

ATC



Avalanche Training Center

User Manual

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1. Introduction

The ATC Avalanche Training Center is a stationary system for training transceiver and probe search.

The system has been proven for a long time and has been overhauled completely in the year 2015. Some innovative solutions provided decisive advantages to the users and to the operators.

The system can simulate from five to sixteen transceivers. The transmitters that are buried in the search area emit signals that are exactly equal to the signals from real avalanche transceivers.

At the control unit, the remotely controlled transmitters can be selected at random (standard mode) or individually (expert mode). This allows for training simple as well as complex (multiple burials) burial situations.

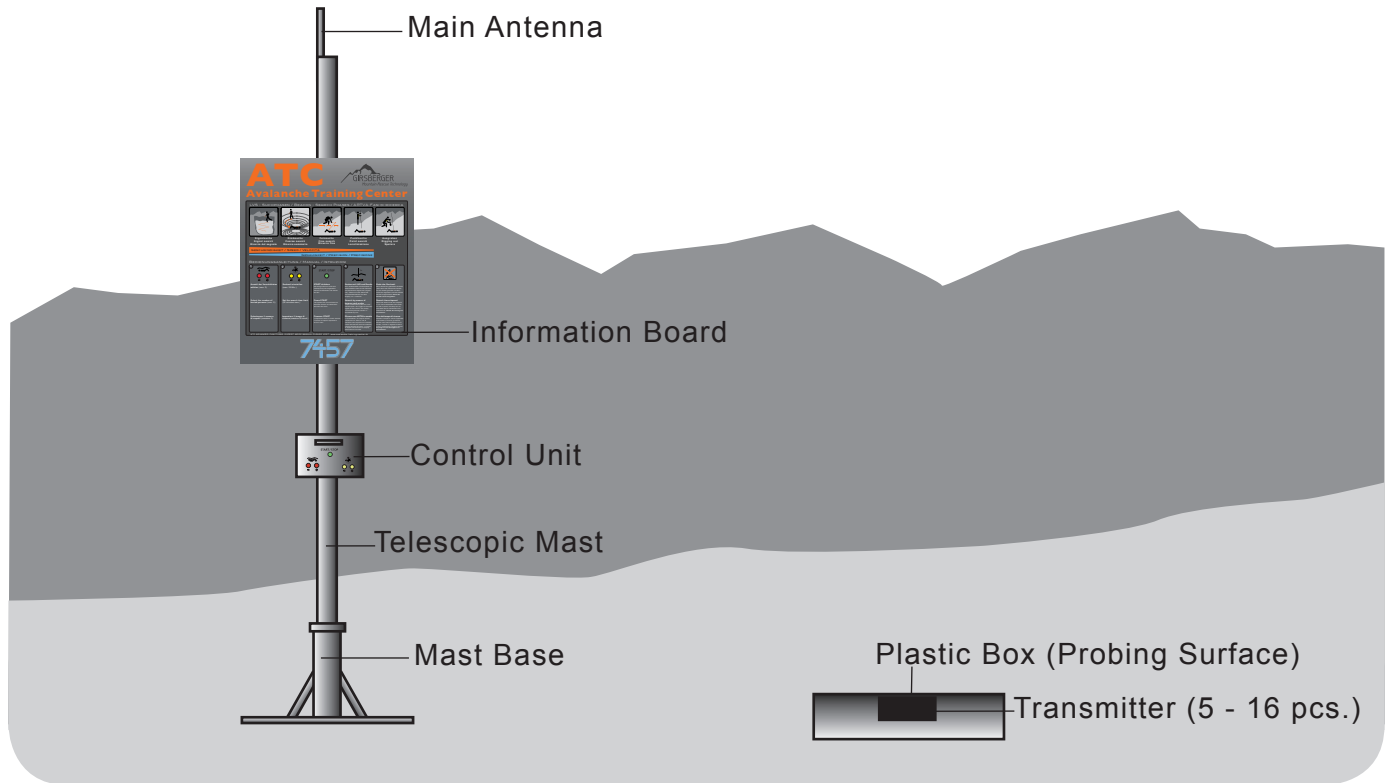
The transmitters will provide automatic feedback upon a probe hit. A probe hit on the probing surface of a transmitter is indicated at the control unit and signaled acoustically. The search times for every transmitter are also indicated.

The control unit also incorporates a counter for the number of exercises that can be read out at any time.

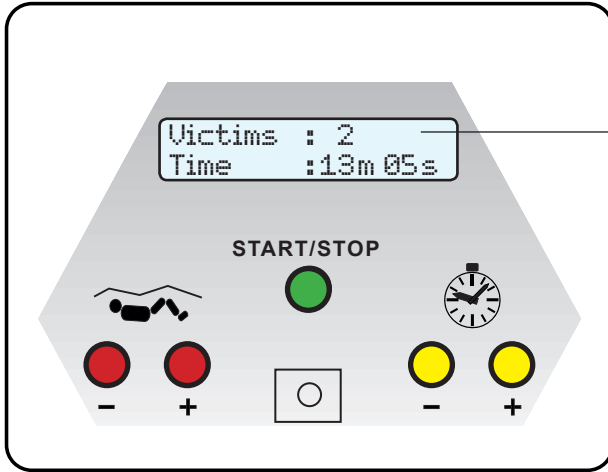
The entire system is equipped with standard batteries for autonomous operation throughout a winter season. No mains supply required.

In order to save precious energy, the system automatically enters a sleep mode when not used for some time. There is no need to turn the system off manually.

2. System Components



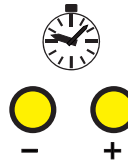
3. User Interface



The system provides a LCD-display for the operating status, the number of buried victims (VICTIMS) and the maximum search time (TIME)



Keys - **VICTIMS** and + **VICTIMS** for setting the number of buried transmitters to be activated (VICTIMS) 1 to 5



Keys - **TIME** and + **TIME** for presetting the maximum duration (1 to 20 minutes) of an exercise.

START / STOP



Key **START / STOP** for starting and stopping exercises and for selecting the operating mode.

4. Standard Mode

In standard mode, the selected number of transmitters is activated at random, and the stopwatch is started.

Three consecutive probe hits, one second apart each, on the probing surface will cause an optical and acoustic indication at the control unit. The activated transmitters keep transmitting even after a probe hit. This corresponds to a realistic situation. Most transceivers provide facilities to mark found transmitters. When all transmitters have been hit by a probe or when the maximum duration of the exercise has elapsed, the end of the exercise is signaled acoustically.

After termination of the exercise, the search times for the individual transmitters can be read out on the control unit.

4.1 Starting the System

```
Waking up...  
Time      :00m 35s
```

When the **START / STOP** key is pressed, the system will be started up within 35 seconds.

```
Searching -> 5  
1 2 3 4 5
```

After the startup, an automatic search for all available transmitters is activated.

```
Search complete  
1 2 3 4 5 6 7 8
```

All transmitters that have been found will be indicated. Only those can be used for exercises in the standard or expert mode.

```
Victims: 0  
Time    :10m 00s
```

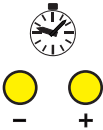
The system is now ready.

4. Standard Mode

4.2 Preparation



Select the number of transmitters (5 maximum).



Select the duration (20 minutes maximum).

```
Victims: 3
Time   :11m 00s
```

4.3 Start

```
Starting.....
```

Pressing the **START / STOP** starts the exercise. The transmitters are selected at random from the ones that are available, and the stopwatch is started. The search by means of a transceiver and a probe can now be started.

START/STOP



The exercise may be terminated at any time by pressing the **START / STOP** key again. All activated transmitters will be deactivated automatically.

4. Standard Mode

4.4 During the Exercise

```
Victims: 2  
Time    :10m 38s
```

On the upper line of the display, the number of remaining transmitters is indicated. On the lower line, the remaining time for the exercise is indicated.

4.5 Probe Hits

```
Victims: 1  
Time    :07m 46s
```

The transmitters will automatically indicate a probe hit. Three consecutive probe hits, one second apart each, on the probing surface will cause an optical and acoustic indication at the control unit.

With every probe hit, the number of remaining transmitters will be decremented.

4.6 End of the Exercise

```
Stopping.....
```

When all transmitters have been hit by a probe or when the maximum duration of the exercise has elapsed, the end of the exercise is signaled acoustically.

4. Standard Mode

4.7 Search Times

```
Search time used  
Vict :1 05m 37s
```

When all transmitters have been hit by a probe or when the maximum duration of the exercise has elapsed, the search times for every transmitter can be read out.

You can scroll through the list of transmitters by means of the **- VICTIMS / + VICTIMS** keys. Pressing any other key will return the system to starting point.

If the exercise is terminated by pressing the **START / STOP** key, then there is no search time indication.

If no key is pressed for 60 seconds during search time indication, then the system also returns to starting point.

4.8 Sleep Mode

```
Going to sleep
```

When no key is pressed for 30 minutes, the control unit as well as the buried transmitters will enter the sleep mode. There is no need for manually switching off the system.

Pressing any key will wake up the system again within 35 seconds.

5. Expert Mode

In expert mode, every transmitter can be activated and deactivated individually.

Three consecutive probe hits, one second apart each, on the probing surface will cause an optical and acoustic indication at the control unit.

The activated transmitters keep transmitting even after a probe hit. This corresponds to a realistic situation. Most transceivers provide facilities to mark found transmitters.

5.1 Starting Point

```
Victims: 0
Time   :10m 00s
```

For entering the expert mode, the system must be in standard mode (also see section 4.1)

5.2 Selecting the Operating Mode

START/STOP

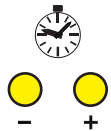


```
Vict :1   On: no
```

Pressing the **START / STOP** key for at least five seconds enters the expert mode. To return to standard mode, press the **START / STOP** key again for at least five seconds.

5. Expert Mode

5.3 Activating / Deactivating a Transmitter



You can scroll through the list of available transmitters by means of the **+ VICTIMS / - VICTIMS** keys.

The selected transmitter will be indicated on the upper line of the display. On the lower line, the status of the transmitter will be indicated (activated / deactivated).

The **+ TIME** key activates the selected transmitter, the **- TIME** key deactivates it.

```
Vict :1  On: yes
```

5.4 Probe Hits

```
1*  
Vict :1  On: yes
```

The transmitters will automatically indicate a probe hit. Three consecutive probe hits, one second apart each, on the probing surface will cause an optical and acoustic indication at the control unit.

On the upper line of the display, an asterisk will show up after the number of a transmitter that has been hit.

5. Expert Mode

5.5 Sleep Mode

Going to sleep

When no key is pressed for 60 minutes, the control unit as well as the buried transmitters will enter the sleep mode. There is no need for manually switching off the system.

Pressing any key will wake up the system again within 35 seconds.

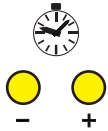
6. System Check

6.1 Starting Point

```
Victims: 0  
Time   :10m 00s
```

For triggering a wakeup or an automatic search, the system must be in standard mode.

6.2 Wakeup



Press both the **- TIME** and **+ TIME** simultaneously for at least 5 seconds. All transmitters within range will be woken up within 35 seconds.

```
Waking up...  
Time   :00m 35s
```

6. System Check

6.3 Automatic Search



Press both the – **VICTIMS** and + **VICTIMS** simultaneously for at least 5 seconds. The system will start a search for all transmitters within range.

```
Searching-> 5  
1 2 3 4 5
```

```
Search complete  
1 2 3 4 5 6 7 8
```

All transmitters that have been found will be indicated. Only those can be used for standard and expert mode exercises.

6.4 Exercise Counter

```
N: 512 E: 137  
xx_xx_xx
```

Pressing the + **TIME** key during the automatic search (see section 6.3) will trigger the display of the exercise counters after the search.

On the upper line of the display, N marks the standard exercise counter and E marks the expert mode exercise counter. On the lower line, a x stands for a found transmitter, and a _ stands for a transmitter that has not been found. Pressing the **START / STOP** key returns the system to standard mode.

7. System Setup

7.1 Control Unit

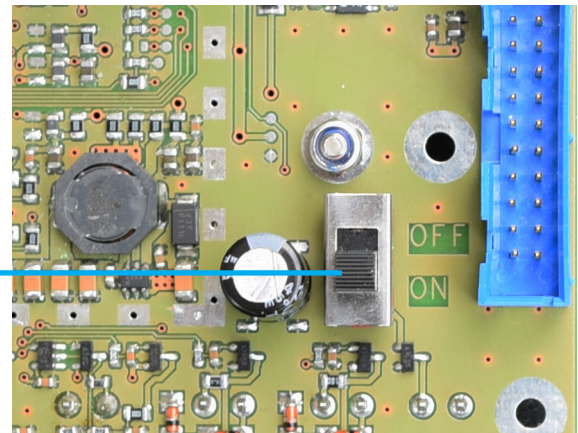
In order to avoid damage from humidity or water, the system must be set up indoors!

1. Insert 6 Alkaline Batteries 1,5 V Type IEC LR20 (size D).

Note: Only use new batteries that come in the original package. All of them must be of the same brand, same type, same production lot and end of use date. Watch for proper polarity and for clean contacts.

2. Set the ON / OFF sliding switch to ON.
3. Close the control unit.
4. It is now ready for use.

ON / OFF



7. System Setup

7.2 Transmitter

1. Insert 4 Alkaline Batteries 1,5 V Type IEC LR20 (size D).

Note: Only use new batteries that come in the original package. All of them must be of the same brand, same type, same production lot and end of use date. Watch for proper polarity and for clean contacts.

2. Turn the transmitter on by pressing the **ON / OFF** key. The green LED will blink three times
3. Close the transmitter, tighten all four screws securely.
4. The transmitter is now ready for use.



ON / OFF

7. System Setup

7.3 Configuring Transmitter Patterns

When a transmitter is activated, the factory configured pattern is set.

For standard mode, all transmitters are set up with a pattern that provides a short (70 to 120 ms) pulse duration. This corresponds to most of the devices that are currently on the market.

For expert mode, all transmitters are set up with a pattern that provides a long (240 to 320 ms) pulse duration. This corresponds to older devices.

This allows for simulating simple and complex burial scenarios, including multiple burials.

8. Installation

8.1 Mast Base

The mast base is placed directly on the ground and must be loaded with weights.

8.2 Antenna / Antenna Cable

Connect the antenna cable to the antenna and pull the rubber grommet completely over the connector. Insert the cable from above into the mast and down to the hole in the lower mast section. Use the mounting devices to fix the antenna at the upper end of the telescopic mast. Watch for good electrical connection.

8.3 Telescopic Mast

Loosen the screws on the brackets and extend the two upper sections for the desired height (100 cm each maximum). Fasten the screws with a maximum torque of 40 Nm. Insert the telescopic mast into the bushing.

8.4 Information Board

Use the material provided for fixing the information board on the lower section of the telescopic mast.

8. Installation

8.5 Control Unit

Mount the control unit by means of the fittings provided below the information board and connect the antenna cable.

8.6 Burying the Transmitters

Lay down the prepared transmitters in the search area.

Make a functional check (see section 6).

Bury all transmitters in horizontal position. The burial depth should be 0.5 to 1.5 meters. This is the mean burial depth for avalanche victims in Europe. It also provides good chances of success when probing. The positioning and the burial depth may need to be adapted during the winter season.

From time to time, you will need to clean traces from earlier exercises on the surface.

We do recommend to document the placing of transmitters within the search area, including their individual number.

9. Information

9.1 Energy Supply

The entire system is fitted with off-the-shelf batteries. The batteries will last for an entire winter season. There is no need for a mains supply.

When not used, the system will automatically enter a sleep mode. There is no need for manual switch off.

9.2 Location

The following requirements should be met by a suitable location:

The altitude should be reasonable to provide sufficient and long lasting snow cover.

The size should be about 100 meters by 100 meters, preferably on a slope.

Keep at least 150 meters distance from possible sources of interference to avoid problems. Possible sources of interference are

- power lines above and below ground
- any means of transportation
- snowmaking equipment
- technical buildings such as transformer stations, mobile network antennas
- ski runs (interference from transceivers that are carried by skiers)

For reasons of safety, we recommend to fence the search area.

For easy access, we recommend to mark the area by means of signs, banners or beach flags.

9. Information

9.3 Interference

Transceivers are very sensitive to electrical and magnetic interference. We recommend keeping adequate distance from portable radios, mobile phones, headlamps, action camcorders and the like.

Switch off all unused transceivers when doing an exercise.

10. Uninstallation

Before uninstalling, perform a functional check on the entire system!

1. Uncover all transmitters, clean and dry them.
2. Disconnect the antenna cable from the control unit.
3. Remove the control unit.
4. Remove the information board.
5. Remove the telescopic mast. The antenna may remain mounted on the mast.

In order to avoid damage by humidity or water, all of the following steps must be done indoors!

6. Open the transmitters, remove the batteries and re-close the transmitters.
7. Open the control unit, remove the batteries and re-close the control unit.
8. Store all equipment in a dry place until the next setup.

11. Technical Data

11.1 Transmitter

Transmit Frequency:	457 kHz + / - 30 Hz
Transmitter Field Strength:	ca. 2,0 mA/m at a distance of 1 meter
Remote Control Frequency:	433,92 MHz (ISM Band)
Compatible with:	ETS 300718
Power Supply:	4 Alkaline Batteries 1,5 V Type IEC LR20 (size D)
Battery Lifetime:	ca. 6 months
Casing:	Plastic
Dimensions:	203 x 203 x 102 mm
Weight:	5 kg (including probing surface)
Protection:	IP 67 (waterproof)
Operating Temp. Range:	- 25 to + 50 Degree Centigrade

11.2 Probing Surface

Casing:	Plastic
Dimensions:	600 x 400 x 170 mm
Reinforcement:	Sheet Plastic PE-HMW
Dimensions:	560 x 360 x 6 mm
Probing Surface:	Cell Rubber EPDM
Dimensions:	560 x 360 x 8 mm

11.3 Control Unit FCU

Remote Control Frequency:	433,92 MHz (ISM Band)
Range:	ca. 150 m
Power Supply:	6 Alkaline Batteries 1,5 V Type IEC LR20 (size D)
Casing:	Steel
Dimensions:	330 x 240 x 130 mm
Weight:	6.6 kg
Protection:	IP 65 (splash water proof)
Operating Temp. Range:	- 25 to + 50 Degree Centigrade
Weather Protection:	Stainless Steel
Mast Fixture:	Tube Brackets

11. Technical Data

11.4 Antenna

Frequency Range:	406 to 470 MHz
Polarization:	Vertical
Impedance:	50 Ohm
Diameter:	90 / 25 mm
Length:	600 mm
Weight:	1 kg

11.5 Telescopic Mast

Nominal Length:	6.5 m
Transportation Length:	3.2 m
Diameter:	63 / 55 / 48 mm
Weight:	12.5 kg
Material:	Aluminum

11.6 Mast Base

Dimension:	1000 x 1000 x 550 mm
Weight:	15 kg
Material:	Steel galvanized

11.7 Information Board

Information:	Search Phases / Short User Instructions
Overall Dimension:	635 x 750 mm
Weight:	3 kg
Material:	Aluminum
Mounting:	Brackets

12. Packing List

Transmitters RTX457ATC including probe hit surface
1 Control Unit FCU
1 Antenna
1 Antenna Cable
1 Telescopic Mast
1 Mast Base
1 Information Board
5 Operating instructions in: DE, EN, FR, IT

13. Service / Support

Service and support will be provided at any time by Girsberger Elektronik AG. We do recommend that you have the system checked every 5 years by Girsberger Elektronik AG.

14. Warranty

The ATC Avalanche Training Center comes with a 2 years warranty, starting at the time of sale as per the sales documents. All parts that have been proven to have a material or production fault will be replaced free of cost. Damage that has been caused by improper handling or normal use will not be covered.

The warranty becomes void if devices have been opened by the customer or by non-authorized third parties. The use of devices with replacement parts or accessories that have not been recommended by the manufacturer also voids the warranty.

15. Conformity

The ATC Avalanche Training Center is conformant to all relevant European and national regulations. Conformity has been documented, the respective declarations and documents are deposited at the manufacturer.



All components of the ATC Avalanche Training Center have been developed and manufactured in Switzerland.

Girsberger Elektronik AG will always strive to deliver top quality equipment.

Designations, measures and construction details subject to change without notice.

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