

Wireless Temperature Compensating Digital Tire Inflator



89XTC

S P E C I F I C A T I O N S
A S S E M B L Y
O P E R A T I O N
S E R V I C E

Please read this manual before carrying out any assembly or service procedures.

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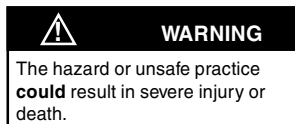
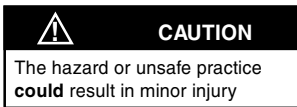
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1.0 Introduction

1.1 This Manual

Congratulation on selecting a Haltec Wireless Temperature Compensating Digital Tire Inflator. This equipment has a number of unique features that are explained in this manual.

Throughout the manual the following symbols will be used, this information is for your safety and to prevent damage to this product.



1.2 Product Overview

Digital Tire Inflation Overview

Your Haltec Temperature Compensating Digital Tire Inflator (89XTC) has a dual pneumatic valve controlled by a digital circuit that controls the inflation and deflation process.


Wireless Temperature Trasmmitter Overview


The Wireless Temperature Transmitter (89WTT) is designed for use with the 89XTC.


By incorporating the digital temperature sensor inside the wireless temperature transmitter, it eliminates the risk of incorrect temperature readings.


1.3 General Specifications - 89XTC

Operating Temperature	0°C to +60°C (without heater) 32°F to +140°F -20°C to +60°C (with heater) -4°F to +140°F
Relative Humidity	100%
Supply Voltage	11-18Vdc, 8-16Vac 110-120V 50/60Hz 220-240V 50/60Hz
Current	1A Max
Fuse	Auto Reset 1.1A Nominal
Max Inlet Air Supply	150 psi, 1035 kPa, 10.3 bar
Recommended Inlet Air Supply	10 psi, 70 kPa or 0.7 bar above the maximum set pressure of the unit.
Operating Pressure Maximum	145 psi, 1000 kPa, 10.0 bar
Minimum	5 psi, 35 kPa, 0.3 bar
Accuracy	Up to 0.5% FS
Display Increments	1 psi, 5 kPa, 0.1 bar
Units of Measurement	psi, kPa, bar, kg/cm ²
Default to Safe Setting (DTSS) (Retail Petroleum Equipment ONLY)	1 minute

 **WARNING**
To avoid the risk of personal injury, especially to the eyes, face or skin DO NOT direct the air stream at any person/s.

 **WARNING**
This equipment is not intended for use by children without adult supervision.

 **CAUTION**
To avoid equipment damage, never exceed the manufacturer's maximum inlet pressure of 150 psi, 1035 kPa or 10.3 bar.

 **CAUTION**
This equipment has NO user serviceable parts. Only trained, experienced repair personnel employed by an authorised service agent should perform service to this equipment.

1.3 General Specifications - 89WTT

All product specifications are applicable at standard conditions: 1013 hPa, 25°C dry ambient air.

Voltage	3.7V
Charger	5Vdc, 1250mA
Battery Life	500 operations
Operating Temperature	0 C to 85 C (32 F to 185 F)
Temperature Sensing Range	-20 C to 150 C (-4 F to 302 F)
Temperature Accuracy	+/- 0.5 C
Shipping Weight	375 g
Physical Dimension	135 x 50 x 65 mm
Construction	Aluminium Body with High Impact UV Stabilised Polycarbonate and Rubber Impact Protection Cover

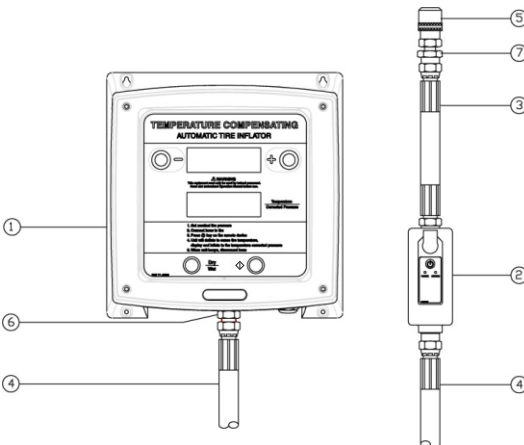
CAUTION

Do not expose the Wireless Temperature Transmitter to excessive heat.

2.0 Assembly

Unpack the carton and identify the components.

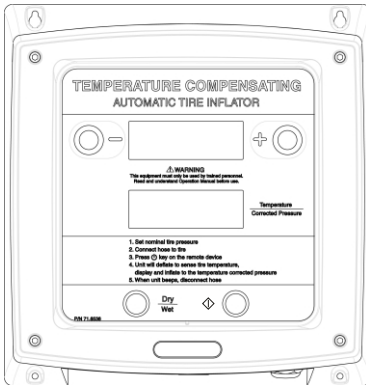
AIRTEC PART NUMBER	DESCRIPTION	QUANTITY
89XTC	Temperature Compensating Digital Tire Inflator	1
44.3305	Wireless Temperature Transmitter	1
42.0008	Lithium Battery Charger	1
61.0262	Hose Ext, Steel Braided 0.24m x 1/2"	1
61.0261	Hose Ext, Steel Braided 20m x 1/2"	1
91.0225	Hose Ext, LB Lock-On, 1/4" Open	1
91.1412	Reducer, 1/2" M x 1/4" M	1



ITEM NO.	DESCRIPTION	P/N
1	89XTC	89XTC
2	WIRELESS TEMPERATURE TRANSMITTER	44.3305
3	HOSE EXT, STEEL BRAIDED 0.24Mx1/2"	61.0262
4	HOSE EXT, STEEL BRAIDED 20Mx1/2"	61.0261
5	HOSE CHUCK, LB LOCK-ON, 1/4", OPEN	91.0225
6	NIPPLE, 1/2" x 1/2"	91.0632
7	REDUCER, 1/2" x 1/4"	91.1412

3.0 Control Panel

3.1 Switch and Control Functions



- Reduces the nominal pressure
- + Increases the nominal pressure

Nominal Tire Pressure

Nominal Tire Pressure or Base Pressure is the tire's pressure at ambient 25°C. Tire pressure will change as temperature changes. When tire temperature rises, the pressure will increase as well. On the other hand, when tire temperature drops, the pressure will decrease as well. For example, if the user wants to inflate a tire to a nominal pressure (or base pressure) of 80 psi when the tire temperature is at 60°C, the user will need to inflate the tire to a higher pressure, example around 96 psi. The 96 psi pressure will drop back to nominal 80 psi when the tire temperature cools down at ambient 25°C. Most tire manufacturers recommend tire optimal pressure at ambient 25°C. The pressure-temperature system allows accurate tire inflation according to the recommended optimal pressure.

Dry
Wet

Display the selected condition mode.

To change condition mode, press and hold ($\frac{\text{Dry}}{\text{Wet}}$) button for 2 seconds.

Dry Condition Mode

Dry condition mode is used for tires filled with dry air or nitrogen. It can also used for tires partially filled with calcium powder.

Wet Condition Mode

Wet condition mode is used for tires that have sufficient water or sealant in them to create a condition of saturated vapour pressure within the tire's air chamber. For an earth mover tire, typically only a few litres of water or sealant is required to create this condition.



The (\diamond) switch discharges up to five (5) bursts of air. Used to start the inflation process when the pressure in the tire is less than 3 psi, 20 kPa or 0.2 bar.

3.2 Base Temperature Setting (BTS) function

This function enables the user to easily key-in an ambient temperature value - for which they can select an appropriate value (either from a reference temperature gauge, or an assumed daily or seasonal ambient).

Base Temperature Setting (BTS) adjustment

- 3.2.1 Press and hold the (◊) key (for 3 seconds) to bring up a 'base temperature set mode' on the top screen. Text "bts" will flash to indicate this mode has been entered.
- 3.2.2 The default base temperature value will display (25°C by default).
- 3.2.3 User can then adjust this base temperature (in increments of 1°C) by pressing the (+) and (−) keys.
- 3.2.4 User confirms the set value by pressing the (◊) key and the unit will return to normal mode.
- 3.2.5 Alternatively press the ($\frac{\text{Dry}}{\text{Wet}}$) key to cancel this mode without any changes.

3.3 Volume Adjustment

1. Turn off the unit.
2. Press and hold the (−) and (◊) key simultaneously.
3. Turn the unit on, VOL will be displayed.
4. Adjust the volume using the (+) and (−) switches.
5. To store the settings press the (◊) key. Further changes can be made by repeating the above procedure.

4.0 Operation - 89XTC

4.1 Operating Modes

Special operating modes are now selectable via the keypad during the power up sequence.

Available Modes are:

1. Standard Mode
2. Manual Mode
3. Pressure gauge Mode
4. Coin-op Mode
5. Tire Shop Mode 5 - Inflate tire first
6. Tire Shop Mode 6
7. Tire Shop Mode 7
8. Bead Inspection Mode
9. Customised Mode
10. Temperature Compensating Mode


The Digital Tire Inflation Equipment are factory supplied with Temperature Compensating Mode selected.

4.2 Temperature Compensating Mode

This mode is specifically designed for Temperature Compensating tires inflation. Normally tires are inflated at ambient temperature around 25 degree Celsius. However, when there is a change in temperature, the tire pressure will change as well. Tire pressure will increase as temperature rises and vice versa. Therefore, tire pressure will not be able to inflate at optimal pressure without temperature compensating. To overcome this, both air and liquid temperature pressure corrected inflation are supported through this mode. The operation starts with setting the target pressure at nominal ambient temperature. When the tire is connected, actual tire pressure will be displayed on the bottom LCD. Press (⏻) key on the remote device. It will start with a short deflation to detect the tire's temperature. The tire temperature will be displayed, then the inflator will perform a temperature compensating inflation. When the inflation cycle is completed, the unit will beep 5 times, displaying both the nominal target pressure and temperature corrected target pressure. If the target temperature compensated pressure is lower than the actual tyre pressure, the operation will only commence after the (◀▶) key is pressed.


4.3 Operation - 89WTT

Device Pairing

An initial pairing sequence must be performed in between the 89XTC and the 89WTT. To perform device pairing, press and hold () key for 8 seconds until the (Status LED) start blinking. The LCD screen of the 89XTC will flash TPC. To confirm the device pairing, press (Start/Flat tire) button on the 89XTC.

During device pairing sequence, the (Status LED) will flash 200ms ON 200ms OFF.

Initiate Operation

Press the () key to initiate the temperature-pressure correction operation. The tire temperature is measured by deflating some air from the tire. After temperature measurement is taken, the 89XTC will perform the temperature-pressure correction and the 89WTT will be switched OFF.

During temperature measurement, the (Status LED) will flash 500ms ON 500ms OFF.

Battery Charging

The battery status can be observed by the (Power LED) flashing sequence.

Battery Good - Power LED stay ON.

Battery Low - Power LED flashes 100ms ON 100ms OFF (fast blink).

Battery Charging - Power LED flashes 500ms ON 500ms OFF (slow blink)

Battery Fully Charged - Power LED flashes 50ms ON 200ms OFF (short blink)

The battery should be charged when the battery level becomes low.

After the battery has been fully charged, disconnect the battery charger.

Note : Do not use the battery at ambient temperatures below 0°C (32°F) or above 40°C (104°F). Charge the battery indoors at ambient temperatures between 5°C - 34°C (41°F - 95°F).

For best results, charge the battery at temperatures above 20°C (68°F).

Only use charger supplied by the manufacturer, Airtec Corporation (Asia) Pte Ltd.

5.0 Troubleshooting - 89XTC

The following chart has been prepared to assist with diagnosis of faults

PROBLEM	POSSIBLE CAUSE	SOLUTION
The inflation process does not commence, even when the pressure is set and the hose is connected to the tire.	The tire is deflated below 3 psi, 20 kPa or 0.2 bar. The hose connector is faulty.	Press (◀) Replace the hose connector.
The unit deflates very slowly.	The deflate tubing is blocked.	Remove and clean the silencer plug.
The unit no longer beeps. The inflation process commences but does not complete.	The beeper is damaged. Low or nil supply pressure.	Replace the beeper. Check the supply pressure.
ER1	Unstable pressure, faulty hose connector.	Replace the hose connector.
ER2	Persistent unstable pressure, faulty hose connector. Incorrect supply pressure.	Replace the hose connector. Check the supply pressure. Check the valve connections on the PCB.
ER3	Inflate & Deflate valve connections are reversed. Low or nil supply pressure.	Check the air compressor supply pressure.
ER4	Initial or final pressure is too high, exceeding the maximum pressure by more than 20 psi, 140 kPa or 1.4 bar.	Disconnect hose connector, reset processor by switching off the power for a minimum of 5 seconds. If error message reappears, replace PCB.
ER5	Low battery.	Recharge the battery.
ER6	Programme or PCB Error	Reset machine by switching off power for 5 seconds. If error message reappears replace PCB.
ER7	Insufficient supply pressure Loose hose connection	Check the air compressor supply pressure. Check hose connection.
ER8	Calibration Error	Unit requires calibration, contact your local distributor or service agent.

5.0 Troubleshooting - cont'd

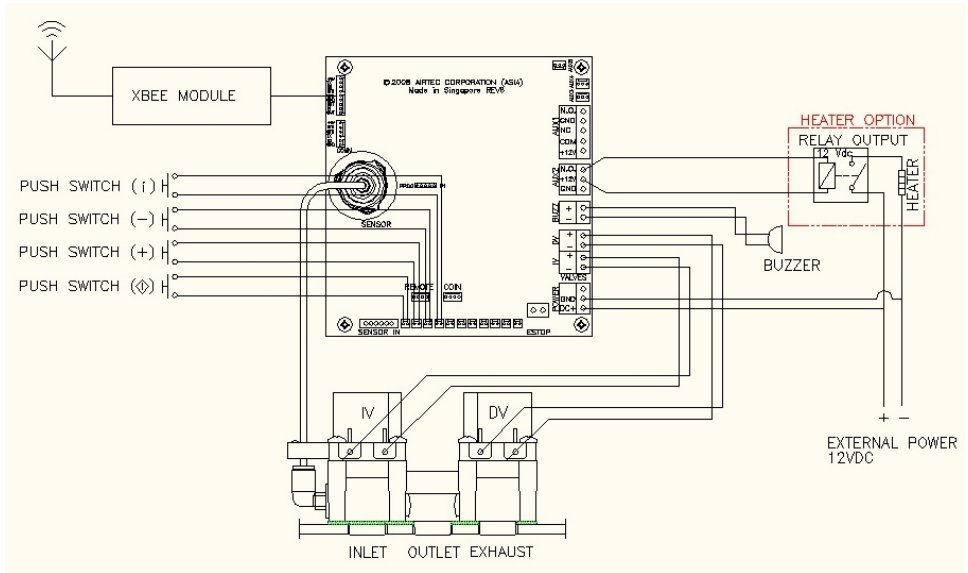
ER9	Automatic Calibration Check/ Calibration Error	Reset machine by switching off power for 5 seconds. The ER9 message will clear automatically when the factory calibration is restored. If the ER9 message continues to reappear, replace the PCB.
ERP	Unstable supply pressure	Check the air compressor supply pressure.
	Hose disconnection during inflate cycle	Check hose connection.
ERU	Short circuitry on valve connection	Check and dry up the valve connection.
ERb	Short circuitry on buzzer connection	Check and dry up the buzzer connection.
ERt	Temperature sensor disconnected Faulty temperature sensor	Check the connection of the temperature sensor. Replace new temperature sensor.
	Temperature out of range	Let the temperature sensor cool down for 1 minute. If error persists, replace temperature sensor.

5.0 Troubleshooting -89WTT

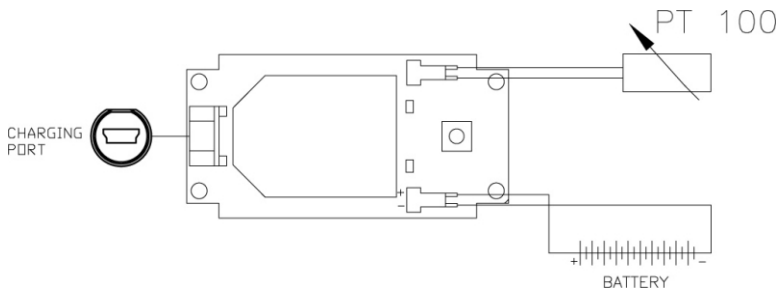
When the (STATUS LED) flashes 50ms ON 500ms OFF, the remote device is not in operation. Please see below for troubleshooting chart.

PROBLEM	POSSIBLE CAUSE	SOLUTION
89WTT turned off soon after power on	Temperature sensor not connected. Wireless Transceiver not connected. Battery has flattened.	Ensure proper connection of Temperature sensor. Ensure Wireless Transceiver is installed. Recharge battery.
No response from 89XTC	Weak or loss of RF signal. Initial pairing sequence is not performed.	Ensure the external antenna on the 89XTC has been installed. Perform pairing sequence. Refer to Section 4.3.

6.0 Wiring Diagram - 89XTC



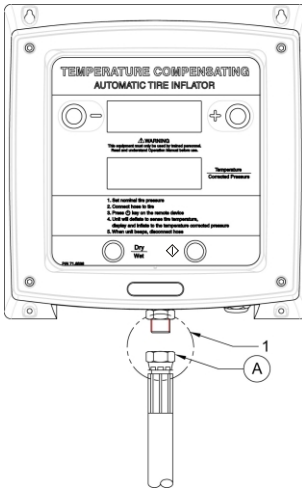
Wiring Diagram - 89WTT



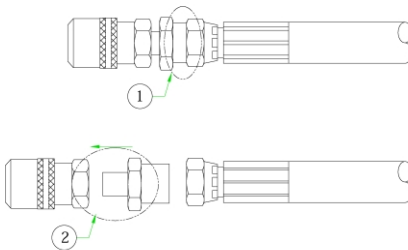
7.0 Component Replacement

7.1 Hose Replacement

1. Disconnect hose by loosening item (A)
2. To connect replacement hose, reconnect the hose to the fitting.



7.2 Chuck Replacement



1. Loosen hose connection.
2. To replace chuck, loosen this connection.

7.3 Wireless Temperature Transmitter

- Remove rubber jacket
- Remove front cover by removing the 4 screws

Steps to replace battery :

- Unscrew 4 x PCB mounting screws
- Unplug battery connector and replace battery

Steps to replace PCB :

- Unscrew 4 x PCB mounting screws
- Replace new PCB and re-connect battery, charging port and PT-100 connectors.

8.0 Policy / Warranty

Your Haltec Wireless Temperature Compensating Digital Tire Inflator is covered under warranty for 12 months from the date of invoice, subject to the following conditions:

8.1 Products

Subject to change without notice. Haltec Corporation is not responsible for inadvertent typographical errors or omissions.

8.2 Returned Goods

No return goods will be accepted unless authorized in writing by Haltec Corporation. All return goods must be shipped prepaid to the factory, and are subject to a restocking charge. Special items are not returnable.

8.3 Warranty

Except where the product has been damaged by misuse, faulty installation, unauthorised repairs, incorrect maintenance or accidental damage, Haltec will at its own discretion repair or replace the defective product (or pay for the cost of repair or replacement).

Warranty **does not** include air hoses, hose connectors (hose chucks) or membrane keypads.

Haltec Corporation expressly excludes all other warranties expressed or implied, including without limitation the implied warranties of merchantability and fitness for any other purpose. Haltec Corporation further excludes liability for consequential and incidental losses including but not limited to the loss of profits which may arise out of the breakdown or failure of any product.

9.0 Initial Verification Certificate

Compliance Statement

This equipment before its release is checked and tested, and is calibrated on test equipment that has a traceable accuracy that exceeds EC-Directive 86/217/EEC and managed under ISO9001 requirements.

This equipment also complies to the relevant sections of EC-directive 86/217/EEC (tire pressure gauges for motor vehicles and BS EN 12645:1999 (pressure gauges: Apparatus for inspection of pressure and/or inflation of tires for motor vehicles) applicable to digital equipment.

In addition this equipment complies where relevant to the following EC-directives:

2004/108/EC (EMC Directive)
2006/95/EC (Low Voltage Directive)

This compliance has been verified and tested by accredited laboratories to the following standards:

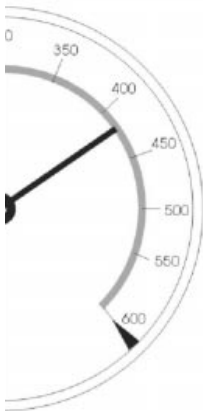
Emission:

AS/NZ CISPR 14.1:2003
AS/NZ 61000.3.3:1998
CISPR14.1:2000 Inc A1:2001
CISPR14.1:2005 inc A1:2008 & C1:2009
CISPR 14.2:2006
EN 55014.1:2000 Inc A1:2001
EN 55014.1:2006
EN 55014.1:2007
EN 61000-3-2:1995 inc A13:1999
EN 61000-3-2:2006
IEC 61000-3-3:1994
EN 61000-3-3:1995 inc A1:1998, A1:2001, A2:2002, & A3:2006,

Immunity:

CISPR 14.2:1997 Inc A1:2001,
CISPR 14.2:1997 Inc A1:2006 & A1:2008
CISPR 14.2:2003
EN 55014.2:1997 Inc A1:2001
EN 55014.2:1997 Inc A1:1998, A2:2002 & A3:2007
EN 61000-3-3:1995 Inc A1:2001

Further testing and approval information is available upon request



Manufactured for Haltec Corporation by
Airtec Corporation (Asia) Pte Ltd
67 Ubi Crescent #01-02
Singapore 408560

Model

O 89XTC

Product Serial No.....

PCB Serial No.....

Date.....

Signature.....

10.0 Glossary & Conversions

Units of Measurement

psi	Pounds per square inch
kPa	Kilopascals
bar	Barometric
atm	Atmospheres
Kg/cm2	Kilograms per square centimetre
IP	International Protection Rating
CFM	Cubic Feet per Minute
LPM	Litres per Minute
PCB	Printed Circuit Board
LCD	Liquid Crystal Display
Sample Tube	Connects the valve block & PCB
OPS	Over Pressure Setting
Target Pressure	Final Set Pressure
Sum Pressure	Sum of OPS & Target Pressures
Threshold Pressure	Minimum Pressure for automatic start

Conversions

1 psi = 6.8947 kPa
 0.0689479 bar
 0.06890459 atm
 0.0703069 kg/cm2

11.0 Appendix - LED Blinking Sequence

Status LED (Red)

Blinking Sequence	Status
500ms ON > 500ms OFF (slow blink)	Temperature measurement in progress
200ms ON > 200ms OFF (fast blink)	Device pairing sequence in progress
50ms ON > 500ms OFF (short blink)	Operation error (Refer to Troubleshooting on Section 3)

Power LED (Green)

Blinking Sequence	Status
Stay ON	Battery Good
100ms ON > 100ms OFF (fast blink)	Battery Low
500ms ON > 500ms OFF (slow blink)	Battery Charging
50ms ON > 200ms OFF (short blink)	Battery Fully Charged

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Haltec Corporation reserves the right to change specifications, modify designs and discontinue items without incurring obligation and whilst every effort is made to ensure descriptions, specifications and other information in this manual is correct, no warranty is given in respect thereof and the company shall not be liable for any error therein.

R4 (29 Jul 2014) C16-2