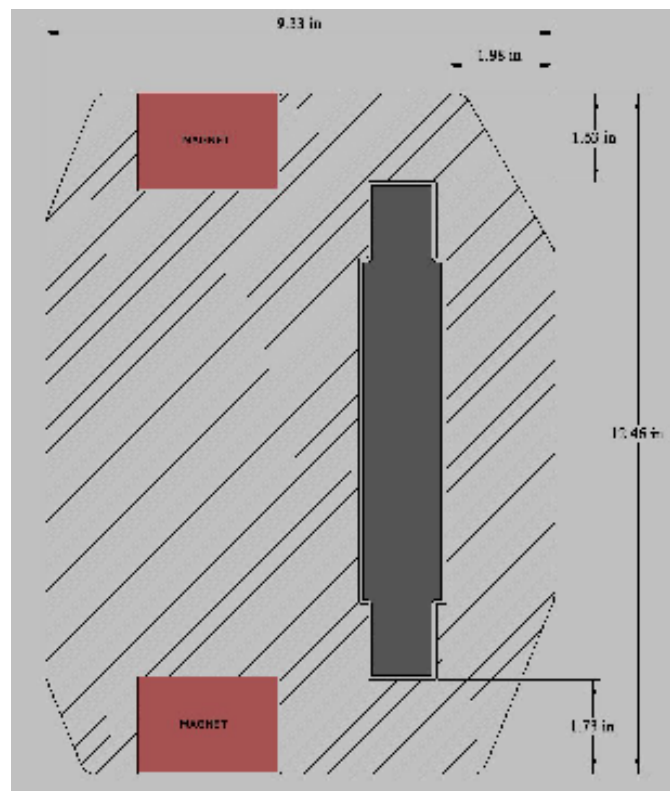
4.0 Use and Operation of the RSK-ABL2

One of the unique features of the RSK-ABL2 is that the actuating arms are not required to be pre-positioned to match the present position of your MCC operating handle. The RSK-ABL2 can be simply installed over your MCC operating handle regardless of whether your handle is in the ON or OFF position.

The only consideration is making sure that there are no obstructions in the way of mounting the RSK-ABL2. Section 4.1 shows detailed information on the footprint required. This footprint area must be clear of nameplates, auxiliary devices, and must be clean for the magnets to firmly attach.

4.1 Mounting Footprint

The following picture shows the footprint of the RSK-ABL2 when mounted to an MCC bucket. This footprint shows the area that touches your equipment which is the area on your equipment that must be clear for mounting the RSK-ABL2.



4.1 Installing and Operating the ABL3 Actuator

STEP 1: Prior to installing the RSK-ABL2 actuator, the MCC door must be firmly latched or the actuator will pull the door open. Verify that the door is firmly latched before proceeding with installing the RSK-ABL2.



STEP 2: Prior to installing the RSK-ABL2 actuator, verify that the magnets are in the OFF position. If the MCC switch handle is in the OFF position, start with the RSK-ABL2 held below the MCC handle and slip the actuator arm pins under the handle and move the RSK-ABL2 up and over the operating handle mechanism. Conversely, if the MCC switch handle is in the ON position, start with the RSK-ABL2 held above the MCC handle and slip the actuator arm pins under the handle and move the RSK-ABL2 downward and over the MCC switch handle mechanism.



STEP 3: With actuator now flush against the MCC door, twist the magnet levers on both magnets one-half turn clockwise to lock the magnet and actuator in place.



STEP 4: For the wireless versions of the RSK-ABL2, the installation is complete and it is ready to operate. See Section 4.2 for the operating procedure.

For the cabled version of the RSK-ABL2, the cable must be installed prior to proceeding. Attach the cable to both the actuator and the hand-held controller by inserting the cable in the connector and turning the ferrule clockwise to lock it in place. Once the cable is connected, see Section 4.2 for operation.

4.2 Operating the RSK-ABL2

STEP 1: Press the WAKE button to power up the actuator.



STEP 2: While standing at a safe distance, press and hold the ENABLE button on the hand-held controller. The yellow light should illuminate. Then press and hold the button corresponding to the handle direction that is desired (ON or OFF). Both the ENABLE button and the ON or OFF button must be held simultaneously until the full stroke of the operating handle is complete. Then the buttons can be released and the actuator will return to its neutral position.

NOTE: The actuator will power itself OFF after a couple minutes of no use. Press the WAKE button to turn it back ON, if necessary.



STEP 3: When completed with operating the RSK-ABL2, power the actuator OFF by pressing the SLEEP button.



4.3 Removing the RSK-ABL2

STEP 1: Verify that the actuator is powered OFF by pressing the SLEEP button. DO NOT ATTEMPT TO REMOVE THE ACTUATOR WITH THE POWER ON AS THIS COULD CAUSE A PINCH POINT INJURY.



STEP 2: While firmly holding the actuator in your right hand, disengage the magnets by using your left hand to turn the magnet lever counter-clockwise. Lower the actuator off the operating handle.



STEP 3: Disconnect cable (for cabled versions only) and return components to carrying case or store on the side of the MCC. (See Section 5.0 for details)



5.0 Storage

The RSK-ABL2 is provided with a heavy duty carrying case that can be used to conveniently store the actuator and its necessary components. The carrying case and complete unit should be stored in a clean and cool environment.

In order to make the RSK-ABL2 more readily available for use, the actuator and hand-held controller can also be stored on a ferromagnetic surface such as the side of the MCC. Use the mounting magnet on the RSK-ABL2 to hold it in place and the hand-held controller has a magnet built in that will allow it to hold onto a steel metal surface as shown below. Storage on the side of an MCC is only recommended if the area is clean, dry, and cool (<90F)



6.0 Troubleshooting

SYMPTOM	SOLUTION
The LED on the Wake button flashes and then the unit shuts down.	The battery in the RSK-ABL2 is low and must be replaced.
The RTL-1 wireless transmitter won't activate the RSK-ABL2.	The problem could occur if the transmitter is outside the 50-foot range. It is possible the problem could be due to a low battery in the RTL-1. Try replacing the battery.
The LED on the Wake button shuts off after a couple of minutes.	This is normal. The RSK-ABL2 will power down if not used within a couple of minutes in order to preserve the battery. Press the Wake button again to turn it back on.
The RCL-1 cabled hand-held controller will not activate the actuator.	Check that the control cable is connected.

7.0 Specifications

Voltage	RSK-ABL2 – 22.5VDC and 3.0VDC (custom designed battery available in Lithium or Alkaline. See Section 3.0 for more details) RTL1 – 9VDC RCL1 – 5VDC (powered from RSK-ABL2)
Lithium Battery (when supplied)	17 cells, (each cell is Ultimate Lithium Energizer L91) Output Voltage – 22.5VDC and 3.0VDC Battery net weight – 0.27kg Lithium Disulfide (Li/FeS ₂) content – less than 17g total Operating and Storage Temperature -40F to 140F (-40C to 60C) Shelf Life 20 years at 21C Designation (per cell) ANSI 15-LF, IEC-FR14505 (FR6) See Section 3.0 for additional information
Magnets	Each magnet rated 400lbs/181kg magnet strength, 20lbs/9kg shear load.
Cabled Hand-held Controller (RSK-ABL2-C version only)	30-foot cable standard 50-foot cable optional
Wireless Transmitter (RSK-ABL2-W version only)	Operating frequency 2.4Ghz, 1mW output. 50-foot range (line of sight). Transmitter and actuator are paired so that the transmitter can only operate the actuator that has been paired with it. Pairing is factory programmed and is not user programmable
Projected life	10,000+ operations
Carrying Case	Manufactured by Pelican Two Press & Pull Latches Double-layered, Soft-grip Handle Two Padlockable Hasps Vortex® Valve Flush Powerful Hinges Lightweight Strong HPX® Resin Watertight Meets airline regulations for carry-on luggage Exterior Dimensions 19.20" x 15.20" x 7.30" (48.8 x 38.6 x 18.6cm)
Weight	RSK-ABL2 Actuator – 12.5lbs / 5.7kg Complete Kit with carrying case 20lbs / 9.1kg



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8.0 Contacting the Manufacturer

For any questions, repairs, or parts replacement please contact the manufacturer using any of the methods on the bottom of this page.

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