

# Accurate

TECHNOLOGY INC.

*Linear Digital Measuring Systems*

ProRF™  
SPC  
Transmitter



**User Manual**

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## WARRANTY

Accurate Technology, Inc. warrants the ProScale Systems against defective parts and workmanship for 1 year commencing from the date of original purchase. Upon notification of a defect, Accurate Technology, Inc., shall have the option to repair or replace any defective part. Such services shall be the customer's sole and exclusive remedy. Expenses incidental to repair, maintenance, or replacement under warranty, including those for labor and material, shall be borne by Accurate Technology, Inc. (Including freight or transportation charges during the first 30 days).

Except as expressly provided in this warranty, Accurate Technology, Inc. does not make any warranties with respect to the product, either expressed or implied, including implied warranties of merchantability or fitness for a particular purpose, except as expressly provided in this agreement.

Accurate Technology, Inc. shall not be liable for any special, incidental, or consequential damages or for loss, damage or expense directly or indirectly arising from the customer's use of or inability to use the equipment either separately or in combination with other equipment, or for personal injury or loss or destruction of other property, or from any other cause.

To request repair work, (either warranty qualified parts or not) contact Accurate Technology, Inc. directly by phone, fax, or e-mail. A [Returned Merchandise Authorization](#) (RMA) number is required before returning a product for repair.

## FCC NOTICE

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 correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the Receiver.
- Connect the equipment to an outlet on a circuit different from that to which the Receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

Operation with non-approved equipment is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of the manufacturer could void the user's authority to operate this equipment.

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## What This Manual Contains

This manual includes Set-up and Operation information for:  
[ProRF SPC Transmitter.](#)

The ProRF SPC Transmitter is designed to operate with any ProScale [Digital Readout](#) (DRO) with an [SPC](#) data port.



This manual DOES NOT include Set-up and Operation information for  
[ProRF SPC Receiver](#)



That manual is available at <http://www.proscale.com/Manuals.htm>

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## Introduction

The ProRF SPC Transmitter was designed to be used in conjunction with [ProScale® measuring systems](#) and the [ProRF Receiver](#).

The purpose of this system is to provide a **two-way** wireless communication channel between any ProScale [Digital Readout](#) with a 10 pin SPC output and a computer or other device having an RS232 or USB communication port..

### ProRF SPC Transmitter features

- 2 LEDs provide RF message status and low battery reporting.
- Operates from a single lithium coin cell battery.
- 3 to 6+ months battery lifetime depending on usage.
- Small, compact enclosure designed to plug into ProScale Digital Readouts (DROs) that are equipped with an SPC data port.
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**NOTE:** This Transmitter is compatible with ProRF Receiver part # 700-1038-001. It CAN NOT be used with ProScale Receiver part # 700-1036-0xx (with external antenna)

## Specifications

Size:	.8 x 1.4 x 2.6 inches (W x L x H)
Power:	CR2450 (or equivalent) lithium battery
Input:	ProScale Readout 10 pin SPC output.
Output:	RF signal to ProRF receiver
# of Inputs:	1
# of RF Channels:	15
Range:	50' to 100' depending on the environment
Communication:	2-way
Frequency:	<a href="#">2.4 GHz</a> ( <a href="#">802.15.4</a> )

## Setting the RF Channel

The ProRF SPC Transmitter can be configured to operate on 1 of 16 possible radio frequency channels. The default channel is 0.

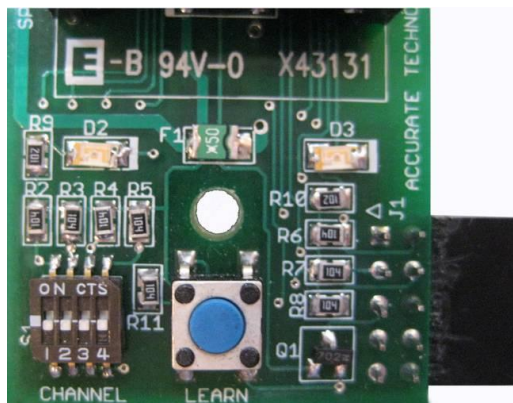
**Unless there are other ProRF systems in range that could cause a conflict, the default channel setting of 0 should be used.**

**Note: If the Transmitter's RF channel is changed from its default setting, the Receiver's RF channel must also be changed.**

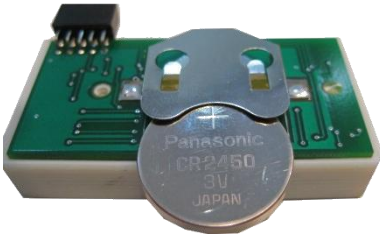
To change the RF channel, complete the following steps. If the default channel is to be used, skip to [Connecting the Transmitter](#).

1. Use a Phillips screwdriver to remove the two screws from the back of the housing.
2. Touch a grounded metal surface to discharge any static electricity from your body, and then remove the front and back cover of the Transmitter enclosure.
3. Slide out the coin cell battery from the battery holder and set it aside.
4. Locate the address switch in the lower left hand corner of the circuit board. Set the desired channel using the dip switch. See [RF Channel Switch Setting](#) Table for switch setting versus RF channel number.

RF Channel Switch



5. Reinstall the battery into the battery holder. **PLUS (+) side is UP.** When the battery is installed, the two LEDs on the front of the Transmitter will both flash momentarily, then go out.  
**NOTE: If the LEDs continue to flash on and off, remove the battery for 10 seconds and then re-install it.**



6. Install the circuit board into the enclosure and secure with the two Phillips head screws.

## RF Channel Switch Settings

RF Channel	SW 1	SW 2	SW 3	SW 4
0	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF
3	ON	ON	OFF	OFF
4	OFF	OFF	ON	OFF
5	ON	OFF	ON	OFF
6	OFF	ON	ON	OFF
7	ON	ON	ON	OFF
8	OFF	OFF	OFF	ON
9	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON
11	ON	ON	OFF	ON
12	OFF	OFF	ON	ON
13	ON	OFF	ON	ON
14	OFF	ON	ON	ON
15	ON	ON	ON	ON

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## Connecting the Transmitter

The ProRF SPC Transmitter is designed to operate with any ProScale Digital Readout (DRO) that has a built in SPC data port.

The following illustration uses the [General Purpose](#) readout as an example.

To install the SPC Transmitter:

1. Peel off the backing of the pressure sensitive double faced tape located on the side of the Transmitter housing.
2. Plug the 10 pin header from the SPC Transmitter into the DRO's SPC data port. Be sure that all of the pins are properly aligned.



3. Press the Transmitter enclosure securely against the DRO housing to ensure that the double faced tape contacts both units adequately.

## Associating Transmitters & Receivers

Each ProRF SPC Transmitter is assigned a unique 64-bit ID that identifies that Transmitter to a Receiver. For proper communication to occur between the Transmitter and Receiver, each Transmitter in the system must be *associated* or "*learned*" by the Receiver.

The association process is a one time operation where the Receiver is placed into a special mode which listens for new Transmitters to be acquired. To learn a particular Transmitter, the user then activates a "learn" pushbutton on the desired Transmitter. The Transmitter sends its unique 64-bit ID which the



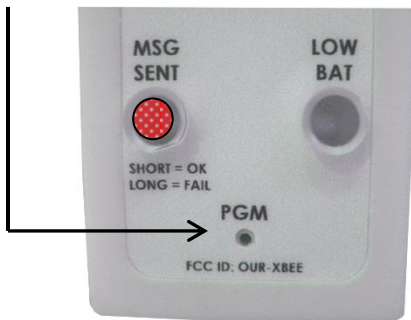
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Receiver then stores in its permanent memory. Following this operation, the Receiver will accept messages from any learned Transmitter and reject messages from unknown Transmitters.

**If you purchased this ProRF SPC Transmitter as a system, i.e. with a ProRF Receiver, the Receiver and Transmitter(s) have already been associated at the factory during final testing.** If you have purchased this Transmitter separately, you will have to associate it with your ProRF Receiver.

The association procedure is outlined below. Additional information regarding this operation can also be found in the [ProRF Receiver user's manual](#). To associate one or more Transmitters with a Receiver, complete the following:

1. Connect to the ProRF Receiver using HyperTerminal™ or other terminal emulation program as described in the ProRF Receiver user's manual.
2. Enable Transmitter association by issuing the command **A1<ENTER>**. The Receiver will indicate that learning is enabled.
3. Insert a paperclip into the hole on the face of the SPC Transmitter labeled **PGM**, depressing the small button underneath.



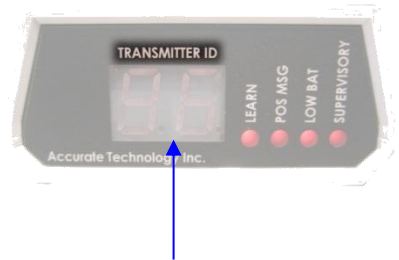
4. The **MSG SENT LED** should momentarily light on the Transmitter and the Receiver will send the following message to the PC: "Transmitter Learned". The association is now complete.
5. To disable Transmitter association, send the command **A0<ENTER>** from the PC to the Receiver. The Receiver will indicate that Transmitter association is now disabled.

## Send

To send a position message from the ProScale DRO to the ProRF Receiver, press the SEND key on the DRO. The DRO will display “**Snd**” for 1 second.

If the transmission is successful, the **MSG SENT** LED on the SPC Transmitter will flash very briefly, about 1/10 second. The ProRF Receiver will momentarily display the Transmitter ID along with a flash of the **POS MSG** LED.

Typical SEND button location  
(depends on DRO)



Transmitter ID Displayed

If the transmission was not successful, the MSG SENT LED on the SPC Transmitter will flash for a longer time, about 1 ½ seconds. If this occurs, the user should try to retransmit again by pressing the SEND key on the DRO. If the error continues, a range issue or interference may be preventing the transmission from being received. Move the DRO closer to the Receiver and attempt the transmission again.

Each time the SEND Key on the DRO is depressed, the SPC Transmitter will send a new position message to the Receiver.

## Delete

The user can also activate a *delete* function that will transmit a special message to the ProRF Receiver. This message will cause a *delete last measurement* signal to be sent. In the case of a PC, it causes a **DELETE** text message to be displayed. To send a delete message, press the F2 Key

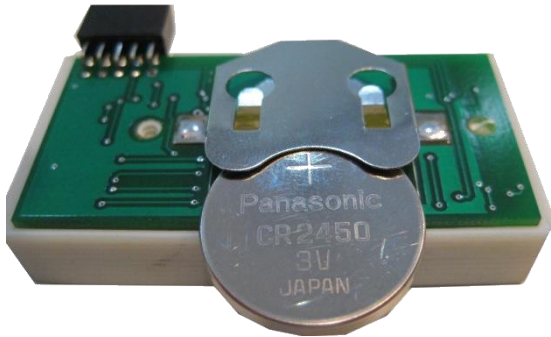
**NOTE: The delete function only operates with ProScale DROs that have firmware version 2.x9 or above.**

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## Battery Replacement

Periodically, the coin cell battery in the SPC Transmitter will require replacement. A low battery condition is detected by the Transmitter and will be indicated by flashing the **LOW BAT** LED when a position message is sent. A low battery condition still allows normal operation but the transmission range may be diminished. Change the battery as soon as possible by completing the following:

1. Unplug the SPC Transmitter from the side of the ProScale DRO.
2. Using a Phillips screwdriver, remove the two screws from the back of the housing.
3. Touch a grounded metal surface to discharge any static electricity from your body, and then remove the back cover of the Transmitter enclosure.
4. Slide out the coin cell battery from the battery holder.
5. Install a new CR2450 (or equivalent) lithium battery into the battery holder with the **+ PLUS side UP**. When the battery is installed, the two LEDs on the front of the Transmitter will both flash momentarily.  
**NOTE: If the LEDs continue to flash on and off, remove the battery for 10 seconds and then re-install it.**
6. Re-install the rear enclosure cover and replace the screws.
7. Plug the SPC Transmitter into the DRO's SPC data port, ensuring the pins are correctly aligned.



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**Thank you for choosing a ProScale Product,**

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