Pentair Water
Pool and Spa®

LX-80 COMMERCIAL POOL & SPA CONTROL
INSTALLATION INSTRUCTIONS

IMPORTANT SAFETY PRECAUTIONS:
All wiring must be performed by a qualified electrician.
Basic safety precautions and local codes should be observed when installing and using this electrical equipment.

EQUIPMENT LOCATION:
ALL ELECTRICAL EQUIPMENT MUST BE LOCATED FIVE FEET OR MORE FROM THE WATER'S EDGE.

Select a convenient location to mount the LX-80 Control Center.
Wall-mount the LX-80, using appropriate screws through the three external mounting points located on the side of the enclosure.
Do not drill and mount from inside enclosure.
Install to provide drainage of compartment for electrical components.

Select a convenient location to mount the RCS-1 Spa Jets Switch and the ESO-1 or ESO-2 Emergency Shut-off Switch.
Provide a single-gang electrical box for the RCS-1.
Provide a single-gang electrical box for the ESO-1 (without alarm), or a double-gang electrical box for the ESO-2 (with alarm).
Electrical boxes must be rated for outdoor use if Switches are to be located outside.

LOW VOLTAGE CABLES:
A Separate 2-conductor 22AWG cable is required between the LX-80 and each of the following:

1. Spa Jets Switch.
2. Emergency Shut-off Switch.
3. Pool Gas Heater.
4. Spa Gas Heater.

Install cable, using plastic or metallic conduit where cables run underground, through concrete, etc.

⚠CAUTION
Never install low voltage and high voltage wires in the same conduit.

1

LX-80 CONTROL CENTER :

Loosen LOCK SCREW on hinged faceplate located in left-side of LX-80, and swing open to expose the low voltage wiring compartment.

Pull low voltage cables through holes in bottom left-side of LX-80. Strip wires ¼" and connect to circuit board at appropriate screw terminals in accordance with low voltage wiring diagram located inside enclosure cover.

NOTE: For the convenience of the serviceperson, the 10 position screw terminal can be plugged from the circuit board without disconnecting wires.

RCS-1 SPA JETS SWITCH :

At the LX-80, connect 2-conductor cable form the Spa Jets Switch to circuit board at **REM 1 screw terminals**.

At the Spa Jets Switch location, strip insulation of each wire ¼" and connect to **screw terminals #3** and **#4** on switch contact block. There is no polarity, so color-coding is unimportant.

Position gasket over back of switchplate, and mount to electrical box, using mounting screws provided.

EMERGENCY SHUT-OFF SWITCH :

At the LX-80, connect 2-conductor cable for the Emergency Shut-off Switch to circuit board at **SHUT OFF screw terminals**.
If model ESO-2 (with alarm) is being installed, connect green wire to the upper screw terminal and red wire to the lower screw terminal.
If model ESO-1 is being installed, color-coding is unimportant.

At the Emergency Shut-off Switch, strip insulation of each wire ¼", and make appropriate connections to **screw terminals #1** and **#2** on switch contact block:
For ESO-2, connect red wire to **screw terminal #2** and green wire to screw **terminal #1**, but do not disconnect factory wiring between contact block and alarm.
For ESO-1, color-coding in unimportant.

Position gasket over back of switchplate, and mount to electrical box using mounting screws provided.

⚠CAUTION

If Emergency Shut-Off Switch is not installed, then a jumper wire must be connected between "SHUT OFF" screw terminals on circuit board.

FIREMAN'S SWITCH CONNECTIONS :

At the LX-80, connect 2-conductor cables from the Pool and Spa Gas Heaters to circuit board at the appropriate screw terminals:
Connect Pool heater to **POOL GHTR screw terminals**, and Spa Heater to **SPA GHTR screw terminals**.
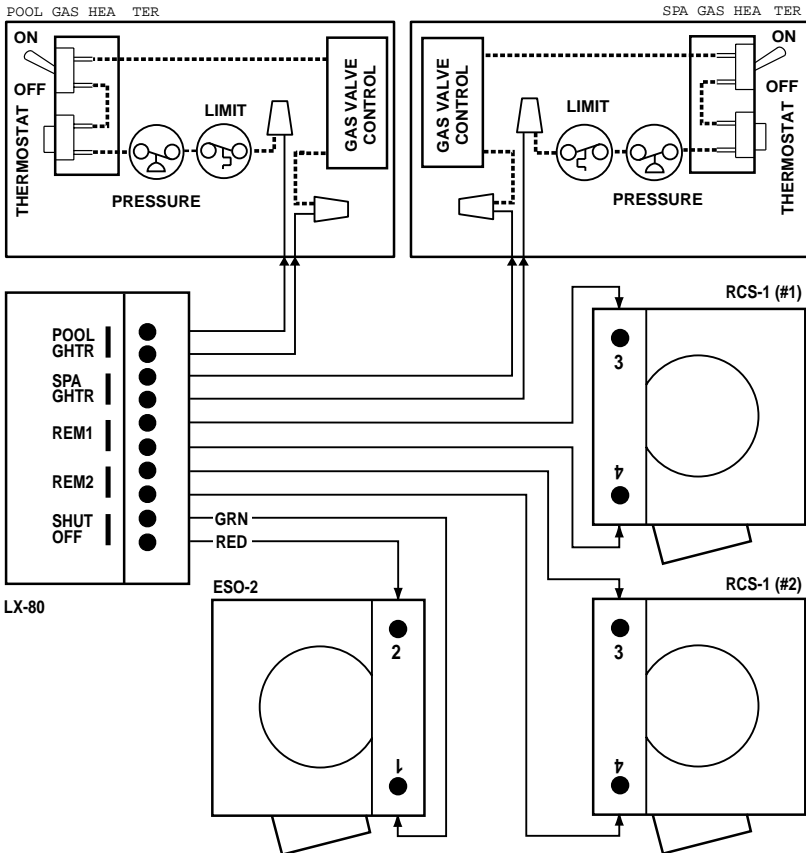
Inside each gas heater (pool and spa), find fireman's switch wire nut, or interrupt wire between thermostat and gas valve, and connect 2-conductor cable with wire nuts, in accordance with wiring diagram.
Do not disconnect high limit and pressure switches.

⚠CAUTION

If optional Temperature Control Modules (model MOD-SOL) are being used, heater thermostats must be overridden. To accomplish this, turn thermostat switch to "ON", "HIGH" or "SPA" (depending on the type of heater used), and set dial to highest temperature possible.

LOW VOLTAGE WIRING:

HIGH VOLTAGE WIRING :

All high voltage connections are made to terminal blocks, which are located behind service panel in right-side compartment of LX-80.
A wiring label is located adjacent to terminal blocks.
Knock-out holes are provided on bottom of enclosure for conduit mounting.

Install an electrical sub-panel with separate breakers for each load.
Provide a separate circuit breaker (if possible) to power the system.
Either 115VAC or 230VAC can be used. System draws less than 1 amp.
Run wires from circuit breaker to high voltage compartment of LX-80, and connect to top terminal block which is marked "**SYSTEM POWER**".
Install 2 jumpers for 115V, or 1 jumper for 230V wiring, according to wiring label.

Provide independent circuit breakers (if possible) for **R1** (POOL FLTR), **R2** (SPA FLTR) and **R3** (JETS 1).
Run wires from breakers to high voltage compartment of LX-80, and connect to LINE 1 and LINE 2 terminals of appropriate terminal block.
Connect pumps and other high voltage equipment to LOAD 1 and LOAD 2 terminals at appropriate terminal block.
Each individual terminal block can be wired for either 115VAC or 230VAC.
For 115V equipment, only half of the terminal block will be used.
CAUTION: If pumps exceed 2½ HP, the high voltage relay should be used to energize a magnetic starter.

NOTE: Circuits for **R4**, **R5**, **R6**, and **R7** are optional and require additional relay kits (model RLY-LX).

A Relay Allocation Chart is provided inside enclosure cover for the serviceperson's convenience.

To reduce the risk of electric shock, provide a continuous green insulated copper wire, no smaller than #12AWG, between grounding bus of LX-80 and grounding terminal of electrical supply panel.
Additionally, a wire connector is provided for bonding to local ground points, To further reduce the risk of electric shock, this connector should be bonded with a #8AWG copper wire to any metal ladders, water pipes, or other metal within five feet of the pool or spa.

SYSTEMS OPTIONS

TEMPERATURE CONTROL MODULES :

It is possible to provide precision thermostatic control of the pool and spa heaters by adding Temperature Control Modules (model MOD-SOL) at the LX-80. **A separate Module should be provided for each heater.** Additionally, each Module contains a built-in solar control for the optional control of a booster pump or motorized valve, or both. This enables a separate solar system for each body of water.
Install MOD-SOL in accordance with instructions provided.

MULTIPLE SPA JET PUMPS OR BLOWERS :

The standard system is provided with a relay to activate one jet pump or air blower. However, a combination of up to 4 jet pumps and / or air blowers can be controlled by the Spa Jets Switch. **A separate relay (model RLY-LX) should be added for each pump.**
Install RLY-LX in accordance with instructions provided.
A second **JETS 1 relay socket** is provided on the circuit board.
If more that 2 pumps are being used, install an adapter (model RYA-LX) in which to plug two relays from one relay socket.

DUAL REMOTE CONTROLS :

A second Spa Jets Switch (model RCS-1) may be added to the system to activate up to 2 more pumps.
Install RCS-1 in accordance with previous instructions, and connect 2-conductor cable to LX-80 circuit board at **REM 2 screw terminals**.
Additional relays (model RLY-LX) should be installed for each pump.
Plug RLY-LX into LX-80 circuit board at **JETS 2 relay socket(s)**.

POOL CHLORINE PUMP :

A pool filter pump is less than 2HP, the POOL FLTR relay (**R1**) can be used to actuate a separate chlorine pump.
If pool filter pump is 2HP to 2½HP, a separate relay (model RLY-LX) should be used to actuate the chlorine pump.
Install RLY-LX in accordance with instructions, and plug into circuit board at **POOL ORP relay socket**.

SPA CHLORINE PUMP :

If spa filter pump is less than 2HP, the SPA FLTR relay (**R2**) can be used to actuate a separate chlorine pump.
If spa filter pump is 2HP to 2½HP, a separate relay (model RLY-LX) should be used to actuate the chlorine pump.
Use an adapter (model RYA-LX) in order to plug both relays into the circuit board at **SPA FLTR relay socket**.

OPERATING INSTRUCTIONS

POOL/SPA TIMER

To set the correct time of day :
Rotate the dial in a clockwise direction until the hours and minutes line-up
with the white arrow at eight o'clock position on the clock face.
Pay particular attention to the AM and PM sections of the dial.

To program operating time(s) :
Depress number of sections around the perimeter of the dial by pushing
towards the center. For each section depressed, the equipment will operate
for 15 minutes.

POOL/SPA FILTER

**NOTE: Whenever filter pump is running, water will automatically heat
up to the preset temperature.**

Service Switch positions :
TIMER   Keep in this position for normal system operation.
OFF   Turns filter pump off (for service purpose only).
ON   Turns filter pump on (for service purpose only).

To override Fireman's Switch :
Whenever the timer shuts off, the filter pump will continue to run for an
additional ten minutes to cool down the heater and protect the equipment
from overheating.
In order to cancel this "delay" (for service purpose), switch to **OFF** and then
back to **TIMER position**.

Status Light :
PUMP ON   Indicates whenever filter pump is running.

SPA JETS

Service Switch positions :
40 MIN   **Remote Switch** will activate jets for 40 minute cycle.
20 MIN   **Remote Switch** will activate jets for 20 minute cycle.
TEST   **Remote Switch** will activate jets for 5 seconds (for service purposes).

Status Lights :
JETS 1   Indicates whenever **Remote Switch** is running.
JETS 2   Indicates whenever optional second **Remote Switch** is running.

SPA PRIORITY

Service Switch positions :

TIMER   Spa jets, filter pump, and heater will operate only when **SPA TIMER** is on.
Whenever **SPA TIMER** is off, **Remote Switch** is disabled.

REMOTES   Spa jets, filter pump and heater will operate whenever **Remote Switch** is activated, regardless of **SPA TIMER** position.

POOL/SPA HEATING (Optional)

Service Switch positions :

SOLAR   Allows heating with solar only.

SOL PREF   Allows preferential heating with solar, but automatically switches to conventional heating when solar energy is unavailable.

HEATER   Allows heating with gas or electric heater only.

OFF   Allows no heating.

Status Lights :

HEATER ON Indicates whenever heater is on.

SOLAR ON   Indicates whenever solar is on.

Pool and Spa Thermostats :
Set **THERMOSTAT** dial(s) to the desired water temperature.
NOTE: Make sure that separate thermostat on heater is turned all the way up.

If optional Temperature Control Module is not used, use separate thermostat on heater to set desired water temperature.

REMOTE SWITCH

To operate spa :
Push **Spa Jets button** once to activate spa.

To turn spa off :
Spa will automatically switch off at the end of its cycle.
To turn spa off during its cycle, push **Spa Jets button** a second time.

A second Remote Switch may be used to control additional jets.
This optional SPA JETS button will not activate the filter pump or heater.

EMERGENCY SHUT-OFF SWITCH

In the event of an emergency :
Push **Red button** to automatically shut-off all spa equipment.

To reset :
Pull out **Red button** in order to reset spa equipment.

SAVE THESE INSTRUCTIONS.