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www.imt.com

Manual # 91728561

SII Hydraulic Crane Dual Proportional Radio Remote

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A WARNING

Operating, servicing and maintaining this vehicle or equipment can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle or equipment in a well-ventilated area and wear gloves or wash your hands frequently when servicing. For more information go to www.P65Warnings.ca.gov.

Table of Contents

Introduction	1
Equipment Safety	2
List of Equipment	3
70735283 & 70735284	4
70735283 SII Handheld Remote	5
70735283 - SII Radio Remote (Handheld) Transmitter-Hydraulic Crane	6
Pistol Grip (Handheld) Remote Special Considerations	
Power Up the Pistol Grip (Handheld) Remote	
Associate Mode	
MIN / MAX Adjustment Fundamentals	
MIN / MAX Adjustment Procedure for 70735283 & 70735284	8
Battery Installation	11
Battery Installation / Replacement	12
70735284 SII Base Receiver	13
70735284 - SII Receiver Radio Remote (Base Unit) - Hydraulic Crane	14
70735284 - Base Unit Configuration	
70735284 - Base Unit Hardware Specs / Base Unit Safety Link / Base Unit Hardware	17
LED Troubleshooting	20
LED Diagnostic Troubleshooting	21
Identification/ Locations / Exposure	22
Exposure to Radio Frequency Energy	23
RF Exposure Considerations	
Identification Label Locations	0.4

Section - 1 Introduction

Equipment Safety

PERSONNEL REQUIREMENTS

Certain inherent risks are associated with heavy equipment. Personnel working in the area of these vehicles are subject to certain hazards that cannot be guarded against by mechanical means, but only by the exercise of intelligence, care, and common sense. It is therefore essential for the owner / operator to be trained in the safe operation of this equipment.

A WARNING

Read this manual and on-product labels carefully. Learn how to inspect, use, test, and maintain this equipment correctly, and strictly follow all safety information and instructions contained in this manual and on the equipment, as well as any requirements of local, state, and federal law, industry standards, and any other applicable safety procedures. Failure to do so could result in death, serious personal injury, property damage, or damage to the equipment.

A DANGER

You WILL be electrocuted if you are near a crane that approaches or contacts energized electric power lines. The equipment is not insulated and does not provide protection from contact or proximity to electrical current. Death or serious injury WILL result from touching or being in or near vehicle, or a tethered remote control if the crane becomes electrically charged.

Section - 2

List of Equipment

70735283 & 70735284

PART NO.	DESCRIPTION	QTY.
70735283	TRANSM-RAD REM S2 TELE HYDRAULIC	1
70735284	RECEIVER- RAD REM S2 TELE HYDRAULIC	1



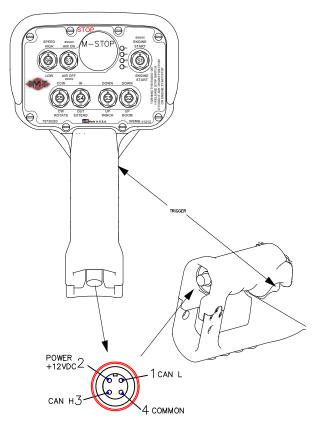
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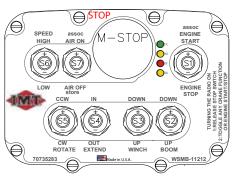
Section - 3

70735283 SII Handheld Remote 6

70735283 - SII Radio Remote (Handheld) Transmitter-Hydraulic Crane

LEDs			
LED 1	TX	GREEN	
LED 2	RX	AMBER	
LED 3	ERR	RED	
LED 4	BATT	AMBER	







SWITCH LOCATION	LABEL	SWITCH STYLE	
STOP	MACHINE STOP	MAINTAINED	
TRIGGER	(NONE)	MOMENTARY	
SW1 UP	ENGINE START & TX ON	MOMENTARY	
SW1 DOWN	ENGINE STOP	MOMENTARY	
SW2 UP	BOOM DOWN	MOMENTARY	
SW2 DOWN	BOOM UP	MOMENTARY	
SW3 UP	WINCH DOWN	MOMENTARY	
SW3 DOWN	WINCH UP	MOMENTARY	
SW4 UP	EXTEND IN	MOMENTARY	
SW4 DOWN	EXTEND OUT	MOMENTARY	
SW5 UP	ROTATE CCW	MOMENTARY	
SW5 DOWN	ROTATE CW	MOMENTARY	
SW6 UP	SPEED HIGH	MOMENTARY	
SW6 DOWN	SPEED LOW	- IVIOIVIEN IARY	
SW7 UP	AIR ON	MOMENTARY	
SW7 DOWN	AIR OFF	MOMENTARY	

Pistol Grip (Handheld) Remote Special Considerations

- Inactivity timeout is ten (10) minutes
- Pistol grip input power for non-RF mode is +12VDC.
- Function switch must be engaged before the proportional trigger can be used.

Power Up the Pistol Grip (Handheld) Remote

To activate (turn on) the pistol grip remote, twist the STOP button UP (clockwise) and toggle any crane function or ENGINE START/STOP for remote startup. Normal system operation is indicated by LEDs TX and RX rapidly blinking.

Associate Mode

The pistol grip (handheld) remote (70735283) allows 1-to-1 association to a receiver base unit (70735284). To associate there must be a clear line of sight between the handheld and the base, and both units must be OFF (powered down). Association cannot occur while in non-RF mode. The pistol grip remote is powered down by depressing the oversized mushroom-style STOP button or by allowing the unit to "time out." The base unit is powered down by removing P1 and P2 connectors, or by removing the source power from the unit.

DO NOT OPERATE THE TRIGGER WHILE ASSOCIATING

- 1. Stand near the Base Unit (in line of sight)
- Twist the MACHINE STOP button clockwise to the UP position.
- Hold simultaneously switches S1 UP and S7 UP
- 4. All four (4) LEDs will light. When all but the TX go out and is blinking, continue to hold S1 UP and S7 UP.
- 5. Power up the Base Unit.
- Release S1 and S7.

Handheld and Base Unit association is complete when TX and RX continue to blink (flicker) in unison when the switches are released.



LED	ACTION	INDICATIONS
TX TRANSMIT	STEADY LIT	SWITCH ACTIVE
GREEN LED 1	BLINK	TRANSMITTING
RX RECEIVER	BLINK	RECEIVING
AMBER LED 2	DEINIX	INCOLIVING
	STEADY LIT WHEN STOP IS PUSHED IN OR	STUCK SWITCH, CONTACT IMT TECHNICAL
ERR (ERROR)	RELEASED	SUPPORT
RED LED 3	FLASHING WHILE STOP IS RELEASED (UNIT	SWITCH CONFLICT; SWITCH IS BEING HELD
	TURNED ON)	BY THE USER
BATT (BATTERY)	CYCLE ON / OFF	CHANGE BATTERIES
AMBER LED 4	0.022 0.17 0.1	017 1102 27 11 121 1120

MIN / MAX Adjustment Fundamentals

Before performing dynamic MIN and MAX adjustments, make sure that the area around the controlled machine is safe to operate.

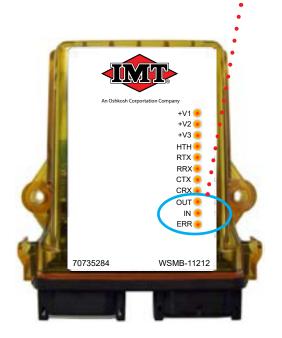
8

- Power the Base Unit for dynamic adjustment.
- Ensure that the Base Unit LEDs and displays are close enough to be easily read.
- Adjust Mode time-out defaults to a ten-second window of opportunity where the unit returns to normal operating mode if none of the switches are operated within the ten-second window. The timer resets to 10 seconds each time a switch or the trigger is operated while in Adjustment Mode.
- Exist Adjust Mode either by:
 - Pressing the STOP button
 - Waiting for 20 seconds without operating any of the function switches on the unit.
 - Releasing the function switch used to enter trigger adjustment.

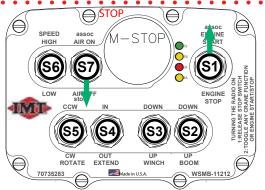
MIN / MAX Adjustment Procedure for 70735283 & 70735284

- Turn the controller on by twisting the red STOP button clockwise until the button releases (pops UP).
- Move Switch S1 UP and allow it to return to center.

3. Enter Adjust Mode by first holding switch S7 DOWN. Then, while still holding switch S7, hold switch S1 UP for four (4) seconds. Adjust Mode is indicated when the bottom three base unit LEDs begin flashing: OUT, IN & ERR.



BASE UNIT LEDs			
+V1, +V2, +V3 BASE UNIT VOLTAGE OK			
1	HEALTH		
3	RF TX		
3	RF RX		
5 6 7	CAN TX		
5	CAN RX		
6	OUTPUT ACTIVE		
	INPUT ACTIVE		
8	ERROR		



LED LIGHTS			
1		TX	
2		RX	
3		ERR	
4		BATT	

- 4. Release switches S7 and S1
- 5. Operate any of the function toggles either UP or DOWN and hold it in position. Continue to hold the function switch throughout the entire Adjustment procedure. The Base Unit LED (ERR) lights solid indicating MIN Adjust Mode. LEDs OUT & IN go out (extinguish).
- 6. While observing the machine being controlled, slowly press the pistol grip trigger (proportional control) to the point where the machine just begins to move.
- 7. When the desired result is achieved, move switch S7 DOWN to the STORE position. The MIN value is stored. Base Unit LED (OUT) activates.
- 8. Release all switches including the trigger. The Base Unit LED (ERR) goes out, and the LED (IN) lights solid indicating MAX Adjust Mode.
- 9. Engage and hold a function switch. Operate the trigger while observing the machine being controlled.
- 10. When the desired MAX value is achieved, move switch S7 DOWN to the STORE position. The MAX value is stored. Base Unit LED (OUT) activates.
- 11. Release all switches, including the trigger. The system returns to MIN Adjust Mode.

NOTE:

Activating switch S7 down toggles between MIN and MAX while in Adjust Mode.

Exit Adjustment Mode either by:

- Releasing all switches—including the trigger—and waiting for the handheld to time-out.
- Pressing the red M-STOP button, which powers down the handheld remote.

HANDHELD REMOTE SPECIFICATIONS (70735283)				
ITEM		DESCRIPTION		
	VIN	+1.6V TO +3.2VDC		
	BATTERIES	FOUR (4) AA ALKALINE		
POWER	BATTERY LIFE	100 HOURS		
	LOW V SHUTDOWN 1.6VDC	1.6VDC		
	AUTO-SHUTDOWN	10 MIN OF BUTTON INACTIVITY		
	ODED ATING TEMP	-20°C TO 55°C		
	OPERATING TEMP	(-4°F TO 131°F)		
ENVIRONMENT	STORAGE TEMP	-40°C TO 55°C		
	STORAGE TEMP	(-40°F TO 131°F)		
	HUMIDITY	0-100%		
	FREQUENCY	2405-2480 MHz		
	RF POWER	100mW (MAX)		
RADIO	LICENSE	NONE REQUIRED		
	MODULATION	DSSS		
	ANTENNA	INTERNAL		
	DIMENSIONS	INCH: 9.1 x 5.3 x 5.8 (230.6 x 133.9 x 146.9 mm)		
ENCLOSURE	TOTAL WEIGHT	3 LBS		
ENCLOSURE	DURABILITY	HIGH IMPACT POLYMER CASE		
	FACEPLATE	ALUMINUM OR POLYCARBONATE		
	TY (CDEEN)	BLINKING - TRANSMITTING, NO SWITCH ACTIVITY		
	TX (GREEN)	SOLID - TRANSMITTING, SWITCH ACTIVE		
LED INDICATORS	BY (AMBER)	BLINKING - RECEIVING, NO OUTPUT OF INTEREST		
LED INDICATORS	RX (AMBER)	ACTIVITY		
	ERR (RED)	INDICATES ERROR WITH HANDHELD REMOTE		
	BATT (AMBER)	LOW BATTERY INDICATION		
	TOGGLE	SEVEN 3-POSITION SPRING RETURN TO CTR		
CONTROL SWITCHES	TRIGGER	SPRING RELEASE		
	MUSHROOM	PROFESSIONAL STOP		

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Section - 4

Battery Installation

Battery Installation / Replacement

- 1. The handheld remote unit is powered by four-size AA alkaline batteries. When installing batteries, be sure to observe proper polarity as marked on the inside of the compartment to avoid damaging the unit. To replace or install batteries in the handheld:
- 2. Loosen the four Phillips battery compartment cover screws on the rear of the remote. Lift the cover form the handheld.
- 3. Install or replace with four (4) fresh size AA alkaline batteries. Observe the proper polarity by positioning the batteries as indicated in the battery compartment.
- 4. Replace the compartment cover and tighten the four (4) Phillips screws. These screws should not be over tightened, but they must be tight enough to assure the gasket provides a proper seal.





A CAUTION

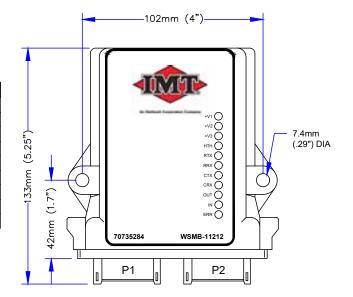
Observe proper polarity when placing batteries into the cradle. Improper battery placement can result in excessive heat, battery explosion, injury to the operator, and damage to the remote.

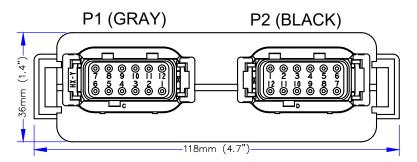
Section - 5

70735284 SII Base Receiver 70735284 SII Base Receiver 14 Section - 5

70735284 - SII Receiver Radio Remote (Base Unit) - Hydraulic Crane

BASE UNIT LEDs				
+V1, +V2, +V3	BASE UNIT VOLTAGE OK			
1	HEALTH			
2	RF TX			
3	RF RX			
4	CAN TX			
5	CAN RX			
6	OUPUT ACTIVE			
7	INPUT ACTIVE			
8	ERROR			



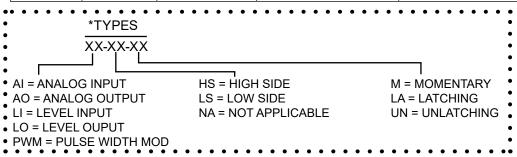




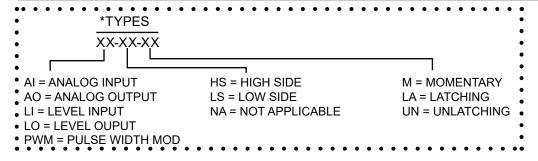
70735284 BU-2H20XF-11212

70735284 - Base Unit Configuration

CHANNEL	TYPE*	FUNCTION	ACTIVATED BY:	SETTINGS		PIN
M17	Ì	NOT USED				1
M18		NOT USED				2
-VDC						3
M11	PWM	PROPORTION- AL OUTPUT	TRIGGER+ S2+/- ,or S3+/- or S4+/-, or S5+/-	TOGGLE SWITCH OPERATED BEFORE TRIGGER DEPRESSED		4
M12	LO-HS-M	RADIO/TETHER LINKSTOP	ACTIVE COMMUNICA- TION PG - BU			5
+VDC						6
	LO-HS-LA- OFF	ENGINE SPEED CONTROL #1	DEFAULT CONDITION OR S6- OR M-STOP	DEFAULT CONDITION WHEN HANDHELD IS LINKED TO BASE UNIT ENGINE SPEED CONTROL IS ALWAYS OFF, RESULTING IN M13 NOT ON. AT ANY TIME ENGINE SPEED CONTROL CAN BE SET BACK TO OFF BY EITHER OPERATING S6 - OR TURNING OFF THE TRANSMITTER AND RE-ESTABLISHING THE RF LINK		
M13	LO-HS-LA- ON	ENGINE SPEED CONTROL #2 OUTPUT WILL REMAIN ACTIVE IF S1-IS USED TO TURN OFF SYSTEM	S6 + REFER TO SETTINGS/ COMMENTS FOR ADDITIONAL INFORMATION	ENGINE SPEED CONTROL #2 WILL LATCH M13 ON UNTIL DESELECTED OR TRANSMITTER IS TURNED OFF. WHEN IN ENGINE SPEED CONTROL #1 S6 + CAN BE OPERATED TO SWITCH TO ENGINE SPEED CONTROL #2. ADDITIONALLY OPERATIONS OF S6 + WILL TOGGLE BETWEEN ENGINE SPEED CONTROL #2 AND ENGINE SPEED CONTROL #3.	PLUG P1 (GRAY)	7
	LO-HS-LA- ON-3SEC	ENGINE SPEEC CONTROL #3	ACTIVATED BY	ENGINE SPEED CONTROL #3 WILL OPERATE M13 ON OPERATION OF CRANE FUNCTIONS. S6 + CAN BE OPERATED TO SWITCH TO ENGINE SPEED CONTROL #2. ADDITIONALLY OPERATIONS OF S6 + WILL TOGGLE BETWEEN ENGINE SPEED CONTROL #2 AND ENGINE SPEED CONTROL #3.		
M14/M2	LI-NA-M	BOOM DOWN A2B/OVLD	INTERNALLY CON- NECTED P2-10	ACTIVE HIGH INPUT, +12VDC = BOOM DOWN A2B/OVERLOAD ACTIVE NORMAL STATE		8
M15	LO-HS-M	ROTATE CCW	S5+	DIGITAL		9
M16	LO-HS-M	LOWER BOOM DOWN	S2+ + M14(M2)	DIGITAL		10
M10	LO-HS-M	ROTATE CW	S5-	DIGITAL		11
M9	LO-HS-M	LOWER BOOM UP	S2-	DIGITAL		12



CHANNEL	TYPE*	FUNCTION	ACTIVATED BY:	SETTINGS		PIN
M5	LO-HS-M	WINCH DOWN	S3+	DIGITAL		1
M6	LO-HS-M	WINCH UP	S3- + M4 + M14(M2)	DIGITAL		2
M7	LO-HS-M	EXTEND SYSTEM IN	S4+	DIGITAL		3
M8	LO-HS-M	EXTEND SYSTEM OUT	S4- + M4 + M14(M2)	DIGITAL		4
M19	LO-HS-M	ENGINE START	S1+	DIGITAL	2	5
M20	LO-HS-M	ENGINE KILL	M-STOP OR S1-	DIGITAL: 10 SECOND ON AFTER ACTIVATED	AC	6
CAN H		TETHER CABLE CONNECTION			<u></u> 同	7
CAN L		TETHER CABLE CONNECTION			3 P2	8
M1	LO-HS-LA LO-HS-UN	COMPR ON COMPR OFF	S7+ S7- OR M-STOP	OUTPUT WILL REMAIN ACTIVE IF INACTIVITY TURNS OFF TRANSMITTER. M-STOP WILL DE-ACTIVATE OUTPUT.	PLUG	9
M2/M14		INTERNALLY CONNECTED TO P1-8			1	10
M3	LO-HS-M	WINCH BRAKE	S3+ OR S3- + M4	OUTPUT WILL ACTIVATE WITH VALID WINCH COMMANDS		11
M4	LI-NA-M	A2B/OVER LOAD		ACTIVE HIGH INPUT. +12VDC = A2B/OVER- LOAD ACTIVE NORMAL STATE		12



70735284 - Base Unit Hardware Specs / Base Unit Safety Link / Base Unit Hardware

BASE UNIT HARDWARE SPECIFICATIONS				
REQUIRED FIELDS	DESCRIPTION	DETAILS		
CONTROL POWER	7-28VDC	USING 12VDC		
RF FREQUENCY	2400MHz	2405-2480MHz @ 100 mW		
ANTENNA OPTION	INTERNAL			
DISCRETE CHANNELS	17	15 HIGH SIDE OUTPUTS: 2 HIGH SIDE INPUTS		
PROPORTIONAL CHANNEL	1	PMW OUTPUTS		
ANALOG CHANNEL	1	4-20mA		
MESSAGE PERIODICITY	10x/s	ONE MESSAGE EVERY 100ms		
ON AIR TIME	2S	8 OR 16 BYTE PAYLOAD		
LINK LOSS CRITERIA	0.5S	5 CONSECUTIVE MESSAGES		
VALVE INFORMATION		PMW FREQ: 150Hz; DUTY CYCLE: 20-80%; LOAD: 4.7Ω		
CAN INFORMATION	J1939	REFER TO STANDARD EXTENDED CONFIGURATION FOR CAN MESSAGING BETWEEN PG AND BU		

BASE UNIT SAFETY LINK

WHEN ANY OF THE FOLLOWING OCCURS:

- MACHINE STOP IS PRESSED
- HANDHELD UNIT GOES OUT OF RANGE
- HANDHELD UNIT DE-ACTIVATES DUE TO LOSS OF POWER, INACTIVITY TIME-OUT, OR DELIBERATE DEACTIVATION (OFF SWITCH)

ENABLED ALL LATCHED OUTPUTS UNLATCH AND ALL MOMENTARY OUTPUTS THAT ARE ACTIVE DE-ACTIVATE WHEN MACHINE STOP BUTTON IS DEPRESSED. LATCHED COMMANDS REMAIN ACTIVE IF UNIT IS POWERED DOWN DUE TO INACTIVITY OR S1- IS OPERATED. ALL LATCHED OUTPUTS REMAIN LATCHED, BUT ALL MOMENTARY COMMANDS THAT ARE ACTIVE DE-ACTIVATE. NOTE: IF HANDHELD UNIT IS POWERED ON AND A MOMENTARY COMMAND THAT WAS DE-ACTIVATED	BEAUTIVATION (OF FORTION)	
ALL LATCHED OUTPUTS UNLATCH AND ALL MOMENTARY OUTPUTS THAT ARE ACTIVE DE-ACTIVATE WHEN MACHINE STOP BUTTON IS DEPRESSED. LATCHED COMMANDS REMAIN ACTIVE IF UNIT IS POWERED DOWN DUE TO INACTIVITY OR S1- IS OPERATED. ALL LATCHED OUTPUTS REMAIN LATCHED, BUT ALL MOMENTARY COMMANDS THAT ARE ACTIVE DE-ACTIVATE. NOTE: IF HANDHELD UNIT IS POWERED ON AND A MOMENTARY COMMAND THAT WAS DE-ACTIVATED	X	
MOMENTARY OUTPUTS THAT ARE ACTIVE DE-ACTIVATE WHEN MACHINE STOP BUTTON IS DEPRESSED. LATCHED COMMANDS REMAIN ACTIVE IF UNIT IS POWERED DOWN DUE TO INACTIVITY OR S1- IS OPERATED. ALL LATCHED OUTPUTS REMAIN LATCHED, BUT ALL MOMENTARY COMMANDS THAT ARE ACTIVE DE-ACTIVATE. NOTE: IF HANDHELD UNIT IS POWERED ON AND A MOMENTARY COMMAND THAT WAS DE-ACTIVATED	ENABLED	DISABLED
BEFORE OPERATION NO OUTPUTS ARE ALLOWED TO BE ACTIVATED UNTIL ALL SWITCHES ARE FIRST CENTERED OR RETURNED TO THEIR NEUTRAL STATE BE 10 KANGE IS STILL ACTIVE WHEN THE HANDHELD RETURNS IN RANGE, THE OUTPUT WILL IMMEDIATELY BE ACTIVE AGAIN	MOMENTARY OUTPUTS THAT ARE ACTIVE DE-ACTIVATE WHEN MACHINE STOP BUTTON IS DEPRESSED. LATCHED COMMANDS REMAIN ACTIVE IF UNIT IS POWERED DOWN DUE TO INACTIVITY OR S1- IS OPERATED. BEFORE OPERATION NO OUTPUTS ARE ALLOWED TO BE ACTIVATED UNTIL ALL SWITCHES ARE FIRST	ALL MOMENTARY COMMANDS THAT ARE ACTIVE DE-ACTIVATE. NOTE: IF HANDHELD UNIT IS POWERED ON AND A MOMENTARY COMMAND THAT WAS DE-ACTIVATED DUE TO RANGE IS STILL ACTIVE WHEN THE HANDHELD RETURNS IN RANGE, THE OUTPUT WILL IMMEDIATELY

BASE UNIT HARDWARE (70735284)				
ITEM		DESCRIPTION		
POWER	VIN:	+7 TO +28 VDC		
ENVIRONMENT	OPERATING TEMP:	-20°C TO 55°C (-4°F TO 131°F)		
	STORAGE TEMP:			
	HUMIDITY:	0 TO 100%		
		IEC60068-2-6		
	VIBRATION/SHOCK:	10 Hz to 150Hz @ 1.0 g PEAK ACCELERATION 10.0 g PEAK SHOCK ACCELERATION		
	FREQUENCY:	2405-2480MHz		
		100 mW (MAX)		
RADIO		LICENSE-FREE		
	MODULATION:	DSSS FREQUENCY HOPPING TECHNOLOGY		
	ANTENNA:	INTERNAL		
ENCLOSURE	DIMENSIONS:	MM: 133 X 118 X 36 (INCH: 5.25 X 4.7 X 1.4)		
	DURABILITY:	HIGH IMPACT POLYMER CASE		
LED INDICATORS	1 HEALTH:	BLINKS 1X/SEC WHEN ACTIVE		
	2 RF TRANSMIT:	FLASHES WHEN ACTIVE		
		FLASHES WHEN ACTIVE		
		FLASHES WHEN ACTIVE		
		FLASHES WHEN ACTIVE		
		BLINKS 1X/SEC WHEN ACTIVE		
		BLINKS 1X/SEC WHEN ACTIVE		
	-	SOLID WHEN ERROR IS PRESENT		
OUTPUTS / INPUTS	20	FET-OPEN DRAIN		
	CURRENT	2 A PER CHANNEL		
	JOINEN	8 A MAX @ 55°C / 131°F		

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Section - 6

LED Troubleshooting

LED Diagnostic Troubleshooting

INDICATION	CAUSE	SOLUTION *
+V1, +V2, +V3 POWER LED NOT		IS +VDC INPUT POWER PRESENT.
ACTIVE		CHECK INPUT POWER POLARITY.
RTX / RRX NOT ACTIVE		CHECK FOR OBSTRUCTIONS PREVENTING LINE-OF-SIGHT.
		RE-ASSOCIATE THE REMOTE UNIT WITH THE BASE UNIT.
CTX / CRX NOT ACTIVE	ELECTRICAL SIGNALS NOT	CHECK CAN WIRING.
	ACTIVATING THE LEDS	CHECK THAT THE REMOTE UNIT IS
		ACTIVE.
		RE-ASSOCIATE THE REMOTE UNIT
		TO THE BASE UNIT.
OUT LED NOT ACTIVE		CHECK THAT THE REMOTE UNIT
		LEDs ARE ACTIVE WHEN THE
		APPROPRIATE BUTTONS ARE
		PUSHED.
ERR LED ACTIVE	OVER-TEMPERATURE OR OVER-CURRENT CHANNEL INDICATION	CHECK THE OUTPUTS FOR LOOSE WIRING, ETC.
		ACTIVE CHANNEL CURRENT
		CONSUMPTION LESS THAN 1 A
		TYPICAL. (THIS IS NOT A PROBLEM
		IN CASES WHERE LESS THAN 1 A
		DRAW IS A NORMAL CONDITION.)
HEALTH LED BLINKING RAPIDLY	INDICATES AN INTERNAL PROBLEM.	CONTACT IMT TECHNICAL SUPPORT

 $^{^{\}ast}$ IF THE RECOMMENDED SOLUTIONS DO NOT RESOLVE THE ISSUE, CONTACT IMT TECHNICAL SUPPORT DEPARTMENT.

Section - 7

Identification/
Locations / Exposure

Exposure to Radio Frequency Energy

The handheld remote control and base units contain radio transceivers. When active, handheld remotes and base units send out radio frequency (RF) energy through either internal (remote/base unit) or external (base unit only) antennae. The handheld remote and base units comply with limits set by the United States Federal Communications Commission (FCC) for operating distance from human tissue.

RF Exposure Considerations

The radio module may be used in a variety of host applications falling into two general categories:

- 1. Mobile applications: Any operating locations where the transmitting equipment is not on a human body. In mobile applications, the host application is typically fixed to mobile equipment, with either an internal or external antenna.
- 2. Portable applications: Any operating locations where the transmitting equipment is located on the hand, arm, or other part of the human body. In portable applications, the equipment is either held in the hands of an operator or affixed to either a belt or harness on the torso.

Equipment containing the radio module was evaluated for RF exposure hazards by two approaches:

- 1. Maximum Permissible Exposure (MPE) for mobile applications.
- 2. Specific Absorption Rate (SAR) for portable applications.

Required separation distances are measured from the actual location of the radiating part of the antenna. An antenna may be inside the host application, affixed to the host application enclosure, or at the end of an optional extension coaxial cable.

Mobile Applications

Equipment **must** be located at least 8" (20 cm) away from areas likely to be occupied by an unaware person.

Transmitter Applications

All operators of transmitter equipment with any type of antenna require proper equipment operation training, and such training must include RF exposure safety instructions. They are then considered to be "aware" persons once training is completed.

If the portable operating position is on the hand or arm, a 1" (5 mm) separation is required between the radiating part of the antenna and nearby human tissue.

Required Training

All installers and operators of host applications that include an SRF305 FT module must be trained to use proper RF safety precautions as presented in this Appendix.

Identification Label Locations

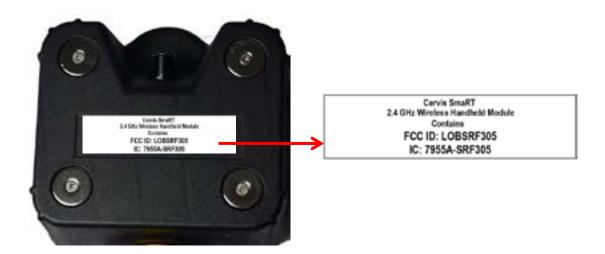


Model: BU-2H20XF-11003

Contains:

FCC ID: LOBSRF305 IC: 7955A-SRF305

Input: 9-365 3A per channel 8A Max Total



NOTE:

THE BASE UNIT AGENCY LABEL POSITION IS IDENTICAL FOR ALL INTERNAL ANTENNA AND EXTERNAL ANTENNA BASE UNITS

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