



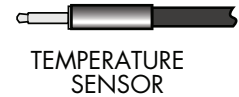
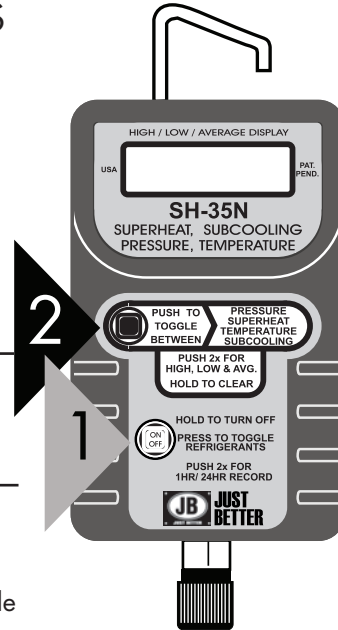
SH-35N (°F) and SH-36N (°C) SUPERHEAT and SUBCOOLING GAUGE OPERATING INSTRUCTIONS

Only a properly charged unit will provide the owner with the design SEER for maximum energy efficiency.

SUPERHEAT, TEMPERATURE, SUBCOOLING AND PRESSURE
PUSH once to toggle between displays
PUSH 2 times to recall High, Low & Average
Hold down to clear memory.

ON/OFF
PUSH once to "Turn On"
Display shows LAST refrigerant used.
HOLD down to "Turn Off"
PUSH 2 times to select 1 hour or 24 hour auto-off mode

REFRIGERANT SELECTION
PRESS once at any time to display current refrigerant.
Continue pressing to scroll the refrigerant list.
(See list of refrigerants on page 4.)



EXTENDING AUTO-SHUTOFF TIME
Extend time by 60 minutes by pressing upper button.

Uses one 9v Alkaline battery (not included)

Not intended for use on hazardous or corrosive fluids

GAUGE SPECIFICATIONS:	
Pressure display range:	29 InHg to 600 psig (-98kPa to 4134 kPa) (+/- 1 PSI to 200 psi, 0.5% to 600 psi)
Temperature display range:	-40°F to 200°F (-40°C to 93°C)
Operating temperature:	-10°F to 120°F (-12°C to 49°C) (+/- 1°F * 32°F/120°F, +/- 1.5°F * -10°F/32°F)
Maximum overpressure:	800 psig (5512 kPa)
Battery life and type:	100 hours/ 9vAlkaline battery
Auto-shutoff time:	60 minutes (extended 60 minutes by upper button action)
Refrigerant data source:	NIST REFRPRO software and manufacturers data

APPLICATION TIPS:

Allow the manifold to Zero at Turn-On:

The manifold displays will zero (CAL) each time the manifold is turned on open to atmosphere. Zeroing the gauge compensates the Pressure display for changes in (1) Altitude and (2) Barometric pressure.

Pressure Calibration

Don't be alarmed if your manifold gauge does not agree with your mechanical gauges. The digital manifold is calibrated with a very accurate pressure and is not affected by vibration, motion or position.

Extending On-Time

The digital manifold will turn off automatically after 60 minutes to save battery life.

If any button is touched the digital manifold will stay on for another 60 minutes.

Over/Under-Range Indicator

Pressures or temperatures below or above the rated ranges will cause a "1" to be displayed.

Low Battery Indicator

Low batteries will be indicated by a blinking display.

Batteries For Low Temperature Applications

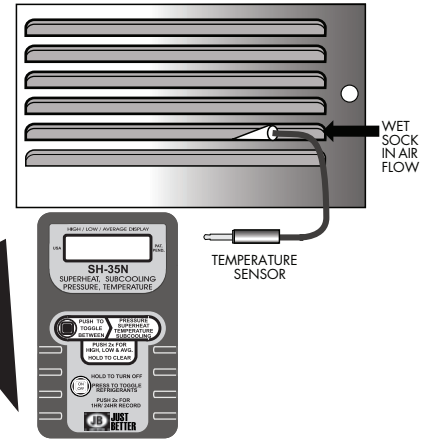
Using the gauge in a low temperature conditions will shorten battery life. Change to the 9 volt Lithium battery (Radio Shack 23-665) to solve this problem.

OBTAINING TARGET SUPERHEAT VALUE

A

WET BULB TEMPERATURE OF EVAPORATOR ENTERING AIR

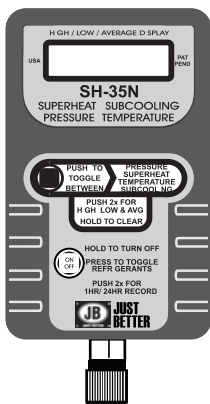
1. Open to atmosphere. Gauge will automatically calibrate to "Zero" for altitude and atmospheric pressure changes.
2. Wet the sock with water and slip on to sensor. Mount on the building return air grill or air return line of blower to measure the Indoor Wet Bulb temperature.
3. Turn on the furnace fan to create a flow of air across the wet sock for 5 minutes. The final number will be your Wet Bulb Temperature.



Sample Superheat Chart
(Located on condensing unit- for older models contact manufacturer.)

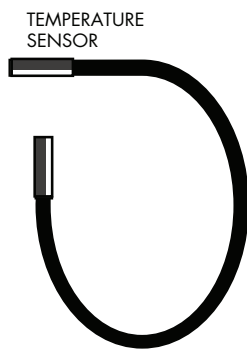
OUTDOOR TEMP °F	EVAPORATOR ENTERING AIR- F° Wet Bulb Temperature													
	50	52	54	56	58	60	62	64	66	68	70	72	74	76
55	9	12	14	17	20	23	26.9	29	32	35	37	40	42	45
60	7	10	12	15	18	21	24.3	27	30	33	35	38	40	43
65		6	10	13	16	19	21.9	24	27	30	33	36	38	41
70			6	10	13	16	19.6	21	24	27	30	33	36	39
75				6	9	12	16.2	18	21	24	28	31	34	37
80					5	8		15	18	21	25	28	31	35
85							12.5	15	19	22	26	30	33	
90								9	13	16	20	24	27	31
95								6	10	14	18	22	25	29
100									8	12	15	20	23	27
105									5	9	13	17	22	26
110										6	11	15	20	25
115											8	14	18	23

B



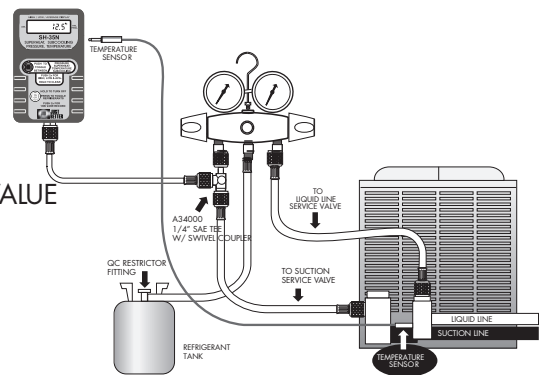
OUTDOOR TEMPERATURE

1. Remove sock and measure the Outdoor Air Temperature.



C

TARGET SUPERHEAT VALUE



1. Find the outdoor temperature and evaporator entering air wet-bulb temperature on chart. The target superheat value is at the intersection of the two.
If you have to do repairs, recheck your temperatures.
2. Make your connections and toggle the gauge to show SUPERHEAT. For system refrigerants other than R22, scroll to select Refrigerant.
3. Very slowly add or remove refrigerant to lower superheat or raise superheat until the gauge displays the target value.



JB INDUSTRIES
AURORA, IL 60507 USA
Technical service: 800-323-0811
E-Mail: sales@jbind.com
Web Site: www.jbind.com

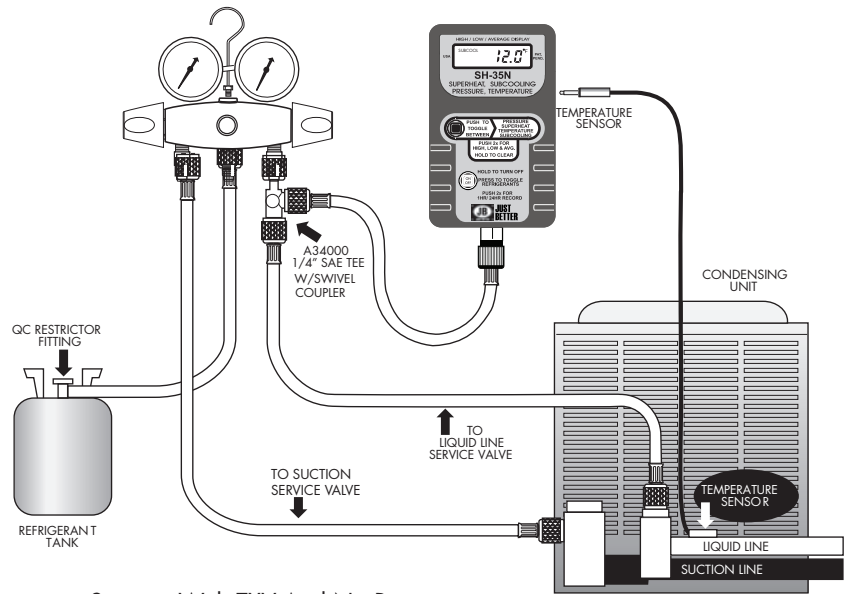
CHARGING BY THE SUBCOOLING METHOD

APPLICATIONS

- Refrigeration Systems
- High Efficiency Residential
- Large Commercial A/C Rooftop Packages Up To And Over 100 Tons

1. Connect the gauge to the A34000 tee fitting on the high (liquid) side of the manifold as shown.
2. Install the Temperature Sensor on the liquid line next to the liquid service valve and plug into gauge.
3. For system refrigerants other than R-22, scroll to the matching Refrigerant.
4. Toggle the gauge display to show SUBCOOLING.
5. Very slowly add or remove refrigerant until the gauge displays the required Subcooling value.

Average Subcooling Value is 10°-12°. Contact manufacturer or wholesaler for specific temperatures.



Systems With TXV And No Receiver

SUPERHEAT TEST

SUBCOOLING TEST

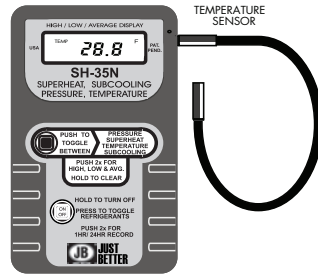
TESTING FOR CHARGE

1. Turn on the gauge.
2. For refrigerants other than R-22, scroll to Refrigerant.
2. Plug in the Temperature Sensor and mount the sensor as shown.
3. Toggle the display to show Superheat or Subcooling.

REFRIGERATION APPLICATIONS

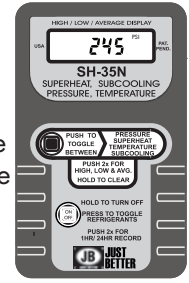
SETTING FOR THERMOSTAT CONTROLLED CASES AND COOLERS

Without plug-ins, turn on the gauge and zero the display by holding the lower button. Plug in the Temperature Sensor only and toggle to "Temperature."



SETTING FOR THERMOSTAT CONTROLLED CASES AND COOLERS

Without plug-ins, turn on the gauge and zero the display by holding the lower button. Attempts to zero the gauge with pressure applied will result in (Err) display.



A/C & REFRIGERATION APPLICATIONS

Contact your TXV manufacturer for the exact superheat adjust rate.

CHECKING TXV SETTING

The objectives of the TXV superheat setting is to prevent liquid refrigerant floodback to the compressor and to optimize system operation by the use of a selected setting.

The two temperature method of measuring superheat is not recommended because it can produce a wrong superheat measurement, due to the effect of temperature glide of the blended refrigerants and variations in evaporator pressure drop.

NEW RESIDENTIAL A/C SYSTEMS

For new installations of residential A/C systems, the pre-charge will not provide an accurate amount of refrigerant charge because of the variation in the length of liquid and suction line connecting to the "A" coil.

RETROFITTING SYSTEMS

Retrofitting systems to a new refrigerant can change the TXV superheat setting. The superheat setting should be checked before and after retrofitting to be sure the superheat is right for the equipment.

REPLACEMENT ITEMS

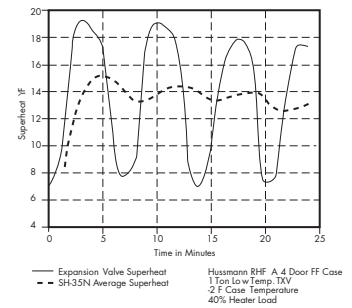
PART NO.	DESCRIPTION
A34000	1/4" QC x 1/4" Access Branch Tee
SH-54	6' Temperature Sensor
SH-55	Plastic Carrying Case
SH-56	Socks (5)

ACCESSORIES

SH-51	28' Temperature Sensor Extension
-------	----------------------------------

SET SUPERHEAT FOR "HUNTING" TXV VALUES

In refrigeration and air conditioning systems, the expansion valve often operates to produce an evaporator superheat which constantly swings up and down in value, called "hunting." The SH-35N provides the "Average" superheat value for TXV valve adjustment.



KEY REFRIGERANT LIST

R12	R407A	R422A
R134a	R407B	R422B
R290	R407C	R422C
R401A	R408A	R422D
R401B	R409A	R427A
R402A	R410A	R428A
R402B	R411C	R438A
R403B	R413A	R502
R404A	R414B	R507
R406A	R416A	R508B
	R417A	

Fahrenheit and Celsius Keys are not interchangeable