



SmaRT DIN-9H4R-2DI Base Unit User Manual

U127.0.0



FCC Statements

15.19 – Two Part Warning

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 and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

15.21 – Unauthorized Modification

NOTICE: The manufacturer is not responsible for any unauthorized modifications to this equipment made by the user. Such modifications could void the user's authority to operate the equipment.

15.105(b) – Note:

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. The 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.

Industry Canada Statement

This device complies with Canadian RSS-210.

The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's website <https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/radiation/safety-code-6-health-canada-radiofrequency-exposure-guidelines-environmental-workplace-health-health-canada.html>.

Le présent appareil est conforme à la norme CNR-210 d'Industrie Canada.

L'installateur de cet équipement radio doit s'assurer que l'antenne est située ou orientée de façon à ne pas émettre un champ RF dépassant les limites de Santé Canada pour la population générale; consulter le Code de sécurité 6, disponible sur le site Web de Santé Canada <https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/radiation/safety-code-6-health-canada-radiofrequency-exposure-guidelines-environmental-workplace-health-health-canada.html>.

Industry Canada Statement

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. Le fonctionnement est soumis aux deux conditions suivantes : (1) cet appareil ne doit pas causer d'interférences, et (2) cet appareil doit accepter toute interférence, y compris les interférences susceptibles de causer un fonctionnement non désiré de l'appareil.

IC Unlicensed Devices EIRP Statements for Removable Antennas

Part 1: Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that necessary for successful communication.

Partie 1 : Conformément à la réglementation d'Industrie Canada, cet émetteur radio ne peut fonctionner qu'avec une antenne dont le type et le gain maximal (ou inférieur) sont approuvés pour l'émetteur par Industrie Canada. Pour réduire les interférences radioélectriques potentielles avec d'autres utilisateurs, le type d'antenne et son gain doivent être choisis de telle sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne soit pas supérieure à celle nécessaire pour une communication réussie.

Part 2: This radio transmitter (LOBSRF-305) has been approved by Industry Canada to operate with the antenna type listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Partie 2 : Cet émetteur radio (LOBSRF-305) a été approuvé par Industrie Canada pour fonctionner avec le type d'antenne indiqué ci-dessous avec le gain maximal admissible et l'impédance d'antenne requise pour chaque type d'antenne indiqué. Il est strictement interdit d'utiliser avec cet appareil un type d'antenne ne figurant pas dans cette liste ou ayant un gain supérieur au gain maximum indiqué pour ce type.

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Definitions

Associate

SmaRT configuration method using a series of specific remote unit button presses to establish a communication link between a SmaRT handheld and a SmaRT base unit.

Disassociate/Dissociate

Dissolution of all established communication links between handhelds and a base unit.

DSSS

Direct sequence spread spectrum; an advanced wireless communication technology.

PTO

Push to Operate: Command broadcast only while a button is depressed. The command ends when the button is released.

DIN-9H4R-2DI

Base unit with four relay outputs controlled by a SmaRT handheld remote. Each SmaRT DIN-9H4R-2DI can communicate with up to eight SmaRT remote control units. A DIN-9H4R-2DI can be mounted on a standard 35-mm DIN rail.

Line of Sight (aka Direct-Line-of-Sight)

Type of communication between transceivers, or a transmitter and a receiver, where the pathway between the two units must be clear of obstacles.

TX/RX

Transmit/Receive

Snubber (Snubber Circuit)

Electrical circuit used to suppress electrical spikes (transients) by diverting excess current around the protected device.

RS-232

Low-speed serial interface used for configuration of the base unit.

SmaRT Connect

Cervis software that allows a base unit to be configured through the base unit RS-232 port.

Cervis, Inc. Safety Precautions

- ✓ ***Read and follow all instructions.***
- ✓ ***Failure to abide by Safety Precautions may cause equipment failure, loss of authority to operate the equipment, and personal injury.***
- ✓ ***Use and maintain proper wiring. Follow equipment manufacturer instructions. Improper, loose, and frayed wiring can cause system failure, equipment damage, and intermittent operation.***
- ✓ ***Changes or modifications made to equipment not expressly approved by the manufacturer will void the warranty.***
- ✓ ***Equipment owner/operators must abide by all applicable Federal, State, and Local laws concerning equipment installation and operation. Failure to comply could result in penalties and could void user authority to operate the equipment.***
- ✓ ***Make sure that the machinery and surrounding area is clear before operating. Do not activate the remote control system until certain that it is safe to do so.***
- ✓ ***Turn off the handheld remote and remove power from the base unit before attempting any maintenance. This will prevent accidental operation of the controlled machinery.***
- ✓ ***Remove power from the base unit by detaching the input power from the base unit connectors terminal 7 and terminal 8.***
- ✓ ***Use a damp cloth to keep units clean.***
- ✓ ***Do not allow liquid to enter the handheld or base unit enclosures. Do not use high-pressure equipment to clean the handheld remote or base unit.***
- ✓ ***Disconnect the base unit before welding on the machine. Failure to disconnect the base unit may damage or destroy the base unit.***
- ✓ ***Keep high-energy radio frequency (RF) devices away from handheld remotes. Activating high-power communication radios, for instance, in close proximity to the handheld remotes can cause interference and “false” circuit activation.***
- ✓ ***Operate and store units only within the specified operation and storage temperatures defined in this document’s Specifications section.***

1.0 SmaRT DIN-9H4R-2DI Base Unit

The SmaRT DIN-9H4R-2DI Base Unit for industrial control systems features four Form A relay outputs. Each Form A is rated at 2 A max @ 250 VAC/30 VDC inductive load and 5 A resistive load. The unit also features two active high discrete input channels and two serial communication ports:

- RS-232 port – Update configuration and application code through this port.
- CAN port – Transfers handheld and base unit status to other nodes on the network, as well as optional bus termination.

Using Channel-Hopping Direct Sequence Spread Spectrum (CH DSSS) wireless technology at 900 MHz, the base unit provides a robust link with a handheld remote in congested radio environments at extended ranges. The SmaRT base unit enclosure allows it to be mounted either horizontally or vertically to a standard 35 mm DIN rail. Five status/diagnostic LEDs—illustrated in Figure 1—determine the state of the unit.

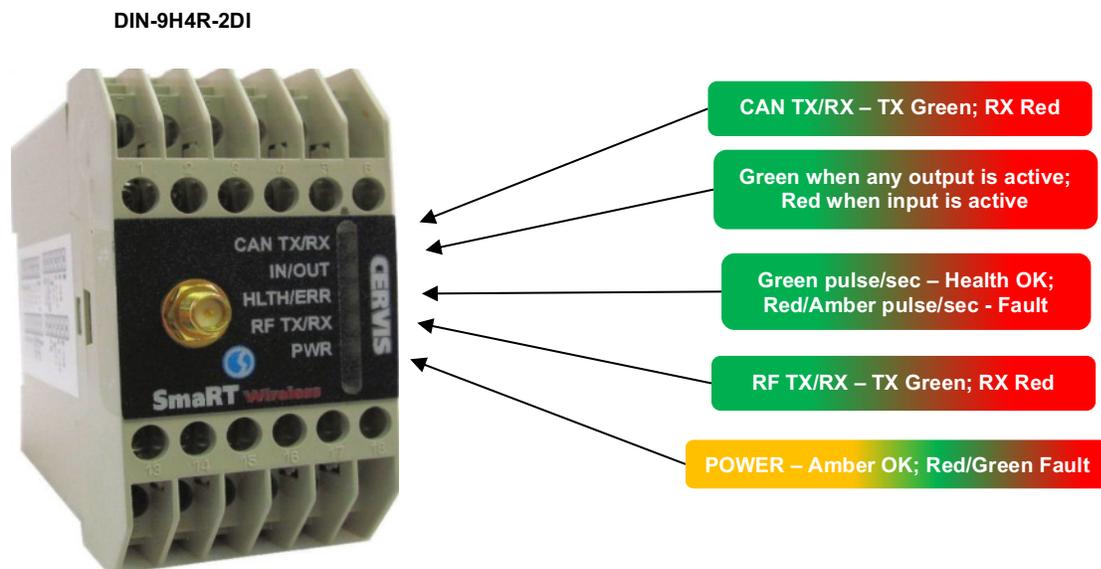


Figure 1. DIN-9H4R-2DI LEDs

DIN-9H4R-2DI Base Unit Features

- Input power +18 to +32 VDC (–24 V Option) +85 to +220 VAC (–120 V Option)
- 900 MHz Channel-Hopping Direct Sequence Spread Spectrum (DSSS) Technology
- External antenna
- 4 Form A Relay Contact outputs
- Can be mounted horizontally or vertically on a standard 35-mm DIN rail
- Size M3 (flat or Phillips) screw terminals
- Five LED diagnostic indicators
- Compact design, durable UL94V-0 rated ABS plastic enclosure
- RS-232 Port
- CAN Port

- Two active high discrete input channels

✓ **Note:** *The two discrete input channels accept either +24 VDC or +120 VAC input signals. The power supply (–24 V or –120 V) determines the signal range. Input channels are active high and require both high and low signal inputs for channel.*

2.0 SmaRT DIN-9H4R-2DI Installation

CAUTION



Make sure the machine on which the base unit is to control is disabled during installation.

The base unit enclosure and connectors are NOT rated for high pressure washing. Doing so could damage the base unit or connectors.

Base unit mounting is left much to your discretion with the following guidelines:

- Make sure that the configuration diagrams supplied with the system are available.
- Always mount the unit away from any intense radio or electric disturbance sources.
- Mount the unit where you have enough room for your wiring connections.

2.1 DIN-9H4R-2DI Base Unit Mounting Dimensions

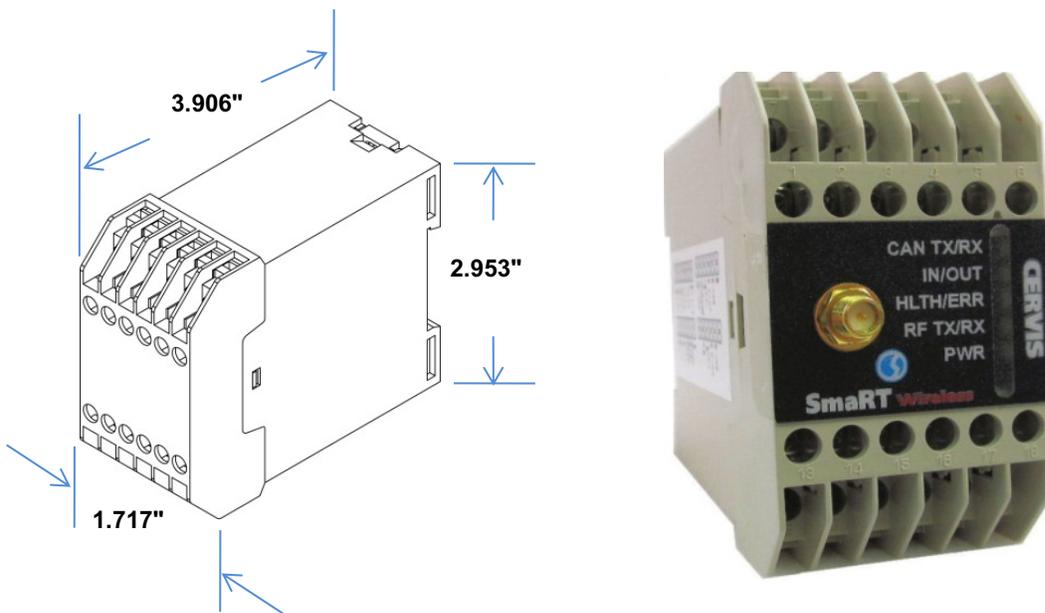
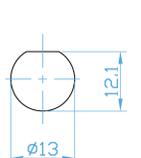


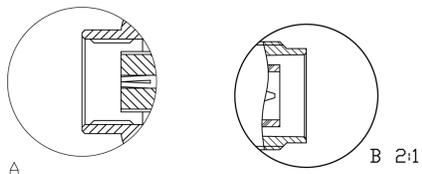
Figure 2. DIN-9H4R-2DI Base Unit Mounting Dimensions

2.2 External Antenna Mounting

DIN-9H4R-2DI Antenna Extension/Adapter Cable (AA7-07) Dimensions in millimeters

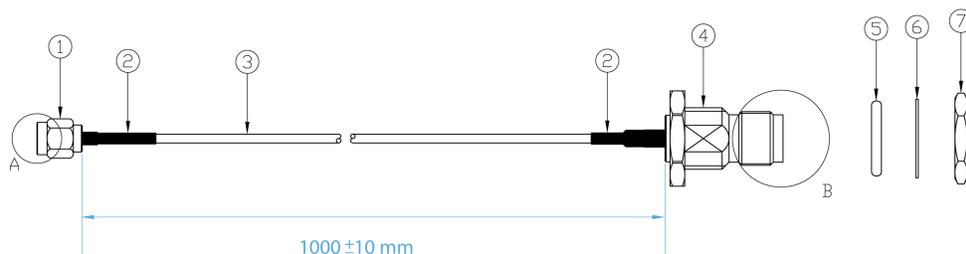


Recommended
Mounting Hole



Note: The orientation on drawing is for reference only.

NO	DESCRIPTION	Q'TY
07	Nut	1
06	Washer	1
05	O-ring (Black)	1
04	RP TNC bulk Jack with O-ring	1
03	RG178-MIT coaxial cable (Brown)	1
02	Heatshrink (Black)	2
01	RP SMA Straight Plug	1



BB3-06 900 MHz Antenna and AA7-07 Extension/Adapter

Figure 3. External Antenna Mounting Details

2.3 Smart DIN-9H4R-2DI Terminal Connections

Terminal	Description	Terminal	Description
1	K1 Common	13	L3 (AC N)
2	K2 Common	14	L1 (AC L or DC+)
3	K3 Common	15	K4 Normally Open
4	TX Out (RS-232)	16	Input 1 High
5	RX In (RS-232)	17	Input 1 Low
6	Gnd	18	Gnd
7	K1 Normally Open	19	No Connection
8	K2 Normally Open	20	L2 (DC-)
9	K3 Normally Open	21	K4 Common
10	CANL	22	Input 2 High
11	CANH	23	Input 2 Low
12	CAN-Term	24	No Connection

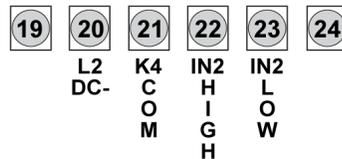
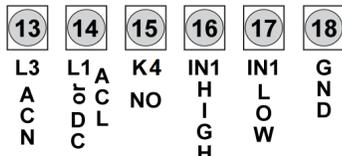
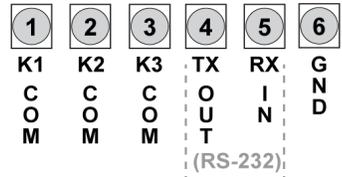
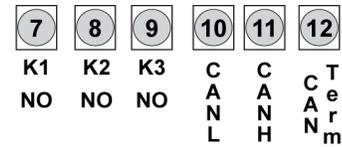
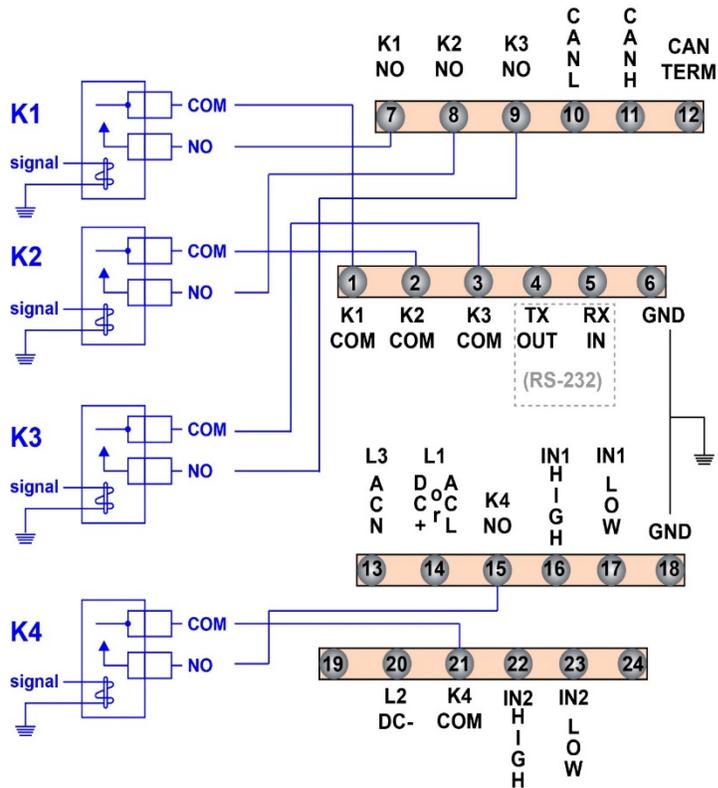


Figure 4. DIN-9H4R-2DI Terminal Connections

3.0 SmaRT Handheld Remote to DIN-9H4R-2DI

The DIN-9H4R-2DI communications link to the system's SmaRT remote is established at the factory before the system ships. There may be times when it is necessary to establish, re-establish, or break the link in the field. The process used to establish the link is called "Association," while the process used to break the link is called "Dissociation." Appendix C of this manual describes common Associate and Dissociate procedures for a variety of SmaRT remote control units.

To Associate or Dissociate the DIN-9H4R-2DI to or from a **standard** SmaRT remote control unit, see Appendix C.

✓ **Note:** *Custom engineered systems may have a unique way of establishing the communications link between the system remote control unit and the base unit. If you have a customized system and need to Associate or Dissociate, refer to the custom Engineered System Manual or Engineered Application Specific Supplement document provided with the custom system when shipped.*

4.0 SmaRT DIN-9H4R-2DI Variations

Table 1. SmaRT DIN-9H4R-2DI Variations

Model	Freq.	RF Power	Outputs	Output Type	Inputs	Input Range	Input Voltage	Antenna Type
DIN-9H4R-2DI-EXT-24V	900 MHz	10 mW	4	Form A	2	18–32 VDC	18–32 VDC	External
DIN-9H4R-2DI-EXT-120	900 MHz	10 mW	4	Form A	2	85–220 VAC	85–220 VAC	External

✓ **Note:** *BU-9H4R-EXT units are internally terminated at 4.3 k Ω . Termination can be removed at the factory.*

5.0 DIN-9H4R-2DI Antenna and Cable

Table 2. Compatible DIN-9H4R-2DI External Antenna Details

Part	Cervis #
900 MHz IS BAND Swivel Antenna	BB3-06
3-ft. antenna extension/adaptor cable RP-SMA Plug to RP-TNC Jack	AA7-07

✓ **Note:** *Use only the antenna recommended by Cervis, Inc. with the SmaRT base unit.*

6.0 Smart DIN-9H4R-2DI Specifications

Table 3. Smart DIN-9H4R-2DI Specifications

Smart DIN-9H4R-2DI Specs			
Power	V_{in}	18–32 VDC (–24 V option) 85–220 VAC (–120 V option)	
Radio	Frequency	906–924 MHz	
	RF Power	10 mW	
	License	License Free	
	Modulation	Channel-Hopping DSSS	
	Antenna	External (RP-SMA)	
Environment	Operating Temp	–25° C to 60° C (–13° F to 140° F)	
	Storage Temp	–40° C to 85° C (–40° F to 185° F)	
	Humidity	0 to 95% non-condensing	
Indicators (4)	CAN TX/RX	Green	– Transmit
		Red	– Receive
	In/Out	Green	– Output Active
		Red	– Input Active
	Health	Green	– Pulse/sec. OK
Red/Amber		– Pulse/sec. Fault	
RF TX/RX	Green	– Transmit	
	Red	– Receive	
Power	Amber	– OK	
	Red/Green	– Fault	
Enclosure	Dimensions	1.72" W x 3.23" H x 3.91" D (44.61 mm W x 82.04 mm H x 99.21 mm D)	
	Durability	Durable UL94V-0 rated ABS plastic	
	Mounting	35-mm standard DIN rail	
	Weight	4 ounces (0.114 kilogram)	
Outputs	Four	Relays, Form A	
	Form A Rating	2 A max. @ 250 VAC/30 VDC inductive load, 5 A resistive load	
	Total	10 A max. using both wetting terminals	
Inputs	Two	2-terminal isolated 18–32 VDC (–24 V option) 85–220 VAC (–120 V option)	
Serial Communications	Two	RS-232	19200-8-N-1
		CAN	J1939

Appendix A: Exposure to Radio Frequency Energy

When active, a SmarT base unit sends out radio frequency (RF) signals through its external antenna. Base units using an external antenna should be mounted to ensure the antenna is at least 20 cm away from the human body. Only the external antenna recommended by Cervis, Inc. is to be used (see Table 2).

Appendix B: Agency Identification Label Location



FCC Statements: 15.19 – Two Part Warning 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 and (2) This device must accept any interference received, including interference that may cause undesired operation. 15.21 – Unauthorized Modification NOTICE: The manufacturer is not responsible for any unauthorized modifications to this equipment made by the user. Such modifications could void the user's authority to operate the equipment. Rev 0	FCC	Cervis SmarT 915MHz Module Base Unit 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 and (2) This device must accept any interference received, including interference that may cause undesired operation. 15.21 – Unauthorized Modification NOTICE: The manufacturer is not responsible for any unauthorized modifications to this equipment made by the user. Such modifications could void the user's authority to operate the equipment. Rev 0	Contains FCC ID: LOBSRF304 IC: 7955A-SRF304
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✓ **Note:** The base unit label position is identical for both internal antenna and external antenna base units.

Figure 5. Agency Identification Label Location

Appendix C: Typical Handheld to Base Unit Communication

Handheld remote and base unit communications are established at Cervis, Inc. before shipping when systems are ordered. However, it may be necessary to establish or re-establish communication between a remote and a base unit at some point. The Associate procedure does this.

A standard Smart system consists of one handheld remote and one base unit. Each base unit can communicate with up to eight handheld remotes. Each handheld must first establish a communications link with the base unit before the base unit will recognize the handheld unit. This process is called “Association.”

In some cases, it may become necessary to break the communication link between the handheld and the DIN-9H4R-2DI. This process is called “Dissociation.”

✓ **Note:** *Be aware that when a handheld is dissociated from a base unit, all communication links to that particular base unit are erased from the base unit memory! For instance, a particular DIN-9H4R-2DI is associated to Handheld Remotes 1 through 5. Remote 2 dissociates—breaks the communication link—from the base unit. All five handheld remotes’ IDs delete from the base unit memory. The Associate procedure must be used by any handheld that now needs to control that DIN-9H4R-2DI.*

The following Associate and Dissociate procedures are general methods of associating or dissociating Cervis, Inc. handheld remotes from the DIN-9H4R-2DI. Custom systems may have different Associate methods unique to the custom system design; in which case, the documentation included with that system must be referenced for the appropriate Associate procedure.

C1: DIN-9H4R-2DI/PTO Remote Communication

To Associate

The base unit and handheld must be OFF before attempting to associate. Base unit and PTO 2-, 4-, and 6-button handheld association is established using the following steps:

1. Remove power from the base unit and turn off (PTO – time out) the handheld device.
2. Stand near the base unit in unobstructed, clear line-of-sight with the handheld in hand.
3. Simultaneously press and hold the Associate (B1) and Dissociate (B2) buttons. The RX and ER LEDs light.
4. Continue to hold both buttons until TX and RX light steady.
5. When the TX and RX LEDs light, release B1 and B2. ER and BA light solid.

✓ **Note:** *If the next button press is not immediately performed (approximately 2 seconds), all LEDs flash, and the Associate procedure is aborted. Restart the process to establish the communication link.*

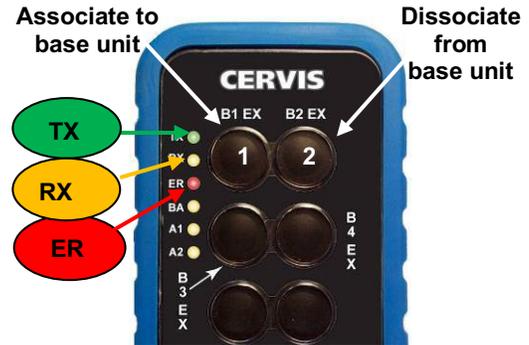
6. Immediately press and hold the Associate button (B1). All LEDs light.

7. TX begins to slowly blink. Continue to hold B1.
8. Apply power to the base unit.

The handheld and base unit begin to establish a communication link while the Associate button is held. Once the process is complete, all LEDs light briefly and then go out.

9. Release the Associate button. The SmaRT System is ready for use with that particular handheld remote.

Figure 6. PTO Associate/Dissociate Buttons



To Dissociate

In some circumstances, it may become necessary to break the communication link—or dissociate—a base unit and a PTO handheld remote.

CAUTION



Using the following steps will break all previously established handheld remote links. It will be necessary to perform the Association Procedure (Appendix C1, above) using each handheld to re-establish communication links with a base unit.

1. Remove power from the base unit.
2. Stand near the base unit in line of sight with the handheld in your hand.
3. Press and hold both the Associate (Button 1) and Dissociate (Button 2; see Figure 6). The RX and ER LEDs light.
4. Continue to hold both buttons until the TX and RX LEDs light steady.
5. When TX and RX light, release B1 and B2. ER and BA light solid.

✓ **Note:** *If the next button press is not performed within the two-second interval, all LEDs flash, and the Dissociate procedure is aborted. Restart the process to break the communication link.*

6. Press and hold the Dissociate button B2. (See Figure 6 above.) All LEDs light.
7. The TX LED begins to slowly blink. Continue to hold B2.
8. Apply power to the base unit while continuing to hold the Dissociate button.

The base unit begins to Dissociate communication links with all previously linked handhelds. Once the process is complete, all LEDs light briefly and then go out.

9. Release the Dissociate button.

The SmaRT base unit will not communicate with any handheld remote units. A handheld remote must use the Association Procedure (Appendix C.1, above) to re-establish a communication link with the base unit.

C2: DIN-9H4R-2DI/CB Remote Communication

CAUTION



To prevent inadvertent machine movement, be sure to remove power from the Base Unit before attempting to Associate or Dissociate.

The console box remote must be **OFF** and the base unit must have power removed before the Association process can be started.

✓ **Note:** The Machine Stop button must be in the UP position before activating and using the console remote.

To Associate (see Figure 7)

1. Stand near the base unit with the console box remote OFF and power removed from the base unit. (P1 and P2 cables detached from the base unit, or the power source is removed.)
2. Twist to pull UP the red Stop button on the remote.
3. Hold the Associate switch S13 UP. While holding the Associate switch UP, activate the console box remote by holding switch S12 UP (ON). Continue to hold both switches.
4. Observe the LEDs. When the TX LED begins to blink, power up the base unit while continuing to hold S13 and S12. When the TX, RX, ERR, and BAT LEDs light solid, release S13 and S12.

A successful association is indicated when LEDs **TX** and **RX** are rapidly blinking in unison.

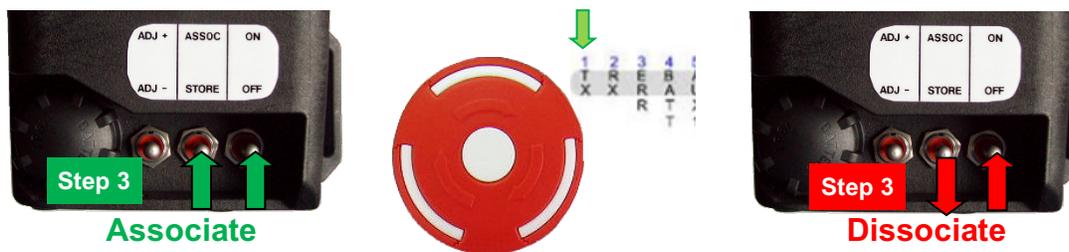


Figure 7. CB Associate and Dissociate Switch Actuations

To Dissociate (see Figure 7)

The CB remote must be **OFF** and the base unit must have power removed before the Dissociation process can be started.

✓ **Note:** The Machine Stop button must be in the UP position before activating and using the console box remote.

1. Stand near the base unit with the console box remote OFF and power removed from the base unit.
2. Twist to pull UP the red Stop button on the remote.
3. Hold the Associate switch S13 DOWN. While holding the Associate switch DOWN, activate the console remote by holding switch S12 UP (ON). Continue to hold both switches.
4. Observe the LEDs. When the TX LED begins to blink, power up the base unit while continuing to hold S13 and S12. When the TX, RX, ERR, and BAT LEDs light solid, release S13 and S12.

✓ **Note:** *Be aware that all remote associations to the base unit are now broken.*

C3: DIN-9H4R-2DI/MCB Remote Communication

CAUTION

To prevent inadvertent machine movement, be sure to remove power from the Base Unit before attempting to Associate or Dissociate.

To Associate (see Figure 8)

*The Mini Console Box (MCB) remote must be **OFF** and the base unit must have power removed before the Association process can be started.*

✓ **Note:** *The Machine Stop button must be in the UP position before activating and using the MCB remote.*

1. Stand near the base unit with the remote **OFF** and **power removed** from the base unit (disconnect P1 and P2 or turn the source power OFF).
2. Release the **STOP** button on the MCB remote by pulling up.
3. Push and hold switch **S1 UP** and then press the **Power ON** button. All four LEDs light solid.
4. Observe the LEDs. When the TX LED begins to blink, power up the base unit while continuing to hold S1 and the Power button. When all four LEDs light solid, release S1 and Power Button.

Association is successful when the TX and RX LEDs rapidly flash in unison.



Figure 8. MCB Switch Actuation for Associate and Dissociate

To Dissociate (see Figure 8)

The MCB remote must be **OFF** and the base unit must have power removed before the Dissociation process can be started.

✓ **Note:** The Machine Stop button must be in the UP position before activating and using the console remote.

1. Stand near the base unit with the remote **OFF** and **power removed** from the base unit.
2. Release the **STOP** button on the MCB remote by pulling up.
3. Push and hold switch **S1 DOWN** and then press the **Power ON** button. All four LEDs light solid.
4. Observe the LEDs. When the TX LED begins to blink, power up the base unit while continuing to hold switch S1 and the Power button. When all four LEDs light solid, release S1 and the pushbutton.

✓ **Note:** Be aware that all remote associations to the base unit are now broken.

C4: DIN-9H4R-2DI/PG Remote Communication

CAUTION



To prevent inadvertent machine movement, be sure to remove power from the Base Unit before attempting to Associate or Dissociate.

To Associate (See Figure 9).

The pistol grip (PG) remote must be **OFF** and the base unit must have power removed before the Association process can be started.

✓ **Note:** The Machine Stop button must be in the UP position before activating and using the console remote.

1. Stand near the base unit with the remote **OFF** and **power removed** from the base unit (disconnect P1 and P2 or turn the source power OFF).
2. Release the **STOP** button on the PG remote by twisting and pulling up.
3. Push and hold switches **S1** and **S7 UP**. All four LEDs light solid.
4. Observe the LEDs. When the TX LED begins to blink, power up the base unit while continuing to hold S1 and S7. When all four LEDs light solid, release S1 and S7.

Association is successful when LEDs TX and RX are rapidly blinking in unison.



Figure 9. PG Switch Actuation for Associate and Dissociate

To Dissociate (see Figure 9)

The PG remote must be **OFF** and the base unit must have power removed before the Dissociation process can be started.

✓ **Note:** The Machine Stop button must be in the UP position prior to activating and using the console remote.

1. Stand near the base unit with the remote **OFF** and **power removed** from the base unit.
2. Release the **STOP** button on the PG remote by twisting and pulling up.
3. Push and hold switch **S1 UP** and switch **S7 DOWN**. All four LEDs light solid.
4. Observe the LEDs. When the TX LED begins to blink, power up the base unit while continuing to hold S1 and S7. When all four LEDs light solid, release S1 and S7.

✓ **Note:** Be aware that all remote associations to the base unit are now broken.

