

MSA Sirius[®] Wireless Link and SAFECONNECT[™] Wireless Bridge

Instruction Manual

⚠ WARNING

THIS MANUAL MUST BE CAREFULLY READ BY ALL INDIVIDUALS WHO HAVE OR WILL HAVE THE RESPONSIBILITY FOR USING OR SERVICING THE PRODUCT. Like any piece of complex equipment, this instrument will perform as designed only if it is used and serviced in accordance with the manufacturer's instructions. OTHERWISE, IT COULD FAIL TO PERFORM AS DESIGNED AND PERSONS WHO RELY ON THIS PRODUCT FOR THEIR SAFETY COULD SUSTAIN SEVERE PERSONAL INJURY OR DEATH.

The warranties made by Mine Safety Appliances Company with respect to the product are voided if the product is not used and serviced in accordance with the instructions in this manual. Please protect yourself and others by following them. We encourage our customers to write or call regarding this equipment prior to use or for any additional information relative to use or repairs.

In North America, to contact your nearest stocking location, dial toll-free 1-800-MSA-INST
To contact MSA International, dial 1-412-967-3354

© MINE SAFETY APPLIANCES COMPANY 2006 - All Rights Reserved

This manual is available on the internet at www.msanet.com

Manufactured by

MSA NORTH AMERICA

P.O. Box 427, Pittsburgh, Pennsylvania 15230

(L) Rev 0

10072258

MSA Instrument Warranty

- 1. Warranty-** Seller warrants that this product will be free from mechanical defect or faulty workmanship for a period of one (1) year, provided it is maintained and used in accordance with Seller's instructions and/ or recommendations. This warranty does not apply to expendable or consumable parts whose normal life expectancy is less than one (1) year such as, but not limited to, non-rechargeable batteries, filter, lamps, fuses etc. The Seller shall be released from all obligations under this warranty in the event repairs or modifications are made by persons other than its own or authorized service personnel or if the warranty claim results from physical abuse or misuse of the product. No agent, employee or representative of the Seller has any authority to bind the Seller to any affirmation, representation or warranty concerning the goods sold under this contract. Seller makes no warranty concerning components or accessories not manufactured by the Seller, but will pass onto the Purchaser all warranties of manufacturers of such components. **THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED, IMPLIED OR STATUTORY, AND IS STRICTLY LIMITED TO THE TERMS HEREOF. SELLER SPECIFICALLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.**
- 2. Exclusive Remedy-** It is expressly agreed that Purchaser's sole and exclusive remedy for breach of the above warranty, for any tortious conduct of Seller, or for any other cause of action, shall be the repair and/ or replacement at Seller's option, of any equipment or parts thereof, which after examination by Seller is proven to be defective. Replacement equipment and/ or parts will be provided at no cost to Purchaser, F.O.B. Seller's Plant. Failure of Seller to successfully repair any nonconforming product shall not cause the remedy established hereby to fail of its essential purpose.
- 3. Exclusion of Consequential Damage-** Purchaser specifically understands and agrees that under no circumstances will seller be liable to purchaser for economic, special, incidental or consequential damages or losses of any kind whatsoever, including but not limited to, loss of anticipated profits and any other loss caused by reason of non-operation of the goods. This exclusion is applicable to claims for breach of warranty, tortious conduct or any other cause of action against seller.

General Warnings

WARNING

1. Each instrument described in this manual must be installed, operated and maintained in strict accordance with its labels, cautions, warnings, instructions, and within the limitations stated.
2. Exposure to some chemicals may degrade the integrity of the enclosure. Inspect periodically for any sign of attack or degradation.
3. Use only genuine MSA replacement parts when performing any maintenance procedures provided in this manual. Failure to do so may seriously impair instrument performance. Repair or alteration of the unit, beyond the scope of these maintenance instructions, or by anyone other than an authorized MSA service technician, could cause the product to fail to perform as designed, and persons who rely on this product for their safety could sustain severe personal injury or death.
4. Ensure the gas sample and instrument are at the same temperature; otherwise, condensation will form, possibly clogging or filling the sample line.
5. Avoid static buildup on enclosure. Be sure any static buildup has been discharged before entering a hazardous area.
6. Do not set the SAFECONNECT Wireless Belt-Bridge as a repeater.

Failure to follow the above can result in serious personal injury or death.

Table of Contents

Figure 1. Sirius Wireless Link	1
Figure 2. Sirius Unit with Wireless Link in One Boot ..	1
General Description	1
Sirius Wireless Link	1
The SAFECONNECT Belt Bridge	2
Figure 3. Sirius Wireless Link Opened for Battery Replacement	2
Figure 4. The SAFECONNECT Belt Bridge	2
▲ WARNING	3
Understanding the Display	4
Table 1. Power LED Display Logic	4
Figure 5. Sirius and Belt Bridge with Cradle Cover and Strap	4
Table 2. COMM LED Display Logic	5
Table 3. GPS LED Display Logic	5
Table 4. Hex Rotary Switch Settings	5
Batteries	6
Figure 6. Rotary Switch in Battery Cradle	6
Figure 7. Rotary Switch	6
Figure 8. Unit with Battery Cover Removed	6
Table 5. Approximate Runtime Operation under Typical Operating Conditions	7
Radio Information	7
FCC Notification	7
Sirius Instrument Compatibility	7
Unpacking the Units	8
Getting Started	8
Figure 9. Heartbeat Segment Poll Indicator	9
Table 6. Troubleshooting Guidelines	10
Table 7. Replacement Parts List	11

General Description

The Sirius Wireless Link, combined with the SAFECONNECT Wireless Belt Bridge, provide the following additional features to the Sirius MultiGas Detector:

- Wireless connectivity
- Interface to the MSA SAFESITE® Multi-Threat Detection System.

Sirius Wireless Link



Figure 1. Sirius Wireless Link

The Sirius Wireless Link:

- Interfaces with the Sirius MultiGas Detector via the instrument's infrared port
- Is equipped with a Bluetooth device that allows for connectivity to the SAFECONNECT Belt Bridge
- Is combined with the Sirius MultiGas Detector by installing both devices in the extended Sirius Wireless rubber boot.



Figure 2. Sirius Unit with Wireless Link in One Boot

- Links to the SAFECONNECT Belt Bridge by momentarily pressing the Link button
 - Pressing the Link button for three seconds resets the Bluetooth link.
- Uses a CR2477 1000 mAH replaceable coin cell battery



Figure 3. Sirius Wireless Link Opened for Battery Replacement

- Battery life under typical operation is 18 months.
NOTE: Typical operation would consist of 10 operation hours per day, five days per week.

The SAFECONNECT Belt Bridge



Figure 4. The SAFECONNECT Belt Bridge

The SAFECONNECT Belt Bridge:

- Is equipped with a Bluetooth device that accepts a connection request from a Sirius Wireless link device within six feet line-of-sight distance
- Has a radio transceiver that responds to poll requests from the SAFECOM™ Command Center of the SAFESITE Multi-Threat Detection System
- Is equipped with a GPS global positioning device

NOTE: The device does not usually detect a signal position indoors, unless located near a window.

- Is designed to be belt-mounted or carried over the shoulder via the included case and strap, with the antenna facing away from the user's body

⚠ WARNING

Wearing the SAFECONNECT Belt Bridge with the antenna facing the user will degrade performance and may subject the user to levels of emissions that exceed those allowed by the FCC.

- Is equipped with an ON/OFF button
 - When the unit is OFF, press the ON/OFF button for approximately one second until the LEDs turn ON.
 - When the unit is ON, press the ON/OFF button for approximately five seconds until the LEDs turn OFF.
- Is equipped with three multi-color LEDs (TABLES 1 through 3)
- Must be configured with the corresponding network ID and frequency key to match the SAFESITE System with which it is intended to operate
- Must be set to a unique address for each device using the hex rotary switch located behind the batteries. The unit address is a function of the switch setting (TABLE 4).



Figure 5. Sirius and Belt Bridge with Cradle Cover and Strap

Understanding the Display

Table 1. Power LED Display Logic

LED	DESCRIPTION
Green	Both Sirius Wireless Link and SAFECONNECT batteries are good
Yellow	Sirius Wireless Link battery is low (The unit must be linked for this information to be displayed)
Red	SAFECONNECT battery is low (highest priority condition)

Table 2. COMM LED Display Logic

LED	DESCRIPTION
Green	All links are established
Yellow	Loss of communications to Sirius Wireless Link or Sirius instrument
Red	Loss of communications to SAFECOM (highest priority condition)

Table 3. GPS LED Display Logic

Green	Sufficient signal for 3D location
Yellow	Sufficient signal for 2D location
Red	Insufficient signal
OFF	No GPS signal, GPS device inoperative

Table 4. Hex Rotary Switch Settings

SWITCH POSITION	DEVICE ADDRESS
0	1
1	2
2	3
3	4
4	5
5	6
6	7
7	8
8	9
9	10
A	11
B	12
C	13
D	13
E	15
F	16



Figure 6.
Rotary Switch in Battery Cradle



Figure 7.
Rotary Switch

Batteries

The SAFECONNECT Belt Bridge uses four user-replaceable AA batteries.

- To replace batteries, remove Belt Bridge from carrying case and then remove battery cradle cover

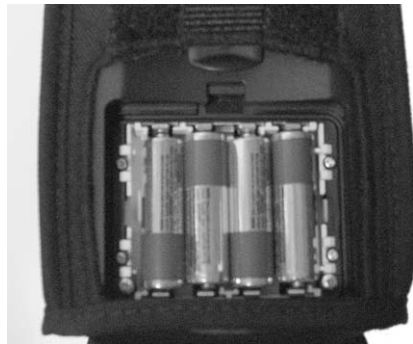


Figure 8. Unit with Battery Cover Removed

Table 5. Approximate Runtime Operation under Typical Operating Conditions

BATTERY TYPE	TYPICAL RUN TIME
Rechargeable NIMH	12 Hours

NOTE: Handle and dispose of batteries according to the manufacturer's recommendations.

NOTE: If you choose to use another battery type, Energizer E²L91 is recommended. With other batteries, the SAFECOM will read FULL/100% while running and COMM Error without warning when batteries no longer have useful life.

Radio Information

This device contains transmitter modules FCC ID: KNY-6 231812519 and FCC ID: POOWML-C30XX The device complies with Part 15 of the FCC rules.

FCC Notification

- This radio complies with part 15 of the FCC rules.
- Operation is subject to the following two conditions:
 - 1) This device may not cause harmful interference.
 - 2) This device must accept any interference received, including interference that may cause undesired operation.
- The radio has a maximum transmitted output power of 955 mW.
- The device has been tested and meets the FCC SAR requirements.

Sirius Instrument Compatibility

- The Sirius Wireless Link is designed to operate with any sirius instrument.
- Operation in direct sunlight may be affected for any instrument with a date code of that prior to F06.
- Label (P/N 10074834) can be used to add solar immunity to any Sirius instrument with a date code earlier than F06.
- Install the label according to the instructions provided with the label.

Unpacking the Units

1. Carefully remove components from packing to avoid damaging sensitive electronic components
2. Search through packing material and inside all containers to prevent discarding usable or valuable parts.

Getting Started

1. Install the Sirius MultiGas Instrument in the extended rubber boot.
2. Install the Sirius Wireless Link in the provided area at the top of the instrument.
3. Verify that the SAFECONNECT belt Bridge has a unique device address to avoid communications conflicts.

By factory default, units are preset in descending order (i.e. 16, 15, 14, 13, etc.) to avoid conflicts with existing systems.

4. Turn ON the Sirius Instrument using the ON/OFF/ACCEPT button on the unit.
 - Wait for the instrument to cycle through the power ON sequence and diagnostic procedures.
5. Turn ON the SAFECONNECT Wireless Belt Bridge by pressing the ON/OFF button for approximately one second, until all three LEDs are green.
6. Observe the power-ON LED sequence; all LEDs are green, then orange, and then red.
7. Verify that the power LED is green.
 - The Comm LED turns orange when a link is established to the SAFESITE Multi-Threat detection system.
 - The Wireless Link and SAFECONNECT Wireless Belt Bridge must be located within six feet of one another.
8. Press the link button on the Sirius Wireless Link Device.
 - The Comm LED on the SAFECONNECT Belt bridge turns green when the link is established.
 - Observe that the Sirius Wireless Link is polling the instrument:
 - Sirius Version 1.0 Firmware: Red LEDs flash alternately
 - Sirius Version 1.2 Firmware and above: Heartbeat segment flashes rapidly during poll (FIGURE 8).

- Sirius instrument firmware version is displayed on power-up sequence.

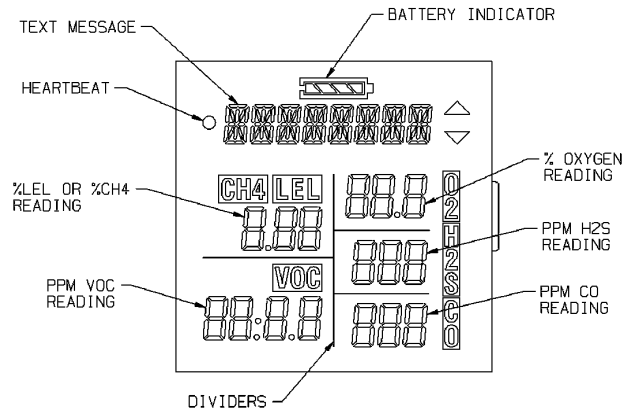


Figure 9. Heartbeat Segment Poll Indicator

- The GPS LED changes from red, to orange, to green as a location lock is established and the number of satellites detected increases; this typically occurs:
 - three minutes from initial operation after replacing batteries
 - 30 seconds from subsequent starts.
- The system is now operational.

NOTE: Refer to the Sirius MultiGas Detector and the SAFESITE Multi-Threat Detection System manuals (P/Ns 10048887 & 10057028, respectively) for additional information.

Table 6. Troubleshooting Guidelines

CONDITION	POSSIBLE CAUSE	POSSIBLE CORRECTIVE ACTION
Power LED on SAFECONNECT Belt Bridge is RED	Low SAFECONNECT batteries	Replace Belt Bridge batteries
POWER LED on SAFECONNECT Belt Bridge is ORANGE	Sirius Wireless Link battery is low	Replace Wireless Link battery
POWER LED on SAFECONNECT Belt Bridge is OFF	Failure to press the ON/OFF button for a full second	Press the ON/OFF button until all three LEDs turn green
	Low batteries	Replace batteries
	Unit inoperative	Return unit to factory for repair
COMM LED on SAFECONNECT Belt Bridge is ORANGE	Absence of Bluetooth link between Wireless Link and Belt Bridge	Momentarily press the LINK button while both devices are within range
		Reset Wireless Link by pressing LINK button for five seconds; then, attempt to establish link
		Replace Wireless Link battery and attempt to establish LINK
	Absence of link between Wireless LINK and Sirius instrument	Wireless Link should be seated or mated properly with Sirius instrument in boot
	At cold temperatures (<0°C) loss of communi- cation can occur	Cycle power on Sirius instrument to reinitialize communication. Wear Sirius instrument close to body to keep it warm.
	Sirius instrument is OFF	Turn instrument ON, wait until start-up routine is complete, and attempt to establish LINK
	Direct, bright sunlight on IRDA communication from Sirius to Sirius Wireless Link can cause loss of communication	Ensure that provided MSA label is installed at top of Sirius unit and providing sunlight shield
COMM LED on SAFECONNECT Belt Bridge is RED (Belt Bridge is not connected to SAFESITE network)	SAFECOM unit is OFF	Turn SAFECOM unit ON
	Incorrect network ID and/or frequency key on Belt Bridge	Return unit to factory for proper configuration
	Belt Bridge out of network range	Belt Bridge will automatically reconnect when it is in network range
	Radio inoperative	Return unit to factory for repair

Table 7. Replacement Parts List

DESCRIPTION	MSA PART NO.
Belt Bridge Carrying Case	10070612
Belt Bridge Battery, Lithium, 1.5V AA	655832
Belt Bridge Radio Antenna	10074354
Wireless Link Battery, CR2477, 3 Volt	10070121
Sirius Extended Rubber Boot	10070903
IR Sun Shield (for instruments with a date code prior to F06)	10074834
Four Rechargeable Batteries and Charger	10072962