

## Series ELO-231FRB – 11.2 K-factor Upright and Pendent Sprinklers Quick Response, Standard Coverage

### General Description

TYCO Series ELO-231FRB 11.2K Quick Response, Standard Coverage, Upright and Pendent Sprinklers (Ref. Figure 1) are automatic sprinklers of the frangible bulb type. They are quick response spray sprinklers that produce a hemispherical water distribution pattern below the deflector.

The 11.2K ELO-231FRB Upright and Pendent Sprinklers were subjected to full scale, high-piled storage fire tests to qualify their use in lieu of 5.6 or 8.0 K-factor standard spray sprinklers for the protection of high-piled storage.

Higher flow rates can be achieved at much lower pressures with the 11.2K ELO-231FRB Sprinklers, making their use highly advantageous in high density applications, such as the protection of high-piled storage.

For in-rack applications, an upright intermediate level version of the Series ELO-231FRB Sprinklers can be obtained by utilizing the Series ELO-231FRB Upright Sprinkler with the WSG-2 Guard & Shield, and a pendent intermediate level version of the Series ELO-231FRB Sprinklers can be obtained by utilizing the Series ELO-231FRB Pendent Sprinkler with the WS-2 Shield. If there is a possibility of the pendent intermediate level version being exposed to mechanical damage, a G-2 Guard can be added.

### NOTICE

*The Series ELO-231FRB Sprinklers described herein must be installed and maintained in compliance with this document, as well as with the applicable standards of the National Fire Protection Association (NFPA), in addition to the standards of any other authorities having jurisdiction. Failure to do so may impair the performance of these devices.*

The owner is responsible for maintaining their fire protection system and devices in proper operating condition. Contact the installing contractor or product manufacturer with any questions.

Installation of Series ELO-231FRB Pendent Sprinklers in recessed escutcheons will void all sprinkler warranties, as well as possibly void the sprinkler's Approvals and/or Listings.

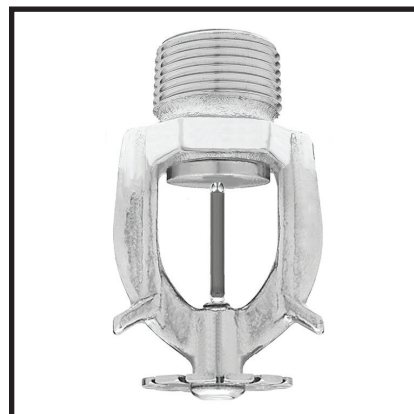
### Sprinkler Identification Numbers (SINs)

TY5131 – Upright 11.2K, 3/4" NPT

TY5231 – Pendent 11.2K, 3/4" NPT

TY5131 is a redesignation for Central SIN C5131.

TY5231 is a redesignation for Central SIN C5231, G1870, and S2551.



### IMPORTANT

*Always refer to Technical Data Sheet TFP700 for the "INSTALLER WARNING" that provides cautions with respect to handling and installation of sprinkler systems and components. Improper handling and installation can permanently damage a sprinkler system or its components and cause the sprinkler to fail to operate in a fire situation or cause it to operate prematurely.*

K-FACTOR	SPRINKLER TYPE	TEMPERATURE RATING	BULB LIQUID COLOR	SPRINKLER FINISH	
				NATURAL BRASS	CHROME PLATED
11.2 3/4" NPT	UPRIGHT (TY5131) & PENDENT (TY5231)	155°F (68°C)	Red	1, 2, 3, 4	
		200°F (93°C)	Green		
		286°F (141°C)	Blue		

**Notes:**  
1. Listed by Underwriters Laboratories, Inc. (UL)  
2. Listed by Underwriters Laboratories, Inc. for use in Canada (C-UL)  
3. Approved by FM Global (FM Approvals)  
4. Approved by the City of New York (NYC) under MEA 291-04-E

**TABLE A**  
**11.2K SERIES ELO-231FRB UPRIGHT AND PENDENT SPRINKLERS, QUICK RESPONSE**  
**LABORATORY LISTINGS AND APPROVALS**  
*(Refer to the Design Criteria Section)*

# Technical Data

## Approvals

UL and C-UL Listed  
FM and NYC Approved

(Refer to Table A for complete approval information. The approvals apply to the service conditions indicated in the Design Criteria section.)

## Maximum Working Pressure

175 psi (12,1 bar)

## Pipe Thread Connection

1/2 Inch NPT

## Discharge Coefficient

K=11.2 gpm/psi<sup>1/2</sup> (161,4 lpm/bar<sup>1/2</sup>)

## Temperature Ratings

Refer to Table A.

## Finishes

Sprinklers: Refer to Table A.

## Physical Characteristics

Frame..... Bronze  
Cap..... Bronze  
Sealing Assembly..... Beryllium Nickel  
w/TEFLON  
Bulb (3mm dia.) ..... Glass  
Compression Screw ..... Bronze  
Deflector..... Bronze

# Design Criteria

## UL and C-UL Listings Requirements

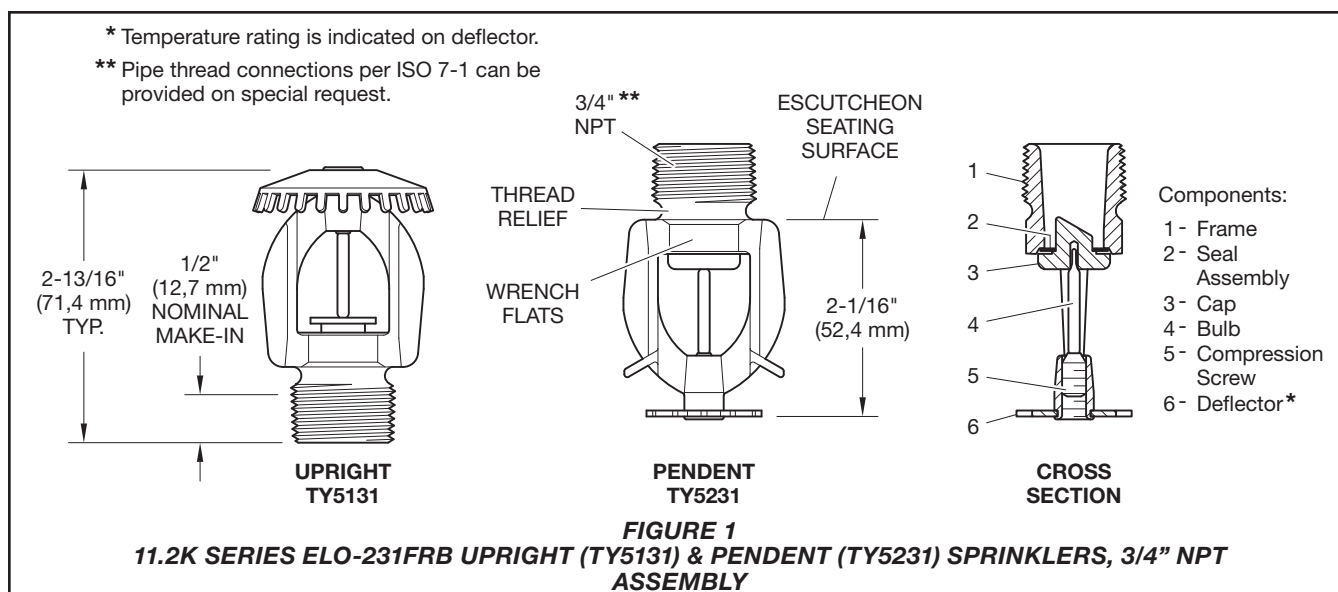
The 11.2K Model ELO-231FRB (TY5131 & TY5231) Sprinklers are to be installed in accordance with NFPA 13 standard sprinkler position and area/density flow calculation requirements for light, ordinary, or extra hazard occupancies, as well as high-piled storage occupancies (solid-piled, palletized, rack storage, bin box, and shelf storage including but not limited to Class I-IV and Group A plastics) with a minimum residual (flowing) pressure of 7 psi (0,5 bar) for wet pipe systems only.

## FM Approval Requirements

The 11.2K Model ELO-231FRB (TY5131 & TY5231) Sprinklers are to be installed in accordance with the applicable control mode density/area guidelines provided by FM Approvals for wet systems only. (FM Approvals guidelines may differ from UL and C-UL Listings criteria.)

# Operation

The glass bulb contains a fluid that expands when exposed to heat. When the rated temperature is reached, the fluid expands sufficiently to shatter the glass bulb, allowing the sprinkler to activate and water to flow.



## Installation

TYCO Series ELO-231FRB 11.2K Quick Response, Standard Coverage, Upright and Pendent Sprinklers must be installed in accordance with this section.

### General Instructions

#### NOTICE

*Do not install any bulb-type sprinkler if the bulb is cracked or there is a loss of liquid from the bulb. With the sprinkler held horizontally, a small air bubble should be present. The diameter of the air bubble is approximately 1/16 inch (1,6 mm) for the 155°F (68°C) to 3/32 inch (2,4 mm) for the 286°F (141°C) temperature ratings.*

A leak-tight 3/4 inch NPT sprinkler joint should be obtained with a torque of 10 to 20 lbs.-ft. (13,4 to 26,8 Nm). A maximum of 30 lbs.-ft. (40,7 Nm) of torque is to be used to install sprinklers with 3/4 NPT connections. Higher levels of torque may distort the sprinkler inlet and cause leakage or impairment of the sprinkler.

Do not attempt to make up for insufficient adjustment in the escutcheon plate by under- or over-tightening the sprinkler. Readjust the position of the sprinkler fitting to suit.

The Series ELO-231FRB Upright and Pendent Sprinklers must be installed in accordance with the following instructions:

**Step 1.** Upright sprinklers are to be installed in the upright position; pendent sprinklers are to be installed in the pendent position.

**Step 2.** With pipe thread sealant applied to the pipe threads, hand-tighten the sprinkler into the sprinkler fitting.

**Step 3.** Tighten the sprinkler into the sprinkler fitting using only the W-Type 3 Sprinkler Wrench (Ref. Figure 2). With reference to Figure 1, the W-Type 3 Sprinkler Wrench is to be applied to the wrench flats.

## Care and Maintenance

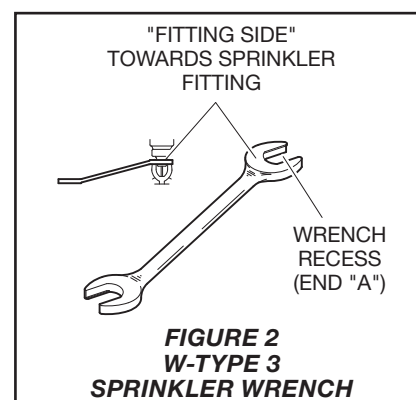
TYCO Series ELO-231FRB 11.2K Quick Response, Standard Coverage, Upright and Pendent Sprinklers must be maintained and serviced in accordance with this section.

Before closing a fire protection system control valve for maintenance work on the fire protection system that it controls, permission to shut down the affected fire protection system must be obtained from the proper authorities and all personnel who may be affected by this action must be notified.

Sprinklers that are found to be leaking or exhibiting visible signs of corrosion must be replaced.

Automatic sprinklers must never be painted, plated, coated or otherwise altered after leaving the factory. Modified sprinklers must be replaced. Sprinklers that have been exposed to corrosive products of combustion, but have not operated, should be replaced if they cannot be completely cleaned by wiping the sprinkler with a cloth or by brushing it with a soft bristle brush.

Care must be exercised to avoid damage to the sprinklers before, during, and after installation. Sprinklers damaged by dropping, striking, wrench twist/slippage, or the like, must be replaced. Also, replace any sprinkler that has a cracked bulb or that has lost liquid from its bulb (Ref. Installation Section).



The owner is responsible for the inspection, testing, and maintenance of their fire protection system and devices in compliance with this document, as well as with the applicable standards of the National Fire Protection Association (e.g., NFPA 25), in addition to the standards of any other authorities having jurisdiction. Contact the installing contractor or product manufacturer with any questions.

It is recommended that automatic sprinkler systems be inspected, tested, and maintained by a qualified Inspection Service in accordance with local requirements and/or national codes.

P/N 50 — XXX — X — XXX					
		SIN	SPRINKLER FINISH		TEMPERATURE RATING
500	11.2K UPRIGHT (3/4" NPT)	TY5131	1	NATURAL BRASS	155
502	11.2K PENDENT (3/4" NPT)	TY5231	9	CHROME PLATED	200
					286

**TABLE B**  
**SERIES ELO-231FRB UPRIGHT & PENDENT SPRINKLERS, QUICK RESPONSE**  
**PART NUMBER SELECTION**

**Limited  
Warranty**

For warranty terms and conditions, visit [www.tyco-fire.com](http://www.tyco-fire.com).

**Ordering  
Procedure**

A Product Symbol Number (P/N) is not specified when ordering sprinklers with thread connections per ISO 7-1. Contact your local distributor for availability.

**Sprinkler Assemblies with  
NPT Thread Connections**

Specify: Series ELO-231FRB 11.2K Quick Response (specify Pendent or Upright) Sprinklers, SIN (specify TY5131 or TY5231), (specify temperature rating), with (specify Natural Brass or Chrome Plated) finish, P/N (specify from Table B)

**Sprinkler Wrench**

Specify: W-Type 3 Sprinkler Wrench, P/N 56-895-1-001