tyco
Gas & Flame
Detection

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DF-TV7-T DESCRIPTION

The DF-TV7–T is a multi-spectrum infrared (3IR) flame detector using three wavelengths. The DF-TV7-T responds to hydrocarbon fires and is the right choice for operation in dirty environments or for detection of smoky fires.

The MultiFlame DF-TV7–T is designed to respond to unwanted hydrocarbon fires, whilst maintaining a high degree of false alarm immunity. The device offers a wide range of output options, as standard and is suitable for use in SIL 3 applications. The unit may be interfaced directly with a wide range of fire panels, controllers and PLC's etc.

The unit is fully configurable using a wireless hand-held terminal (TLU) or optionally via HART® giving true flexibility to the installer. Time delays, sensitivity and output configuration are all set up via the TLU; a hazardous area approved hand-held unit.

Wireless testing of the optical and output circuits are also possible using the TLU.

DF-TV7-V DESCRIPTION

The DF-TV7-V is a combination UV/Dual IR Flame detector, designed to cover a large detection range while ensuring excellent immunity against false alarms. The DF-TV7-V is the alternative when multi-spectrum IR cannot be used.

False alarms are minimized by the use of two infrared wavelenghts plus a fast acting UV wavelength to confirm detection. This version is useful in difficult environmental conditions, such as combined rain and wind, rapid sunshine variations, hot sources modulations, industrial lighting etc.

The DF-TV7-V is also configurable for special applications, where using just dual IR or just direct UV detection is required.

The UV detector can be sensitive to UV welding radiation or lightning, X rays and gamma rays.

APPLICATIONS

- Refineries

- Drilling and Production Platforms

- Fuel Loading Facilities

- Compressor Stations

- LNG/LPG Processing and Storage

- Gas Turbines

- Chemical Plants

- Aircraft Hangars

TLU Wireless (IR) Hand-held Terminal

FEATURES

BENEFITS

DF-TV7-T: Certified SIL 3 by an external body DF-TV7-V: Certified SIL 2 by an external body	The highest operational safety levels available on the market
DF-TV7-T: Multi-spectrum infrared flame using three wavelengths DF-TV7-V: Ultraviolet & Dual-spectrum infrared	Very effective on hydrocarbon fires (bad combustion) Very effective on hydrogen and other fires
DF-TV7-T: Long range up to 80m, 260 ft deep, wide field of view 120° DF-TV7-V: Range up to 35m, 115 ft deep, wide field of view 120°	Fewer detectors needed due to enhanced fire detection coverage
Relays, 4 - 20mA, 0 - 22mA, Hart outputs	Standard industry interfaces
Continuous auto-check of optical lens	Ensures safe and proper device operation
Selectable sensitivity and time delays	For configuration to each application
Wireless detector configuration and testing using TLU	Easy maintenance, no need of test lamp

TECHNICAL SPECIFICATIONS

Each detector is constructed as follows:

- A wall-mounted support secured by three screws and including cable gland (M2O)(optional). There are 2 standard entries and an optional one.

- A stainless steel (316L) explosion-proof housing containing:

  - A set of tropicalized electronic cards
  - A display and infrared communication electronic card allowing the communication with the remote control (TLU600)

- The sensor cartridge contains the flame detection circuitry. So, it is possible to change the cartridge easily. The multispectrum IR detector is also available in a high sensitivity version.

- An IR communication head is located below the detector housing. It is used for communication with the maintenance hand-held terminal (TLU).

- A metallic support cable (optional) connects the wall mounting support and the housing, making the maintenance easier.
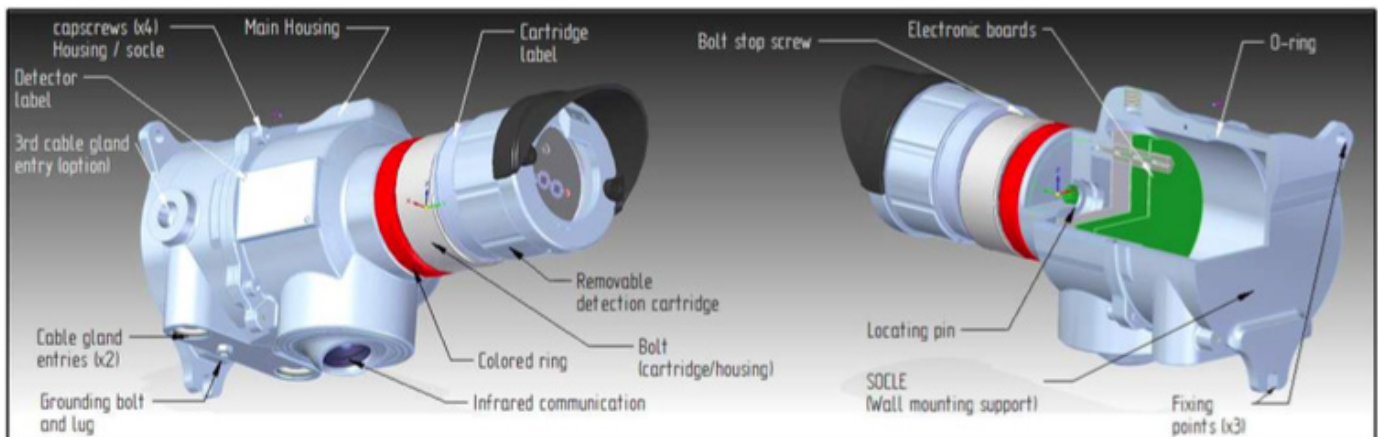

Figure 1 : Detector presentation

(Overall dimension drawings, see Figure 2)

MULTIFLAME DF-TV7-T & DF-TV7-V

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TECHNICAL DATA

Technology	Multi-spectrum Infrared, 3IR or UV/2IR
Fire Types	Hydrocarbon fires
Range, n-heptane	80m (260ft) 0.3 x 0.3m (1 sq ft)
Range, gasoline	65m (210ft) 0.3 x 0.3m (1 sq ft)
Field of view	Maximum horizontal angle 120°
	Horizontal angle @ 50% 104°
	Vertical angle @ 50% 82°
Response time	adjustable from 3 to 20 seconds (typical 6s.)
Warranty	3 years, back to factory

OUTPUT SIGNAL

Standard	4 - 20mA or 0 - 22mA (configurable by the user)
	max. load impedance 700Ω (Std.)
	HART Protocol 7th edition (option)
	Lonworks for Syntel (option)
Alarms	2x configurable Relay max 1A/30Vcc
Visual	Normal Operating, alarm, fault

ELECTRICAL

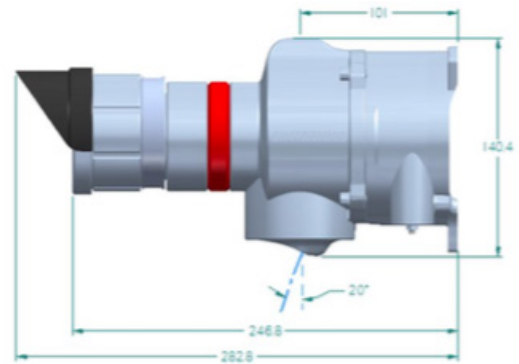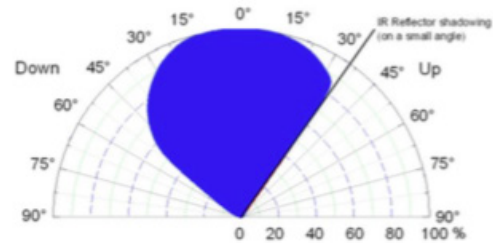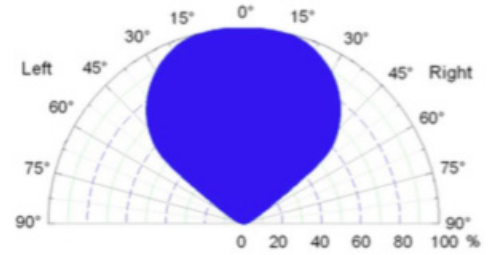|	
Power supply	24 Vdc, range (18 - 28 Vdc)
Power consumption	2W normal; 4W during test
Connection	0.3 mm² (22 AWG) - 1.5 mm² (16 AWG)
	Shielded cable recommended

ENVIRONMENTAL

Storage:	-40°C to +70°C (-40°F to 158°F)
Operation	-40°C to +65°C (-40°F to 149°F)
Option	Sunshade, max. temp. 85°C (185°F)
Humidity	99% RH (non-condensing)
Ingress	IP66
RFI/EMI	Complies with EN50130 - 4

EXPLOSION PROOF HOUSING

Material	316 L stainless steel
Weight	5kg (10 lbs)
Dimensions	246.8 x 140.4 x 115mm (L, H, W)
	9.8 x 5.5 x 4.5 inches

ACCESSORIES

TLU600	Infrared remote control unit
	II 1 G Ex ia II C T4
LT15	Ex Test lamp
	II 2 G Ex d II C T6 - T5
AS048 - X	SS316 swivel bracket
	(with 2" or 2.5" pipe mounting)
AS056 - 450	Sunshade
AS040	Long type visor
	(vertical upper angle reduction)
AS041	Long type visor
	(horizontal and vertical angle reduction)
AS045	Air shield
AS215	Tag plate

APPROVALS

SIL3 approval without redundancy IEC 61508 - 1 to 7 for DF-TV7-T
SIL2 approval without redundancy IEC 61508 - 1 to 7 for DF-TV7-V

Certificate LCIE SF-*-T-20131103R0

ATEX II 2 G Ex d II C T6 Gb (-40°C to +65°C)

Certificate LCIE 13 ATEX 3025 X

IECEx IEC 60079-0 / IEC 60079 - 1

Certificate LCIE 13.0022X

CE DPC EN 54 - 10:2002 + A1:2005

* -CPD-* (pending)

EMEA
Tel.: +33-3-21-60-80-80
Fax: +33-3-21-60-80-00
sh-sale@tycoint.com

ASIA PACIFIC
Tel.: +86-21-3127-6373
Fax: +86-21-3127-6365
sh-sale@tycoint.com

AMERICAS
Tel.: +1-888-687-9275
Fax: +1-281-292-2860
sh-sale@tycoint.com

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