

Frequently Asked Questions

Cold Temperature Operation of Fluorescent Systems

How do cold temperatures affect the performance of fluorescent lamps and ballasts?

OSRAM SYLVANIA has tested the QUICKTRONIC® ballasts for cold temperature applications with lamps from various manufacturers. The results are as follows:

<u>BALLAST TYPE</u>	<u>°F STARTING</u>	<u>COMMENTS</u>
QT1,2,3X32/120/277IS Reg	OK	
QT2,3X32/120/277IS LP	OK	
QT2,3X32/120/277IS PLUS	OK	
QT4X32/120/277IS Reg & LP	OK	Except for ballasts with suffixes 4 & 6
QT2X96/120/277IS	OK	Full Wattage Lamps: NOT SUPER SAVERS
QT2X55/120/277IS	OK	
QT2X59/120/277IS	OK	Beginning with 1996 production (9601 or higher) for suffixes 0, 1,2,3 & 5
QT2X59PLUS/120/277IS	OK	
QT2X96HO/120/277IS	NO	

QUICKTRONIC ballasts have a higher open circuit voltage to provide adequate starting conditions for these applications.

Certain criteria should exist to provide the best possible conditions for successful low temperature operation. These are:

- Pure Line, Full Voltage
- No Remote or Tandem Wiring
- Good Electrical Connections
- No Twisted Leads
- Properly Sized Conductors in Good Condition
- Enclosed Fixtures are recommended

LIGHT OUTPUT

Fluorescent lamps start with more difficulty at lower temperatures because the mercury vapor pressure is lower, thus there is less mercury available to start the lamp. The light output is lower because the mercury is not emitting the optimum amount of ultraviolet energy for the phosphor to convert to visible light.

The light output of any fluorescent lamp is dependent on the ambient temperature in the fixture. The amount of light output at 0°F (-18°C) will be dependent on the type of fixture used. The following table is a relative measure of light output versus temperature for T8 lamps and may be used as a general guideline.

RELATIVE LIGHT OUTPUT (RLO)

<u>AMBIENT TEMP (°C)</u>	<u>OPEN FIXTURE</u>	<u>CLOSED FIXTURE</u>
-10 (14 °F)	25%	50%
0 (32 °F)	50%	80%
10 (50 °F)	80%	100%
25 (77 °F)	100%	98%

(Note - closed fixture represents a +10°C rise over ambient)

Comparing a basic System 32 T8 system to the System 32 PLUS T8 system at -10 °C (14°F) in an enclosed fixture, there would be a 30+% greater light level with the System 32 PLUS T8 system. The comparison is based on using 800 series lamps.

System 32	$2950 \text{ lumens} \times 2 \times 0.90 \text{ BF}^* \times 0.50 \text{ RLO} =$	2655 lumens
System 32 PLUS	$2950 \text{ lumens} \times 2 \times 1.20 \text{ BF}^* \times 0.50 \text{ RLO} =$	3540 lumens

* BF = Ballast Factor