Orbit Radiant Heating
Now you're getting warmer !

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TXLP/1 Series Electric Floor Heating Cable Instructions

Installation Of The Heating Cable

IMPORTANT NOTE: THESE CABLES ARE NOT TO BE INSTALLED IN WALLS OR CEILINGS 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 the splice is completely buried in the pour.
Fill out the warranty card and return it to Orbit.

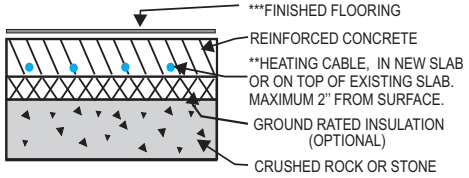
This SPACING FORMULA must be used to calculate spacing between cables.

AREA (sq. ft.) x 12 ÷ LENGTH OF CABLE = On Center SPACING
(Cable length noted on UL tag.)

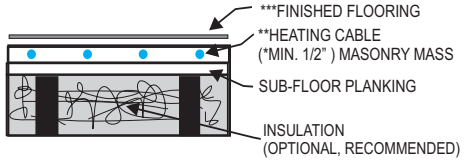
Example: $\frac{\text{Area In Square feet}}{\text{Cable length}} = \frac{85 \text{ sq. Ft.}}{193 \text{ Ft.}}$ 85x12= $\frac{1020}{193}$ = 5.28" On Center

Typical Cable Installations

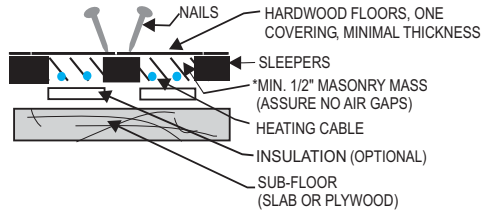
SLAB CONSTRUCTION



FRAME CONSTRUCTION



HARDWOOD FLOORING



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

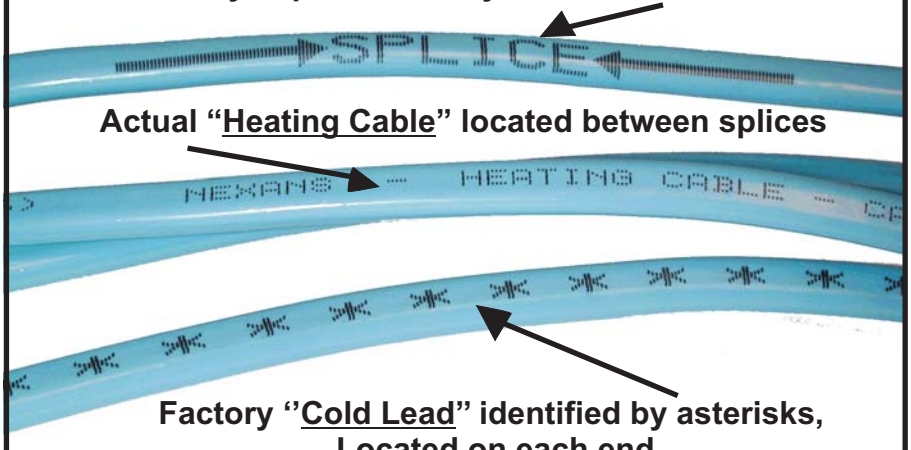
** To secure the cable use either hot melt glue, cable clips, or 3/8" crown staples. Or put down wire mesh and secure with wire ties or duct tape.

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

The TXLP 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 Heating Cable with the voltage it is designed and tagged for. The cables are a single conductor and must start and finish at the power source via thermostat, RFWCK Box, or junction box. 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. The splice MUST be buried in the masonry. This is the point at which the heating cable is attached to the cold leads. Only the cold leads can be out of the masonry or concrete and run into the conduit.

Identifying the Nexans TXLP Manufactured Heating Cable

The factory "Splice", clearly marked on each end



Actual "Heating Cable" located between splices

Factory ''Cold Lead" identified by asterisks, Located on each end

VERY IMPORTANT NOTE: All splices must be completely buried.

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 leads on each end of the cable's center conductor. 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 the center conductor 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 center 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 Cable Wattage Output Ratings At Different Voltages

CABLE TYPE	OHMS	LENGTH	208V	220V	230V	240V	CABLE TYPE	OHMS	LENGTH	120V
TXLP/1-300/17	176.3	58	245	275	300	330	TXLP/1-300/17-120	46.0	60	300
TXLP/1-400/17	132.2	75	330	365	400	435	TXLP/1-500/17-120	28.8	101	500
TXLP/1-500/17	105.8	96	410	460	500	545	TXLP/1-730/17-120	19.7	141	730
TXLP/1-600/17	88.2	115	490	550	600	650	TXLP/1-1060/17-120	13.7	204	1060
TXLP/1-700/17	75.9	135	570	640	700	760	TXLP/1-1470/17-120	9.8	284	1470
TXLP/1-850/17	62.2	164	700	780	850	925				
TXLP/1-1000/17	52.9	193	820	915	1000	1090				
TXLP/1-1250/17	43.0	241	1020	1145	1250	1360				
TXLP/1-1400/17	37.8	270	1145	1280	1400	1525				
TXLP/1-1750/17	30.2	338	1430	1600	1750	1905				
TXLP/1-2200/17	24.0	424	1800	2015	2200	2395				
TXLP/1-2600/17	20.1	512	2120	2373	2600	2865				
TXLP/1-3100/17	17.1	607	2590	2900	3100	3368				

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. 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 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.

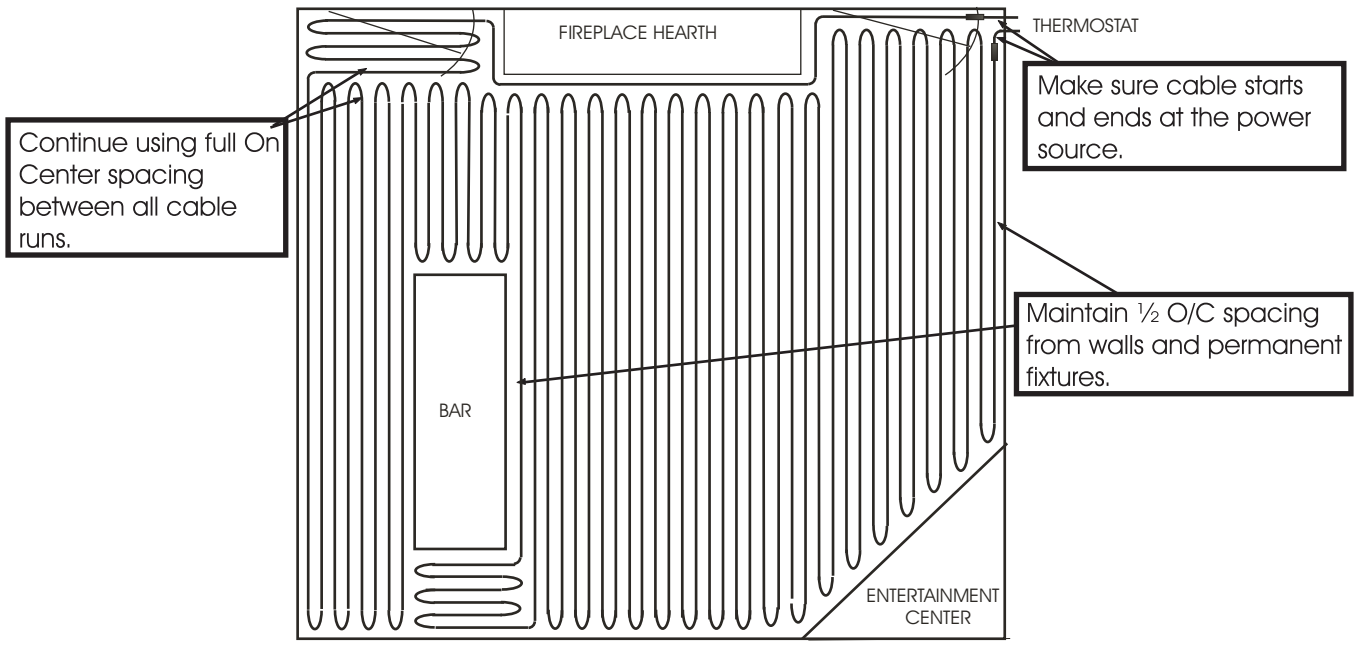
Layout Restriction: Heating cables must be installed in open areas only. The layout requires that the entire heating cable be looped at even center spacing over the area that is to be heated. Both ends are terminated at a point where the power connection is made. Details of cable length, loading, voltage, 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.

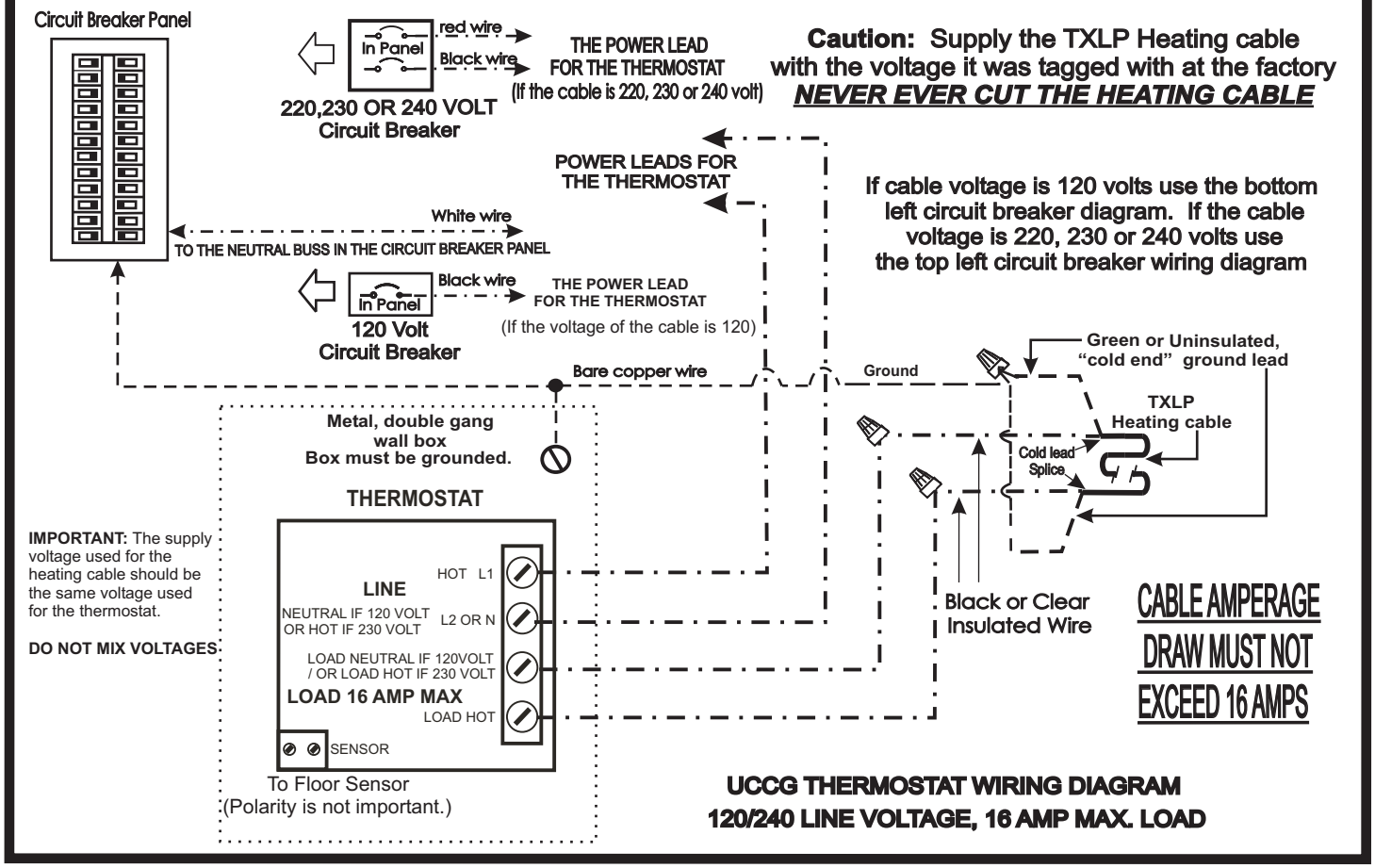
When installing, it is important to remember that all of the heating cables, including splices to cold leads, must be embedded so that only the non-heating leads are exposed outside of the pour. By NEC standards, a conduit is used to bring the leads out of the pour. The heating section of the cable should 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 starting and ending in the same location. 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. It is important to plan that the cable finishes at the same point it started, which is usually the thermostat or junction box. Decide where you are going to start and end 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, half the "on center" spacing (Spacing Formula on Page 1) to the furthest point away from the starting point. This means if the spacing is 6" O/C , lay the cable 3" from the wall. Use one half O/C spacing from all permanent fixtures as well. (We recommend staying 8" away from toilet wax seal.) After the interior 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, ending the cable where it started. 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 until only enough cable remains unattached to make the home-run back to the starting point. Repeat as required.

CABLE LAYOUT EXAMPLE

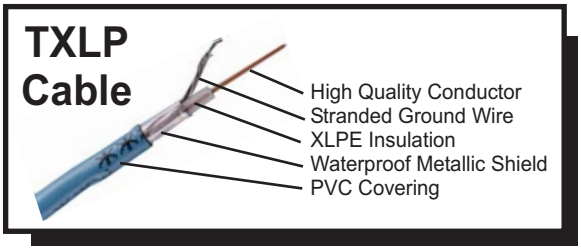


SUGGESTED WIRING TO BE PERFORMED BY LICENSED ELECTRICIAN IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, & FEDERAL REQUIREMENTS.

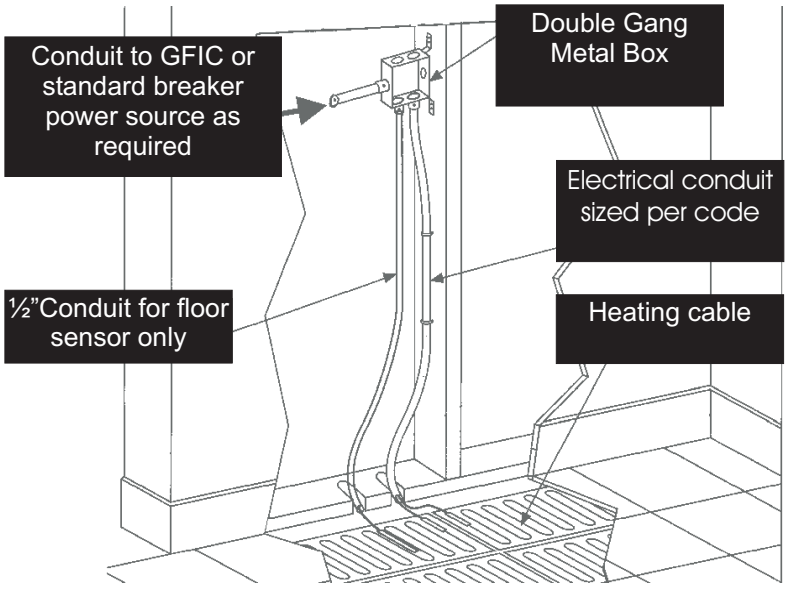


UCCG THERMOSTAT WIRING DIAGRAM
120/240 LINE VOLTAGE, 16 AMP MAX. LOAD

Thermostat and Controls: Always install the thermostat per local code. When using the floor sensing thermostat, 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 Diagram below). Where cable system amp load is greater than 16, an RFWCK Control Box is available.



Electrical Installation Diagram



All Components Readily Available at Electronic & Home Super Stores.

Junction Box Metal Double Gang

Junction Box Cover Carlon Blue Single

FW.INST.Ver.4.0209