



ORBIT MANUFACTURING COMPANY
 1507 B WEST PARK AVE. PERKASIE, PA 18944
 PHONE: 215-453-9228
 FAX: 215-257-7399



Quality & Comfort from the Ground Up

TXLP/2R Series Electric Floor Heating Cable Instructions Installation Of The Heating Cable

IMPORTANT NOTE: THESE CABLES ARE NOT TO BE INSTALLED IN WALLS OR CEILING FOR ANY REASON AND ALL ELECTRICAL CONNECTIONS MUST BE PERFORMED BY A QUALIFIED, LICENSED ELECTRICIAN.

NEVER:

- Cross the blue heating cable over itself.
- Cut the blue heating cable for any reason.
- Run blue heating cable directly into the junction box.
- Subject any part of the cable to harmful surfaces.

ALWAYS:

- Follow local and national electrical codes.
- Test the cable for the proper readings before, during and after the installation.
- Make certain both splice and bulb are buried in the pour.
- Fill out the warranty card and return it to Orbit.

*******DO NOT CUT THE HEATING CABLE*******

This SPACING FORMULA must be used to calculate spacing between cables.

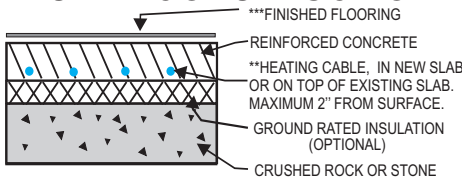
AREA (sq. ft.) x 12 ÷ LENGTH OF CABLE = On Center SPACING

(Cable length noted on UL tag.)

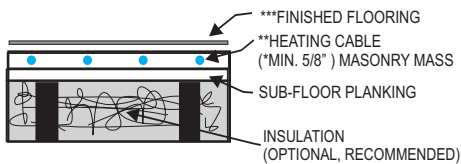
Example: $\frac{\text{Area In Square Feet}}{\text{Cable Length}} = \frac{85 \text{ sq. Ft.}}{193 \text{ Ft.}} = 85 \times 12 = \frac{1020}{193} = 5.28" \text{ On Center}$

Typical Cable Installations

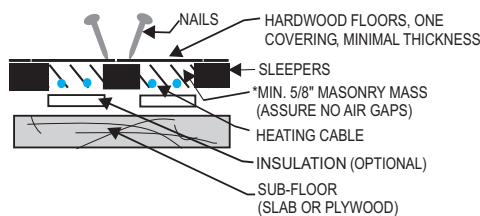
SLAB CONSTRUCTION



FRAME CONSTRUCTION



HARDWOOD FLOORING



* Masonry Mass refers to any dry pack, self leveling product, light weight bedding mortar, and all mortar based aggregates.

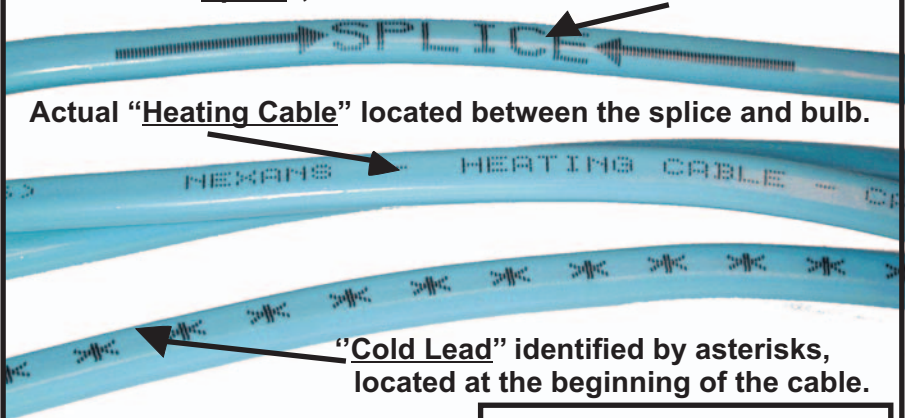
** To secure the cable use either hot melt glue, cable clips, or 3/8" crown staples. Or put down wire mesh and secure with wire ties or duct tape.

*** Finished flooring refers to tile, marble, or radiant compliant carpet, hardwood, and laminates.

The TXLP/2R Series Cable box sets are pre-engineered units available for both 120 and 230 volt applications. Each cable has a specific length, wattage, and ohms resistance reading. It is important that you supply the TXLP/2R Heating Cable with the voltage it is designed and tagged for. The heating cables are factory designed under precise specifications and cannot be altered for any reason and are not interchangeable with other cable. **IT IS VERY IMPORTANT TO NEVER CUT THE HEATING CABLE** as this will damage the cable and void the warranty. Both splices **MUST** be buried in the masonry. These are the points where the cable is attached to the cold lead, and on the opposite end where the heating cable ends with the bulb. Note the thickness of the bulb when pouring your flooring material to embed the cable. Only the cold leads can be out of the masonry or concrete and run into the conduit.

Identifying the Nexans TXLP Manufactured Heating Cable

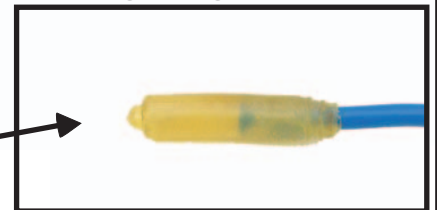
Cold lead "Splice", marked about 7' from the start of cable.



Actual "Heating Cable" located between the splice and bulb.

"Cold Lead" identified by asterisks, located at the beginning of the cable.

"Bulb" located on the end of the heating cable.



TESTING PROCEDURE (Tests Should Be Performed By A Licensed Electrician ONLY)

1. Verify that the cable you ordered is the one that you received.
2. Find your model number in Table 1 (Below) and record the Ohms for later use.
3. Visually inspect the heating cable before installation to locate obvious flaws or breaks.
4. With a digital OHM meter, first check resistance between the center conductor and the ground wire (twisted copper). Reading should be OL or infinity.
5. Again use a digital OHM meter in order to verify proper Ohm resistance. Place one of the meter's leads on each of the cable's conductors. The reading should be 10% (plus or minus) of the value in step 2.
6. With a megger, perform a leak test on the cable. (If a megger is not available, step 5 will have to suffice). Place the positive (red) lead on one of the center conductors and the negative (black) lead on the ground wire (twisted copper). The reading should be OL or infinity.
7. It is **very important** that a photo be taken of the floor after the cable is installed and before the final floor covering is laid. This will serve as a record of location and direction of cable runs. This can be used as reference for future work to the area to avoid damaging the buried cables.
8. It is a good idea to keep the meter attached to the conductors during the pouring of the floor to note any sudden change in the recorded value. If this occurs, STOP the installation to determine the cause.
9. After the cable is installed repeat steps 4 & 5 for warranty registration purposes.

TABLE 1

Nexans TXLP/2 Cable Wattage Output Ratings At Different Voltages										
CABLE TYPE	OHMS	LENGTH	208V	220V	230V	240V	CABLE TYPE	OHMS	LENGTH	120V
TXLP/2-300/17	176.3	58	245	275	300	327	TXLP/2-200/17-120	72	40	200
TXLP/2-400/17	132.3	77	327	366	400	435	TXLP/2-300/17-120	48	58	300
TXLP/2-500/17	105.8	96	408	457	500	543	TXLP/2-400/17-120	36	77	400
TXLP/2-600/17	88.2	115	490	548	600	652	TXLP/2-500/17-120	28.8	96	500
TXLP/2-700/17	75.6	135	571	639	700	760	TXLP/2-600/17-120	24	116	600
TXLP/2-840/17	63	163	687	768	840	914	TXLP/2-700/17-120	19.7	135	700
TXLP/2-1000/17	52.9	191	818	915	1000	1089	TXLP/2-850/17-120	16.9	164	850
TXLP/2-1250/17	42.3	238	1023	1144	1250	1362				
TXLP/2-1370/17	38.6	265	1121	1254	1370	1492				
TXLP/2-1700/17	31.1	328	1391	1556	1700	1852				
TXLP/2-2100/17	25.2	406	1717	1921	2100	2286				
TXLP/2-2600/17	20.3	507	2131	2384	2600	2837				
TXLP/2-3300/17	16	636	2704	3025	3300	3600				

GENERAL INSTALLATION GUIDELINES

Electrical Code and Safety: All heating cable installations shall be installed according to the National Electric Code (NEC) Article 424 for space heating. **(In addition, the installation shall be in accordance with the regulations of all authorities having jurisdiction.)** **Caution:** This equipment shall only be installed by qualified personnel, who are familiar with the construction, operation, and installation.

Before You Start:

Field measure the area for which the cable is designed to cover. Verify the area for the project is the same as the area originally designed. If the area has changed (larger or smaller), please call the factory to assure that the cable will be effective and operate in a safe manner. If you have any questions, it is important to contact our Tech Support Department. Any changes in the pre-determined design area can seriously affect the performance of the system. Do not exceed 15 Watts per square foot indoor in residential applications, or 33.5 Watts per square foot indoor for commercial or industrial applications with any of the above cables.

GENERAL INSTALLATION INFORMATION

General Rules:

The heating cable must be evenly distributed. **It is very important for the cable spacing to be held to the design parameters in order to avoid installation problems.** The relationship between supply voltage, linear resistance, cable length, and center spacing are important. As they need to be understood in order to give the right operating temperature and surface temperature distribution.

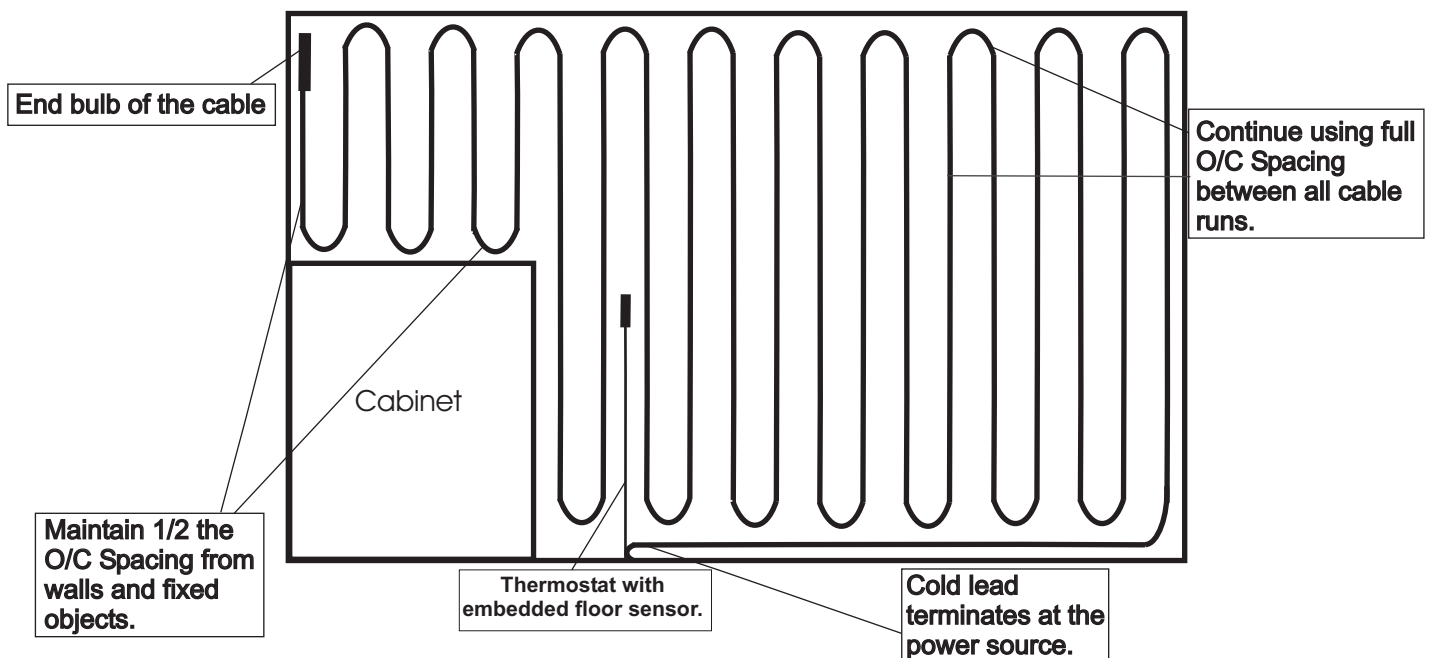
Layout Restriction: Heating cables must be installed in open areas only. The layout requires that the entire heating cable be looped at even center spacing over the area that is to be heated. If a thermostat with floor sensor is purchased, consider the location of the floor sensor when planning your layout. The floor sensor must be placed in between two runs of heating cable. The end of the heating cable marked with the asterisks is terminated at a point where the power connection is made, which is usually a thermostat or junction box. Details of cable length, loading, voltage, etc., are given on UL tag. **(Minimum distance between adjacent runs and minimum bending diameter is 2 inches).**

Before starting to lay the cable, determine your "On Center" spacing by following the formula on the top of Page 1.

When installing, it is important to remember that all of the heating cables, including the bulb and splice to cold leads, must be embedded so that only the non-heating lead is exposed outside of the pour. By NEC standards, a conduit is used to bring the leads out of the pour. The heating section of the cable should not be in direct contact with any combustible surface. This is achieved by embedding the cable in a liquid self-leveling material completely. Another option is attaching chicken wire or diamond lathe to the sub-floor first, then tie down the cable and apply the self-leveling material **(Tile Installers Preferred Method)**. The heating section of the cable shall not touch or crossover itself. As an option, measure and mark the center spacing within the design area as a reference for cable layout. Lay the heating cable out with the cold leads starting at the power source. The cable must be laid at the calculated spacing. A template can be cut 1/4" less than the required center spacing in order to hold true center spacing and account for the cable thickness. Cables should be secured using approved means (See Page 1). The cables should not be left unprotected for extended periods of time as the risk of damage increases. Concentration of heating cables around columns, drains, etc. may lead to overheating.

The actual layout of the cable is not important. However, it is recommended to run the cable across the shorter dimension of the space. Decide where you are going to start your cable within the design area. Start by laying the cable with the splice, making sure the word 'SPLICE' will be buried into the pour. Use an approved tie down method described on Page 1. Cable tie downs should be spaced every 12 - 16 inches. Tie downs **SHOULD NOT** pinch or constrict the cable in any way. Cables should be snug, but able to move freely. Run the cable along the outside edge of the design area and any permanent fixtures, using half the "on center" spacing (Spacing Formula on Page 1). This means if the spacing is 6" O/C, lay the cable 3" from the wall. (We recommend staying 8" away from toilet wax seal.) After the exterior edge is down, proceed laying the cable in a serpentine fashion using the full O/C spacing over the balance of the open area to be warmed. It is important to remember to maintain half the "on center" spacing dimension around the remaining outer edges of the design area. Where multiple cables are being installed into one design, follow the layout and spacing with each cable beginning at the power source and ending within the area to be heated. Repeat as required. **CABLES MAY NOT BE WIRED TOGETHER IN SERIES.**

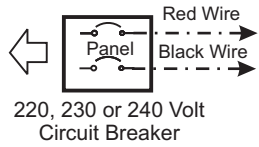
TWIN CONDUCTOR CABLE LAYOUT EXAMPLE



VERY IMPORTANT NOTE: All splices must be completely buried.

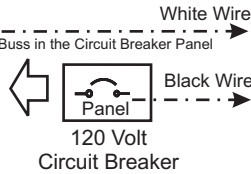
SUGGESTED WIRING TO BE PERFORMED BY LICENSED ELECTRICIAN IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, & FEDERAL REQUIREMENTS.

Circuit Breaker Panel



The Power Leads
For The Thermostat
If the cable is 220, 230,
or 240 volt

**Caution: Supply the TXLP/2R Heating cable
with the voltage it was tagged with at the factory
NEVER CUT THE HEATING CABLE**



The Power Leads
For The Thermostat
If the voltage of the
cable is 120 volt

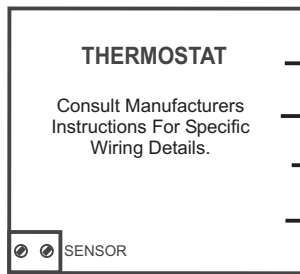
To The Neutral Buss in the Circuit Breaker Panel

Bare Copper Wire

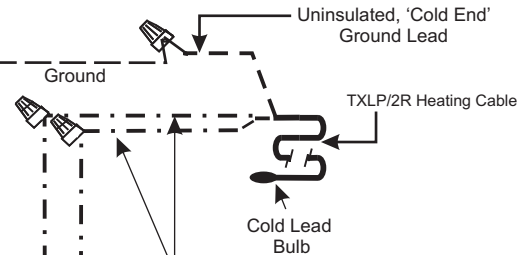
Metal, double gang
wall box
Box must be grounded.

IMPORTANT: The supply
voltage used for the
heating cable should be
the same voltage used
for the thermostat.

DO NOT MIX VOLTAGES.



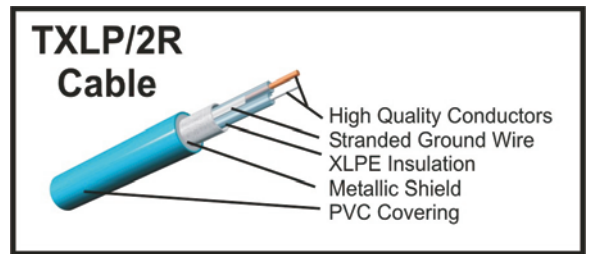
To Floor Sensor
(Polarity is not important.)



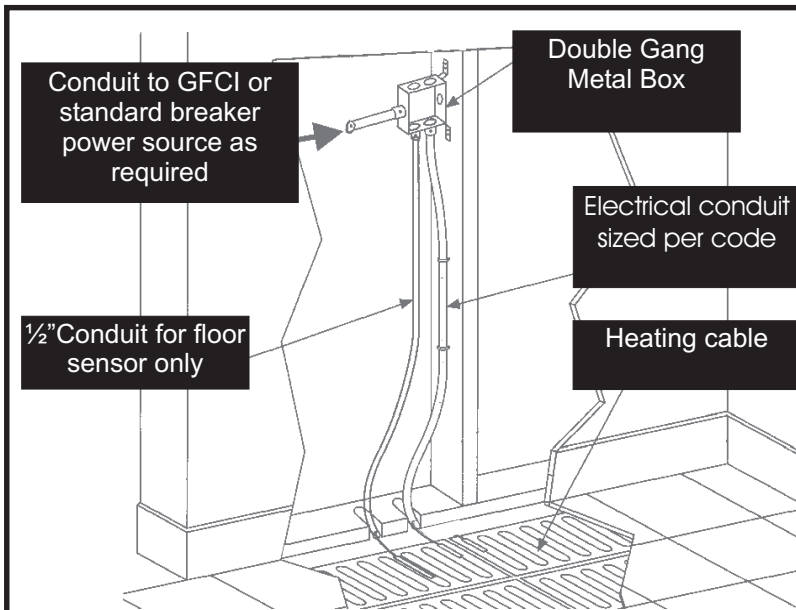
**CABLE AMPERAGE
DRAW MUST NOT
EXCEED 15 AMPS**

**THERMOSTAT WIRING DIAGRAM
120/240 LINE VOLTAGE, 15 AMP MAX. LOAD**

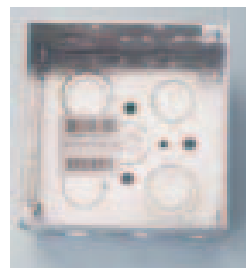
Thermostat and Controls: Always install the thermostat for your floor warming system per local code and per manufacturers instructions. When using a thermostat with a floor sensor, it is important to make sure that the floor sensor is placed 1-3' out into the heated floor and centered between two cable runs (See Electrical Installation Diagram below). The floor sensor must be embedded in the pour. Where cable system total amp load is greater than 15, an RFWCK Series Control Box is available. When using an RFWCK Series Control Box, GFCI Protection is required at the breaker.



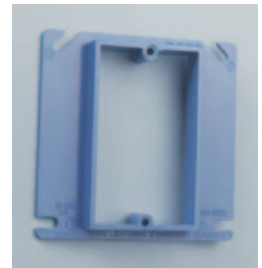
Electrical Installation Diagram



*All Components
Readily Available
at Electronic &
Home Super Stores.*



**Junction Box
Metal Double Gang**



**Junction Box
Cover
Carlon Blue Single**

ORBIT MANUFACTURING LIMITED WARRANTY

Orbit Manufacturing Company warrants all TXLP Series Cable. In addition to the standard ten (10) year warranty from Nexans (the manufacturer), Orbit Manufacturing Company makes available to the original property owner an additional Twenty (20) Year Limited Warranty, warranting against defects in workmanship and material from the manufacturer only for the time period of twenty (20) years following the date the Nexans' warranty terminates (i.e. 30 years in total from the date of sale).

This additional Twenty (20) Year Limited Warranty is **ONLY** valid on TXLP Series Single and Twin Conductor Interior cable sets that are buried within an approved covering material. The Twenty (20) Year Limited Warranty **IS NOT** valid on custom designed cables, both interior and exterior, nor exposed TXLP Series Cable, primarily regarding Roof/Gutter applications. These types of "Custom" Cable applications will only be covered under the Standard Manufacturers Ten (10) Year Limited Warranty and not the Orbit Extended Twenty (20) Year Limited Warranty.

Orbit Manufacturing Company warrants all indoor and outdoor "control products" (i.e. contactor panels, thermostats and sensors) against manufacturer's defects in workmanship and material for a period of one (1) year from the date of sale.

Orbit will extend the Warranty for indoor thermostats and indoor sensors only, for one (1) additional year from anniversary date of sale (i.e. 2 years in total from the date of sale).

All of the above sections of this warranty apply to manufacturer's defects only and do not cover damage or failure caused by natural causes or third parties.

If product failure does occur within the time period specified according to the provisions of this Warranty, then **Orbit Manufacturing Company** agrees to provide the replacement Control Product or Series TXLP Cable free of charge, F.O.B. factory.

This Warranty is valid only so long as the Control Products and/or cable is installed on the premises of the original installation. Removal of the cables automatically invalidates this Warranty. As described above, this warranty is **expressly limited** to the material cost of the Control Products and/or cables and does not extend to other material(s) or labor costs.

Orbit Manufacturing Company will not be responsible for any costs incurred in the removal or reinstallation of the control products and/or cables furnished by manufacturer under this warranty.

CLAIMS PROCEDURE

Submit Warranty claim in writing, by certified mail to **Orbit Manufacturing Company**, 1507 B West Park Avenue, Perkasio, PA 18944. The Claim Notice must state the date of this Notice, the nature of the defect, date of purchase and if already installed the date of installation, if installed the name of electrician and flooring installer, resistance readings of the cable taken by installer and include Proof of Purchase.

This Warranty shall be for the benefit of the original property owner only, and is non-transferable.

This Warranty is valid in those states where permitted. Some states do not allow limitations on the length of an implied warranty, so the above limitation may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. You should check your local state laws to determine this. This Warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

THE WARRANTIES SET FORTH IN THE FOREGOING PROVISIONS ARE LIMITED TO THEIR PRECISE TERMS AND PROVIDE EXCLUSIVE REMEDIES EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES.

THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION IN THE FOREGOING PROVISIONS. ORBIT MANUFACTURING COMPANY EXPRESSLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY WITH REGARD TO THE CABLES.

ORBIT MANUFACTURING IS NOT LIABLE TO ANYONE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR BREACH OF ANY WARRANTY, EXPRESS OR IMPLIED. ORBIT MANUFACTURING IS NOT LIABLE FOR DAMAGES TO PERSON OR PROPERTY, CONSEQUENTIAL LOSSES, LOSS OF PROFIT, LOSSES OF PRODUCT IN STORE, OR THE LIKE, UNDER ANY CIRCUMSTANCES AND ORBIT MANUFACTURING'S LIABILITY IN ANY CIRCUMSTANCE IS SPECIFICALLY LIMITED BY THE TERMS OF THIS WARRANTY.

Direct all questions and concerns to:

**Orbit Manufacturing
(Radiant Heating Group)
Attn: Technical Support
1507 B West Park Ave.
Perkasio, PA. 18944
215.453.9228
215.257.7399 (Fax)
www.OrbitMfg.com**



Orbit Mfg. Co.
1507 W. Park Avenue Perkasie, PA 18944
1-800-522-3986 Fax: (215) 257-7399
www.OrbitMfg.com

Warranty Registration Form

To register your warranty, please fill in all the information below and submit. Please keep a copy of this form in the fuse box for future reference.

Installation:

Installed by (Company): _____

Owners Name: _____

Address of Installation: _____

City, State & Zip of Install: _____

Product Installed:

Heating Cable Type or Model #: _____

Single or Twin Conductor: _____

Installation Voltage: _____

Number of Elements Installed: _____

Measurement Before Covering:

Conductor Resistance (Ohms): _____

Insulation Resistance (>500M Ohms): _____

Measured By (Name): _____

Date: _____

Measurement Immediately After Covering:

Conductor Resistance (Ohms): _____

Insulation Resistance (>500M Ohms): _____

Measured By (Name): _____

Date: _____

Measurement After Connection or Start Up:

Insulation Resistance (>500M Ohms): _____

Measured By (Name): _____

Date: _____

Installer Statement: The heating cable product is installed according to Orbit Radiant Heating installation instructions and the building owner has been informed about precautions and limitations that apply to heated floors.

Signature: _____

Date: _____

Building Owner/Purchaser: Warranty Form has been received, read and understood.

Signature: _____

Date: _____

Please Send Completed Form To:

**Orbit Radiant Heating
Attn: Warranty Dept
1507 B West Park Ave
Perkasie, PA 18944**