

REFRIGERANT LEVEL TRANSDUCER PROBES FOR SUPERMARKET REFRIGERATION SYSTEMS WITH VERTICAL LIQUID RECEIVERS*

*other models are available for horizontal receivers

Bulletin P110
May, 1991

INTRODUCTION

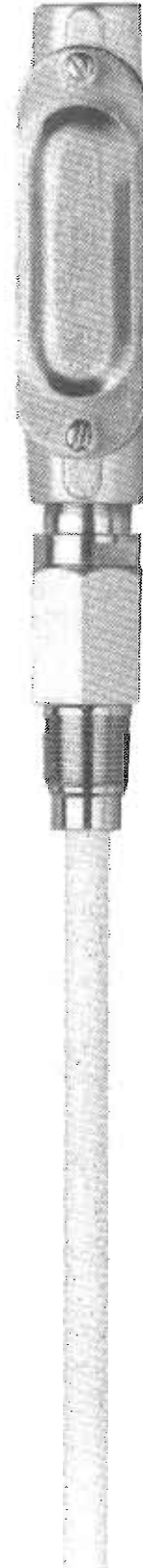
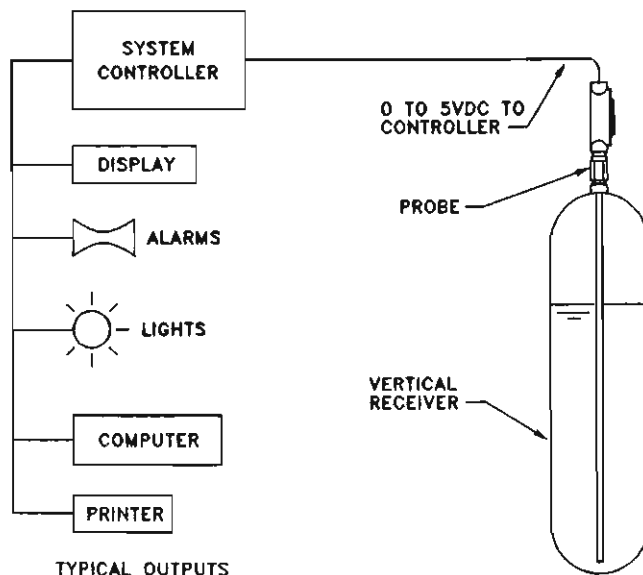
Due to the increasing cost of refrigerants and the existing pending governmental regulations concerning the escape, leakage and replenishment of refrigerants, more accurate and sophisticated methods are needed to conserve and track refrigerant usage. These level transducer probes facilitate the continuous accurate measurement of refrigerant liquid levels. From this information some of the following results can be achieved: refrigerant loss detection, refrigerant inventory measurements, warnings of excess refrigerant levels, insufficient refrigerant quantity and other information available as a result of receiver liquid level monitors.

KEY FEATURES

- Solid state - No moving parts
- Full length vertical monitoring
- Very compact size
- 0 to 5 volt D.C. signal
- Proven design
- Standard 3/4" NPT fitting
- Custom lengths available
- Water-tight NEMA 4 enclosure
- Suitable for R22, R502 & other refrigerants

APPLICATIONS

- High level alarm/cutout
- Low level alarm/cutout
- Level monitoring
- Refrigerant inventory



SPECIFICATIONS

Electrical:

Probe Output: 0 to 5 volt D.C.
proportional to liquid level

Maximum load: 1mA at 5 volts

Supply voltage: 10 to 47 volts D.C.

Isolation: ground loop isolation provided

Ambient temperature range: 50F to 125F

Enclosure: NEMA 4

Linearity: Typically +/- 2% of actual

Mechanical:

Working pressure: 360 PSIG

Refrigerant temperature range: -60F to 125F

Probe: stainless steel, teflon enclosed

Fitting: steel, zinc chromate plated

Threads: 3/4" NPT

Application:

Vertical vessels: 12" to 20" diameter

Probe insertion lengths: 48", 54" and 60" standard
(custom lengths available)

ADVANTAGES

These level transducer probes come factory pre-calibrated and tested. There are no moving parts to break, jam or fail. These probes have been specifically designed to monitor the liquid level in refrigerant receivers. They provide a 0 to 5 volt D.C. output signal in proportion to liquid level. This output is already commonly used with supermarket refrigeration system controllers, PLC's, and other accessories for various purposes.

INSTALLATION

Remove probe from packing crate, being careful not to bend the probe. Insert the probe into the opening on the vertical receiver. Tighten probe on hex, do not grip probe housing. Pressure test for leaks.

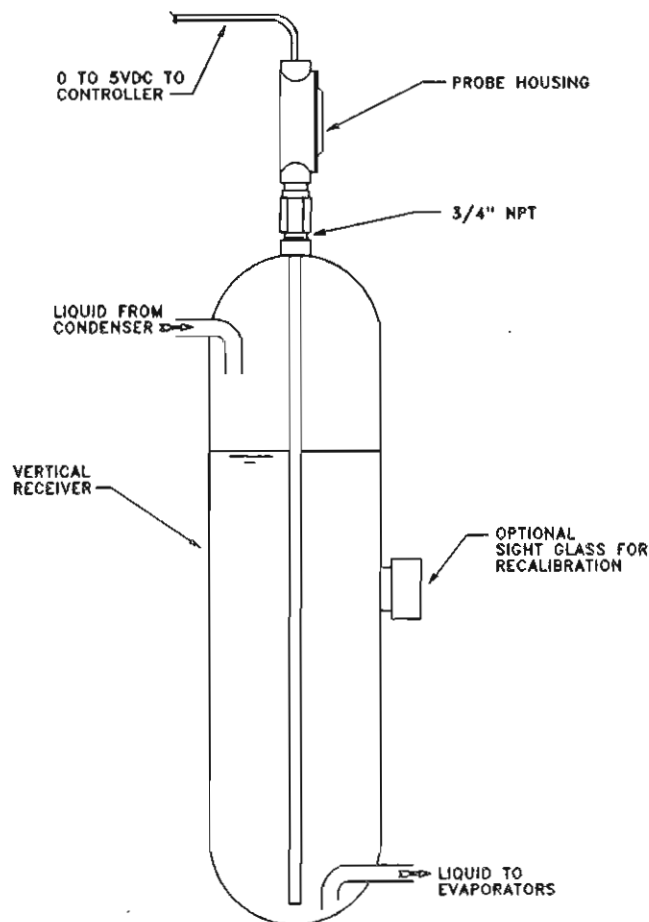
There must be adequate clearance between the probe and any other internal surface (i.e. dip tube, bottom of vessel, side walls, etc.).

When installing transducer probes in a receiver, the removal of the probes must be considered. Adequate clearance above the 3/4" FPT fitting on the receiver should be provided to ensure the installation and removal of probes without bending.

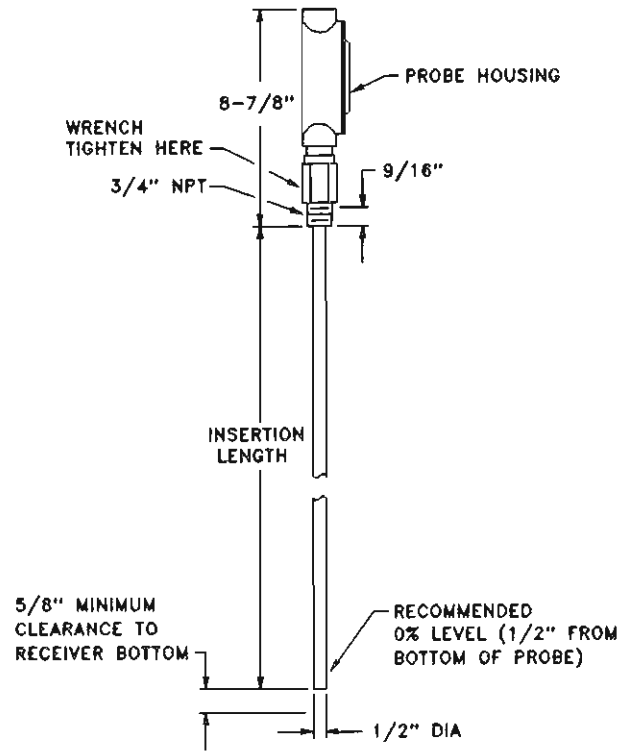
ELECTRICAL

These level transducer probes are low voltage, three wire devices. They require a input power supply of 10 to 47 volts D.C. and will provide a regulated, ground loop isolated output of 0 to 5 volts D.C. For best electrical noise protection, do not run 0 to 5 volt control loop wiring with or near power wiring. See page 3 for typical wiring diagram.

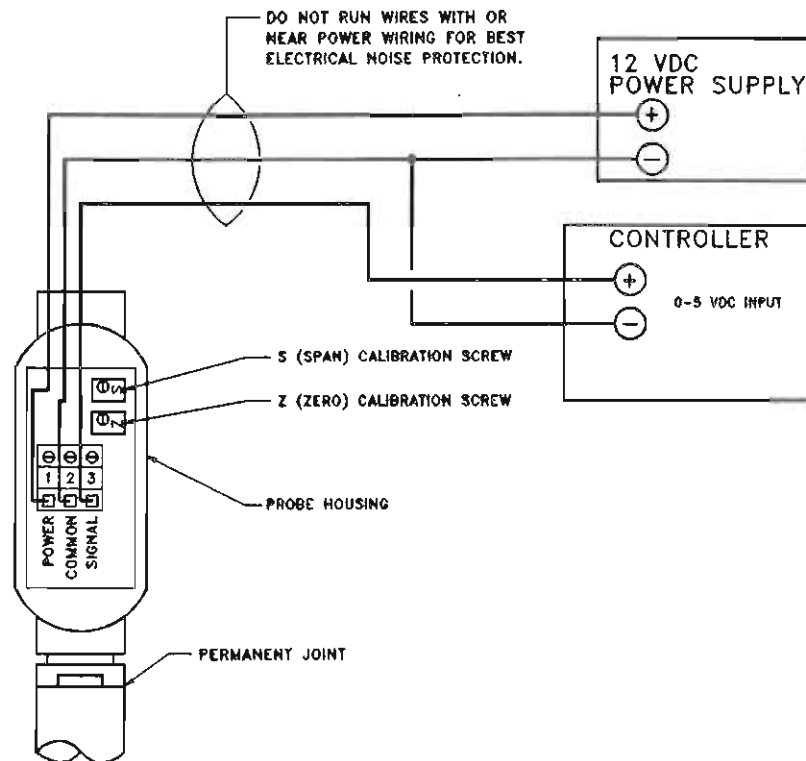
TYPICAL INSTALLATION



DIMENSIONS



WIRING DIAGRAM



SAFE OPERATION

These transducer probes have been designed for refrigeration systems. These instructions and related safety precautions must be completely read and understood before selecting, using or servicing these controls. Only knowledgeable, trained refrigeration mechanics should install, operate or service these controls. Stated temperature and pressure limits should not be exceeded. Probes should not be removed from receiver unless system has been evacuated to zero pressure.

WARNING: As with all electronic and mechanical components, there is a limited life expectancy. An expected life of seven to ten years is typical. This should be understood as only a suggested replacement time period. Actual condition and performance of electronics due to ambient conditions, quality of electrical current, voltage, etc. may necessitate a different replacement schedule. Regardless, probes should be inspected at least annually to insure their safe and continuous service. See also Safety Precaution Sheet supplied with product.

RECALIBRATION INSTRUCTIONS

Transducer probes are factory pre-calibrated for a 16" diameter vertical receiver with the specified refrigerant. Probes installed in receivers with other diameters may require slight adjustment in calibration settings. A volt meter should be installed in parallel with the signal (terminal #3) and common (terminal #2) leads of the 0 to 5 volt control loop.

Lower the refrigerant level in the receiver to a level equal to 0%, adjust the Z (zero) calibration screw until the volt meter displays 0.05 volts D.C.

Raise the liquid level in the receiver to the 50% level or some other known level. Adjust the S (span) calibration screw until the volt meter displays 2.5 volts D.C. for a 50% calibration level. For other calibration levels use the appropriate equivalent voltage.

ORDERING INFORMATION, LEVEL TRANSDUCER PROBES

CAT. NO.	DESCRIPTION
SVP48	48" INSERTION LENGTH
SVP54	54" INSERTION LENGTH
SVP60	60" INSERTION LENGTH
SVPxx	CUSTOM INSERTION LENGTH

TO ORDER: Specify catalog number, refrigerant, and custom length if desired.

HANSEN TECHNOLOGIES CORPORATION



SHP
Level Transducer Probes

SVP

INTRODUCTION

Due to the increasing cost of refrigerants and to governmental regulations concerning the escape, leakage, and replenishment of refrigerants, more accurate and sophisticated methods are needed to track and conserve refrigerant usage. The S series level transducer probes are specifically designed to be inserted directly into refrigerant receivers. They facilitate the continuous, accurate measurement of refrigerant liquid levels. The information provided by these probes can help in refrigerant loss detection and refrigerant inventory measurements. When used in conjunction with alarms, they can warn of excessive or insufficient refrigerant quantity. These probes can also be valuable troubleshooting tools, helping to quickly return a refrigeration system to normal operation.

KEY FEATURES

- Replaceable solid-state electronics
- No moving parts to break, jam, or fail
- Can provide measurements along the entire length of the probe
- Proven, nonoptic design
- 0-5 or 1-6 volt DC signal output
- Standard 3/4" NPT fitting
- Custom lengths available
- Watertight NEMA 4 (IP65) enclosure
- Suitable for R22, R134a, and other compatible refrigerants

Specifications, Applications, Service Instructions & Parts

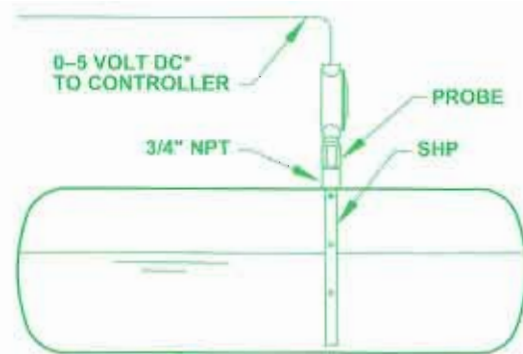
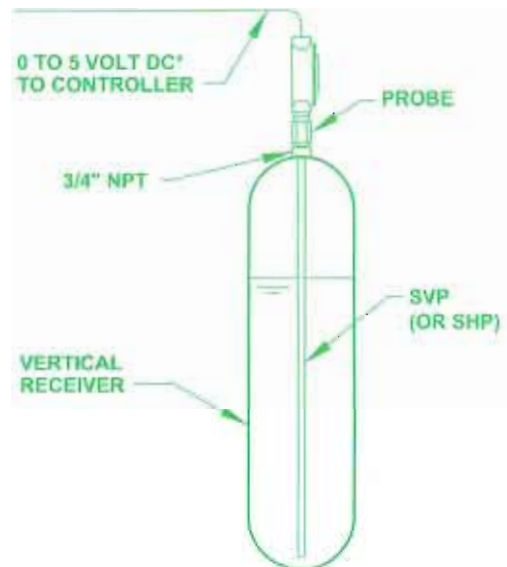
S SERIES REFRIGERANT LEVEL TRANSDUCER PROBES

0-5 or 1-6 Volt DC Output
for Vertical or
Horizontal Receivers

ISO 9002



TYPICAL APPLICATIONS



*Or 1-6 volt DC output