SmaRT BU-x18XF and BU-xH18XF Base Units

User Manual

U069.2.0-SmaRT_BU-x18XF

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:

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. 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 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.

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 www.hc-sc.gc-ca/rpb.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio
exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage
radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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 (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

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.

Le présent émetteur radio (LOBSRF-305) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

RoHS Compliance Statement

Cervis, Inc. complies with the requirements of ***Restriction of Hazardous Substances (RoHS/WEEE) Specification*** based on in-house practice and declaration of compliance from our vendors. For additional information concerning RoHS compliance, please contact Cervis, Inc. at:

CERVIS, Inc.

170 Thorn Hill Road • Warrendale, PA 15086

Phone: 724.741.9000 • Fax: 724.741.9001

This product may contain material that may be hazardous to human health and the environment. In compliance with EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE):

- ✓ Do not dispose of the product as unsorted municipal waste.
- ✓ This product should be recycled in accordance with local regulations. Contact local authorities for detailed information.
- ✓ This product may be returnable to the distributor for recycling. Contact your distributor for details.

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Note to the Manual User

✓***Note:*** *The standard SmaRT base unit is available to operate at 900MHz or 2.4GHz using Direct Sequence Spread Spectrum (DSSS) wireless technology. To avoid repetition and possible confusion, the base unit may be referred to as the BU-x18XF or BU-xH18XF throughout this document where x represents either 900MHz as 9—for BU-918XF or BU-9H18XF, or 2.4GHz as 2—for BU-218XF or BU-2H18XF.*

Related Documents

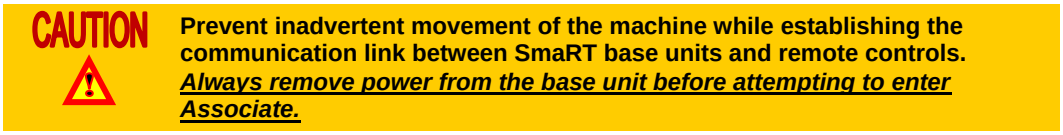
System related Cervis, Inc. Engineered System Approval document

Appropriate SmaRT remote control user manual

Contact us with questions during installation or troubleshooting at (724) 741-9000.

Cautions and Notes

Cautions warn the user that certain circumstances or conditions warrant that the user be aware of a presence of danger that may result in harm, or even death, to personnel or destruction of equipment. Please see the following example:



Notes, such as the following example, provide information that may be useful to the user or are pertinent to the operation of the system.

✓***Note:*** *Cervis provided harness wires are either color coded or individually numbered to aid in properly wiring the controlled devices to the P1 and P2 base unit connectors.*

1.0 Safety Instructions

CAUTION

These instructions must be read carefully in order to install and use the system properly, to keep it in safe working condition, and to reduce the risks of misuse.

Do not use this system in potentially explosive atmospheres.

Any use other than that specified in this manual is DANGEROUS.

Strict adherence to the following instructions is a MUST.

✓***Note:*** *To comply with FCC RF exposure compliance requirements, this device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.*

CAUTION

Certain adjustments may need to be made while the controlled machinery is active. All personnel must be at a safe distance from the machine during these adjustments to avoid risk of injury or accidental death.

1.1 What You MUST Do

- **Strictly adhere** to the installation instructions contained in this manual.
- Make sure that professional and competent personnel carry out the installation.
- Make sure that all site and prevailing safety regulations are fully followed.
- Make sure that this manual is **permanently available** to the operator and maintenance personnel.
- Keep the transmitter out of reach of **unauthorized personnel**.
- At the beginning of each work day, check to make sure that the **Stop Button** and other safety measures are working.
- When in doubt, press the **Stop Button**.
- Whenever several systems have been installed, make sure the transmitter you are about to use is the right one. **Identify** the machine controlled by the transmitter on the transmitter label (customer supplied).
- An **audible or visual warning device** indicating the machine is electrically active and that the transmitter has control should be installed on the machine.
- **Service** the equipment periodically.
- When carrying out repairs, only use parts supplied by Cervis dealers.

1.2 What You MUST NOT Do

- ***Never*** make changes to the system that have not been studied and approved by Cervis.
- ***Never*** power the equipment with anything other than with the specified power supply.
- ***Never*** allow unqualified personnel to operate the equipment.
- ***Never*** leave the equipment **ON** after use. Always use or the **Stop Button** to avoid accidental movements.
- ***Never*** use the system when visibility is limited.
- ***Never*** abuse the transmitter. Avoid dropping.
- ***Never*** use the system if failure is detected.

2.0 BU-x18XF Base Unit

Figure 1. SmaRT BU-x18XF/BU-xH18XF Base Unit

The versatile BU-x18XF and BU-xH18XF base units—where x=2 for 2.4GHz, or 9 for 900MHz operation—feature eighteen FET (field effect transistor) high-side switching outputs or switch-to-ground digital inputs, factory configurable dual 0-10VDC or 0-20mA analog inputs that can also be configured as digital outputs/inputs, and CAN Bus control capability. Eight pairs of base unit FET channels can be equipped with high-side current sense for better control of valve coil pairs. Table 1 on page 3 lists available configurations and options.

The BU-x18XF and BU-xH18XF accept a broad range of input power with operating voltages ranging from 7VDC to 28VDC. The rugged weatherproof translucent enclosure allows these units to operate worry free in harsh weather conditions. Color-keyed or wire-numbered weatherproof cable harnesses connect the controlled devices. These base units provides a robust communication link with up to eight SmaRT remotes in congested radio environments using Direct Sequence Spread Spectrum (DSSS) wireless technology at 900MHz or 2.4GHz. Base units and remotes feature seamless association without the need to open the enclosures. There is a variety of available SmaRT remote control units to choose from, multiple examples of which are shown in Figure 4.

Features

- Eighteen solid-state FET outputs/inputs
- Two 0–10V or 4–20mA inputs, or digital input/outputs (factory configurable)
- 900MHz or 2.4GHz Direct Sequence Spread Spectrum technology
- Dual uniquely keyed connectors for ease of wiring
- Diagnostic LEDs
- +7 to +28VDC power
- Compact design
- Rugged, weatherproof construction
- Communicates with up to eight SmaRT remotes
- Optional RS-232 models for *SmaRT Connect* use (see Table 1, Figure 3, or Table 2)

3.0 SmaRT BU-x18XF Options

Table 1. SmaRT BU-x18XF and BU-xH18XF Options

Common 18 Channel Features: FETs; 7-28VDC Input Power

Model	Freq.	RF	Antenna	Analog Chan.	Serial Port	Display	SmaRT Connect
BU-218XF-EXT	2.4GHz	2mW	External	NA	CAN	No	No
BU-218XF-INT	2.4GHz	2mW	Internal	NA	CAN	No	No
BU-218XF-EXT-DIS	2.4GHz	2mW	External	NA	CAN	Yes	No
BU-218XF-INT-DIS	2.4GHz	2mW	Internal	NA	CAN	Yes	No
BU-218XF-EXT-DIS-AI2	2.4GHz	2mW	External	(2) 4-20mA IN	CAN	Yes	No
BU-218XF-INT-DIS-AI2	2.4GHz	2mW	Internal	(2) 4-20mA IN	CAN	Yes	No
BU-218XF-EXT-AI2	2.4GHz	2mW	External	(2) 4-20mA IN	CAN	No	No
BU-218XF-INT-AI2	2.4GHz	2mW	Internal	(2) 4-20mA IN	CAN	No	No
BU-218XF-EXT-DIS-AV2	2.4GHz	2mW	External	(2) 0-10V IN	CAN	Yes	No
BU-218XF-INT-DIS-AV2	2.4GHz	2mW	Internal	(2) 0-10V IN	CAN	Yes	No
BU-218XF-EXT-AV2	2.4GHz	2mW	External	(2) 0-10V IN	CAN	No	No
BU-218XF-INT-AV2	2.4GHz	2mW	Internal	(2) 0-10V IN	CAN	No	No
BU-2H18XF-EXT-CAN	2.4GHz	100mW	External	NA	CAN	No	No
BU-2H18XF-INT-CAN	2.4GHz	100mW	Internal	NA	CAN	No	No
BU-2H18XF-EXT-DIS-CAN	2.4GHz	100mW	External	NA	CAN	Yes	No
BU-2H18XF-INT-DIS-CAN	2.4GHz	100mW	Internal	NA	CAN	Yes	No
BU-2H18XF-EXT-DIS-AI2-CAN	2.4GHz	100mW	External	(2) 4-20mA IN	CAN	Yes	No
BU-2H18XF-INT-DIS-AI2-CAN	2.4GHz	100mW	Internal	(2) 4-20mA IN	CAN	Yes	No
BU-2H18XF-EXT-AI2-CAN	2.4GHz	100mW	External	(2) 4-20mA IN	CAN	No	No
BU-2H18XF-INT-AI2-CAN	2.4GHz	100mW	Internal	(2) 4-20mA IN	CAN	No	No
BU-2H18XF-EXT-DIS-AV2-CAN	2.4GHz	100mW	External	(2) 0-10V IN	CAN	Yes	No
BU-2H18XF-INT-DIS-AV2-CAN	2.4GHz	100mW	Internal	(2) 0-10V IN	CAN	Yes	No
BU-2H18XF-EXT-AV2-CAN	2.4GHz	100mW	External	(2) 0-10V IN	CAN	No	No
BU-2H18XF-INT-AV2-CAN	2.4GHz	100mW	Internal	(2) 0-10V IN	CAN	No	No
*BU-2H18XF-EXT-SC**	2.4GHz	100mW	External	NA	RS-232	No	Yes
*BU-2H18XF-INT-SC**	2.4GHz	100mW	Internal	NA	RS-232	No	Yes
BU-9H18XF-EXT	900MHz	10mW	External	NA	CAN	No	No
BU-9H18XF-INT	900MHz	10mW	Internal	NA	CAN	No	No
BU-9H18XF-EXT-DIS	900MHz	10mW	External	NA	CAN	Yes	No
BU-9H18XF-INT-DIS	900MHz	10mW	Internal	NA	CAN	Yes	No
BU-9H18XF-EXT-DIS-AI2	900MHz	10mW	External	(2) 4-20mA IN	CAN	Yes	No
BU-9H18XF-INT-DIS-AI2	900MHz	10mW	Internal	(2) 4-20mA IN	CAN	Yes	No
BU-9H18XF-EXT-AI2	900MHz	10mW	External	(2) 4-20mA IN	CAN	No	No
BU-9H18XF-INT-AI2	900MHz	10mW	Internal	(2) 4-20mA IN	CAN	No	No
BU-9H18XF-EXT-DIS-AV2	900MHz	10mW	External	(2) 0-10V IN	CAN	Yes	No
BU-9H18XF-INT-DIS-AV2	900MHz	10mW	Internal	(2) 0-10V IN	CAN	Yes	No
BU-9H18XF-EXT-AV2	900MHz	10mW	External	(2) 0-10V IN	CAN	No	No
BU-9H18XF-INT-AV2	900MHz	10mW	Internal	(2) 0-10V IN	CAN	No	No
*BU-9H18XF-EXT-SC**	900MHz	10mW	External	NA	RS-232	No	Yes
*BU-9H18XF-INT-SC**	900MHz	10mW	Internal	NA	RS-232	No	Yes

Device does not have CAN interface available. SC connectivity using the RS-232 port allows the user to directly configure the BU-x18XF and BU-xH18XF using SmaRT Connect.

3.1 BU-x18XF/BU-xH18XF Base Unit Installation

CAUTION **Make sure the machine to which the base unit is to be installed is disabled during installation.**

Use the configuration diagrams supplied by Cervis as a guide when mounting the base unit and connecting the wiring harnesses. Dimensions for drilling mounting holes are shown in are shown in Figure 2. Wiring diagram and connector pinout is shown in Figure 3.

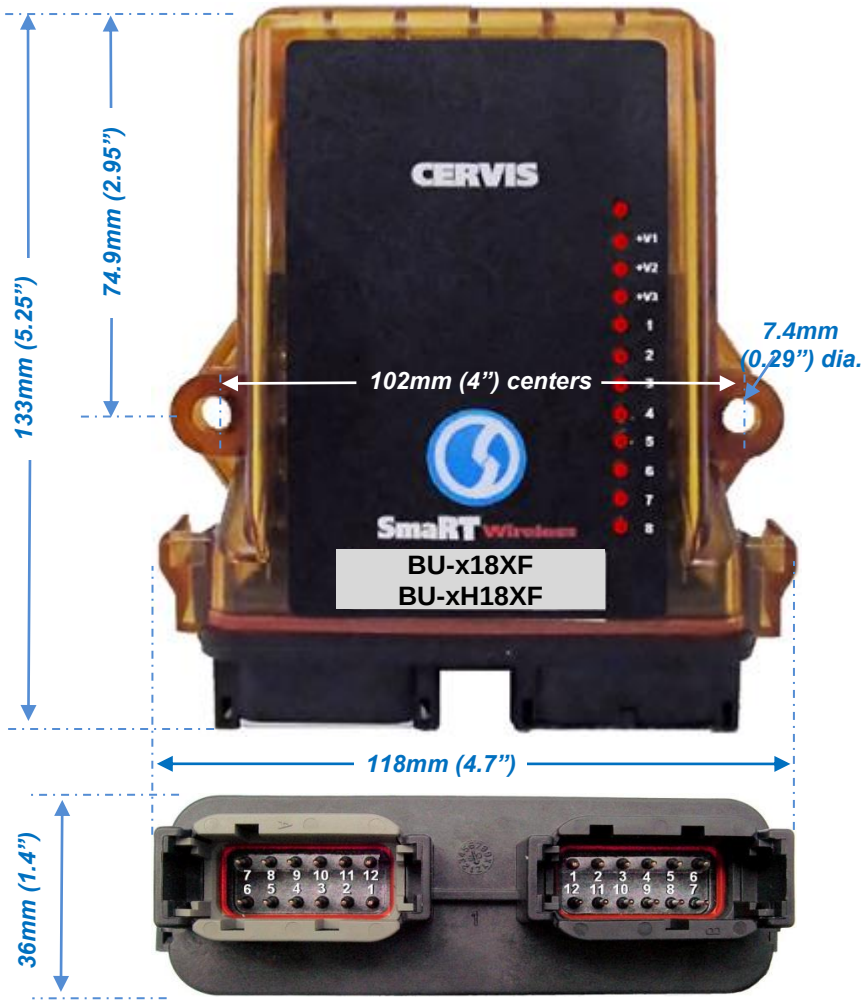


Figure 2. BU-xH18XF Base Unit Mounting Dimensions

3.2 BU-x18XF Base Unit Wiring Diagram and Connectors Pinout

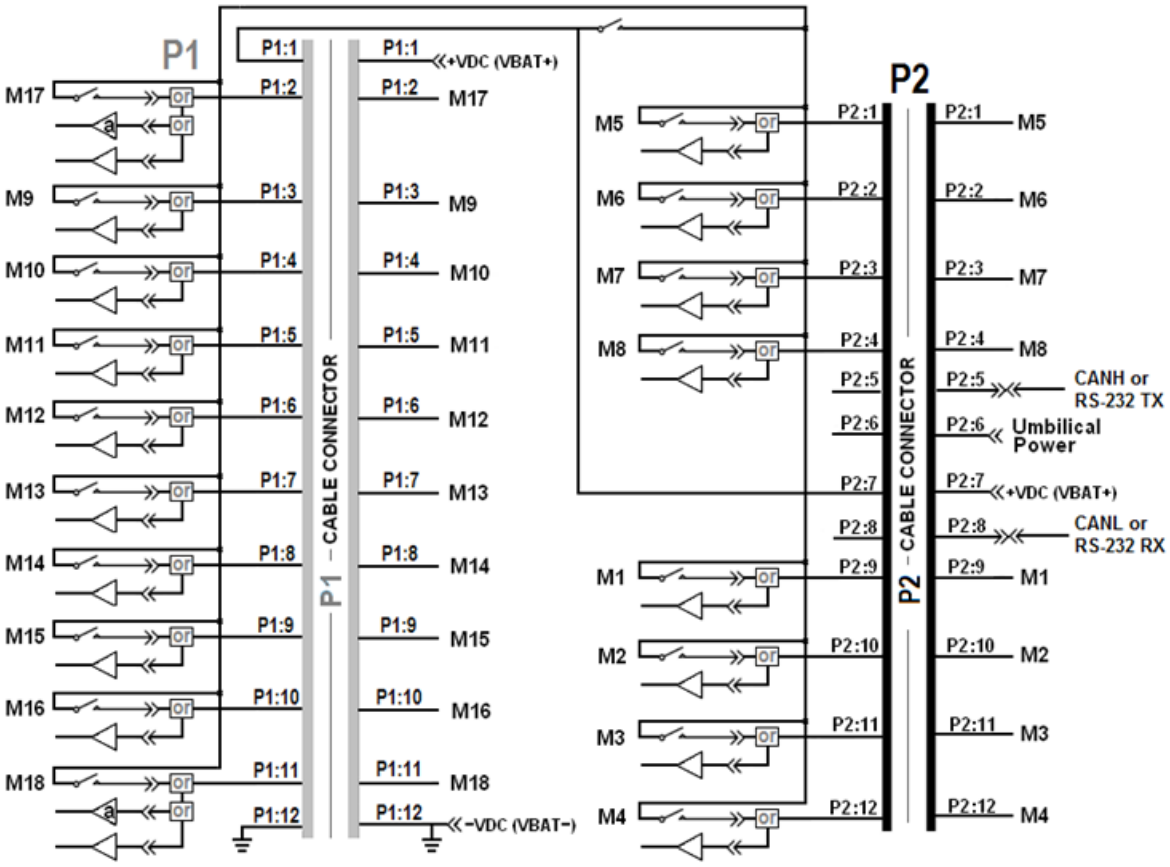


Figure 3. BU-x18XF/BU-xH18XF Field Wiring

Table 2. BU-x18XF/BU-xH18XF P1 and P2 Connectors Pinout

P1 Pin	Assigned	P1 Pin	Assigned
P1:1	+VDC	P1:7	M13
P1:2	M17	P1:8	M14
P1:3	M9	P1:9	M15
P1:4	M10	P1:10	M16
P1:5	M11	P1:11	M18
P1:6	M12	P1:12	–VDC

P2 Pin	Assigned	P2 Pin	Assigned
P2:1	M5	P2:7	+VDC
P2:2	M6	P2:8	CANL or RS-232 RX
P2:3	M7	P2:9	M1
P2:4	M8	P2:10	M2
P2:5	CANH or RS-232 TX	P2:11	M3
P2:6	Umbilical PWR	P2:12	M4

4.0 SmaRT BU-x18XF in SmaRT Remote Control Systems

The basic standard SmaRT Remote Control System consists of at least one SmaRT base unit, a SmaRT remote control unit, and the wiring harness that is used to connect the base unit to the controlled apparatus. A single base unit is capable of communicating with multiple SmaRT remotes—up to eight—a variety of which are available including the PTO-xH06, the PG-xH14 pistol-grip, the OO-218, and MCB-xH4JS handheld remotes, and the SmaRT Console Remote examples as shown in Figure 4.

Communications between the base unit and the remotes are established at the factory using the Associate process, which can also be easily performed on site when necessary using the SmaRT remote. Associate processes for each remote control unit are described in detail in each SmaRT remote manual and Cervis Engineering SpecSheet.

Figure 4. SmaRT BU-x18XF/BU-xH18XF with SmaRT Remote Control Unit Examples

5.0 Associate Mode

Communication between the SmaRT BU-x18XF and SmaRT remotes is established while the system is at the factory before it is shipped. The process can be applied in the field when necessary—when a remote is replaced or added for example. Access to and the exact button or switch sequencing used while in Associate mode will vary depending on the type of SmaRT remote with which the base unit is to communicate. Please reference the appropriate SmaRT remote control manual or Cervis Engineering SpecSheet for complete Associate Mode details.

CAUTION **Prevent inadvertent movement of the machine while establishing the communication link between SmaRT base units and remote controls. *Always remove power from the base unit before attempting to enter Associate.***

Associate Example

The following example shows the steps taken to associate as standard SmaRT PTO-x06 six button handheld remote to a SmaRT BU-x18XF base unit.

1. Remove power from the base unit and turn OFF the hand-held 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. RX and ER light.
4. Continue to hold both buttons until TX and RX light steady.
5. When TX and RX light, release B1 and B2. ER and BA light.

✓***Note:*** *If the next button press is not immediately performed (approximately 2sec.), all LEDs flash and the Associate procedure is aborted. The process must be started anew 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.

TX and RX will be flashing indicating the handheld is sending and receiving messages. The SmaRT System is ready for use.

Figure 5. Handheld to BU-x18XF/BU-xH18XF Associate Example

6.0 BU-x18XF and BU-xH18XF Specifications

Table 3. SmaRT BU-x18XF and BU-xH18XF Specifications

Item	Description			
Power	**Vin**	+7 to +28VDC		
Radio	**Frequencies**	BU-218XF: 2405 – 2480MHz @ 2mW BU-2H18XF: 2405 – 2480MHz @ 100mW BU-9H18XF: 906 – 924MHz @ 10mW		
	License	License Free		
	Modulation	DSSS		
	Antenna	Internal or External (RP-TNC)		
Environment	**Operating Temp**	-20°C to 55°C (-4°F to 131°F)		
	Storage Temp	-40°C to 85°C (-40°F to 185°F)		
	Humidity	0 to 100%		
	Vibration/Shock	IEC60068-2-6 10Hz to 150Hz @ 1.0*g* peak acceleration 10.0*g* peak shock acceleration		
LED Indicators (11 Red)	**+V1, +V2, +V3**	OK when lit		
	1 (HTH)	Health (blinks when active)		
	2 (RTX)	RF TX (blinks when active)		
	3 (RRX)	RF RX (solid when active)		
	4 (CTX)	CAN TX (blinks when active)		
	5 (CRX)	CAN RX (blinks when active)		
	6 (OUT)	Output (solid when active)		
	7 (IN)	Input (solid when active)		
	8 (ERR)	Error (solid when active)		
Enclosure	**Dimensions**	mm: 133 x 118 x 36 (inch: 5.25 x 4.7 x 1.4)		
	Durability	High Impact Polymer		
	Mounting Holes	mm: 7.40 dia.; 102 center-to-center Inch: 0.29 dia.; 4.00 center-to-center		
Outputs/Inputs	**Eighteen**	FET—Open Drain		
	Current	3A per channel 15A Max. total @ 50° C (122° F)		
Digital I/O (18)	**Assignments**	**M1(Ch1)** P2–9	**M2 (Ch2)** P2–10	**M3 (Ch3)** P2–11
		M4 (Ch4) P2–12	**M5 (Ch5)** P2–1	**M6 (Ch6)** P2–2
		M7 (Ch7) P2–3	**M8 (Ch8)** P2–4	**M9 (Ch9)** P1–3
		M10 (Ch10) P1–4	**M11 (Ch11)** P1–5	**M12 (Ch12)** P1–6
		M13 (Ch13) P1–7	**M14 (Ch14)** P1–8	**M15 (Ch15)** P1–9
		M15 (Ch16) P1–10	**M17 (Ch17)** P1–2	**M18 (Ch18)** P1–11
Analog (2) (factory configurable)	**0–10V or 4–20mA**	**M17(Ch17)** P1–2	**M18 (Ch18)** P1–11	
Optional Umbilical Communications	**CAN Bus**	SAE J1939		
SmaRT Connect	**SEE Table 1**	Only units marked with –SC are RS-232 capable (CAN is not available) allowing *SmaRT Connect* use.		

7.0 LED Diagnostic Troubleshooting

Table 4. SmaRT BU-x18XF LED Troubleshooting Hints

Indication	
Unmarked LED active	✓ Input power polarity is reversed
+V1, +V2, +V3 Power LED not active	✓ Is +VDC input power present? ✓ Check input power polarity.
RTX/RRX not active	✓ Check for obstructions preventing line-of-sight transmission. ✓ Check that the console box is active. • Re-associate the console box to the base unit.
CTX/CRX not active	✓ Check CAN wiring. ✓ Check that the remote is active. • Re-associate the remote to the base unit.
Health LED blinking rapidly	• Indicates an internal problem.
Out LED not active	✓ Check that the handheld LEDs are active when the appropriate buttons are pushed. ✓ Check that startup sequence was followed.
ERR LED active	✓ Check the outputs for loose wiring, etc. • Over-temperature channel indication. • Over-current channel indication. • Active channel current consumption less than 1A typical. (This is not a problem in cases where less then 1A draw is a normal condition.)

Appendix A: Exposure to Radio Frequency Energy

SmaRT handheld remote units contain radio transceivers. When active, handheld remotes send out radio frequency (RF) energy through its internal antenna.

For optimal performance and to ensure that human exposure to RF energy does not exceed the recommended guidelines, always follow these instruction and precautions: When using the handheld remote, hold the remote so that the top buttons are away from the body in the direction of the base unit. Keep the remote when in use at least 15mm (5/8 inch) away from the body, and only use carrying cases, belt clips, or holders that are approved by Cervis, Inc.

A SmaRT base unit when active sends out radio frequency (RF) through its external antenna. Base units using an external antenna should be mounted to ensure the antenna is at least 20cm away from the human body. Only the external antennas recommended by Cervis, Inc. are to be used.

Appendix B: Agency Identification Label Locations

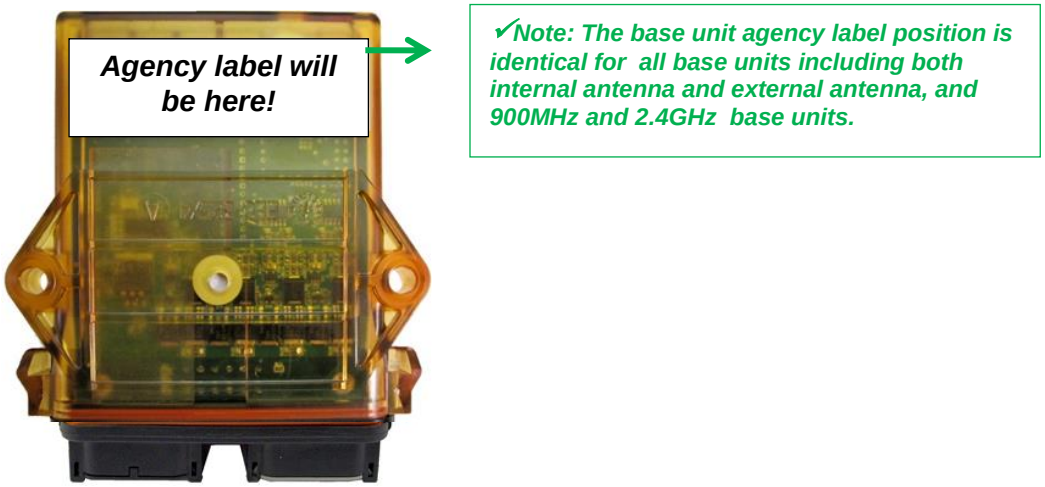


Figure 6. Agency Identification Label Locations

Appendix C: BU-218XF Declaration of Conformity

DECLARATION OF CONFORMITY

IN ACCORDANCE TO ISO/IEC GUIDE 22

FOR A

BU-218XF-EXT	BU-218XF-EXT-DIS-AI2	BU-218XF-EXT-DIS-AV2
BU-218XF-INT	BU-218XF-INT-DIS-AI2	BU-218XF-INT-DIS-AV2
BU-218XF-EXT-DIS	BU-218XF-EXT-AI2	BU-218XF-EXT-AV2
BU-218XF-INT-DIS	BU-218XF-INT-AI2	BU-218XF-INT-AV2

MANUFACTURER: Cervis Inc.
170 Thorn Hill Road
Warrendale, PA 15086
Phone: 724-741-9000 Fax: 724-741-9001

MODEL NUMBER:

BU-218XF-EXT	07130500	BU-218XF-EXT-AI2	07130506
BU-218XF-INT	07130501	BU-218XF-INT-AI2	07130507
BU-218XF-EXT-DIS	07130502	BU-218XF-EXT-DIS-AV2	07130508
BU-218XF-INT-DIS	07130503	BU-218XF-INT-DIS-AV2	07130509
BU-218XF-EXT-DIS-AI2	07130504	BU-218XF-EXT-AV2	07130510
BU-218XF-INT-DIS-AI2	07130505	BU-218XF-INT-AV2	07130511

REPORT #: 93333-10
93333-11
F2LQ5096A-C1-01E R&TTE

DIRECTIVES: Council Directive 1999/5/EC (R&TTE)
Council Directive 2006/95/EC (Low Voltage)
Council Directive 2004/108/EC (Electromagnetic Compatibility)

STANDARDS:

- EN 300-328 v1.7.1
- EN 60950-1:2006
- EN 301-489-17 v2.1.1
- EN 301-489-1 v1.8.1

TEST FACILITY: *F2 Labs*
26501 Ridge Road
Damascus, MD 20872

The equipment names and model numbers are in effective conformance to the Directives and Standards referenced above.

Authorized by: _____ Date: _1/8/13_____

Name: __Anthony M. Di Tommaso_____ Title: _1/8/13_____

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