

**UNIFIRE**

[www.FlameRanger.com](http://www.FlameRanger.com)  
[sales@unifire.com](mailto:sales@unifire.com)

# FlameRanger

## Revolutionary Firefighting Robot

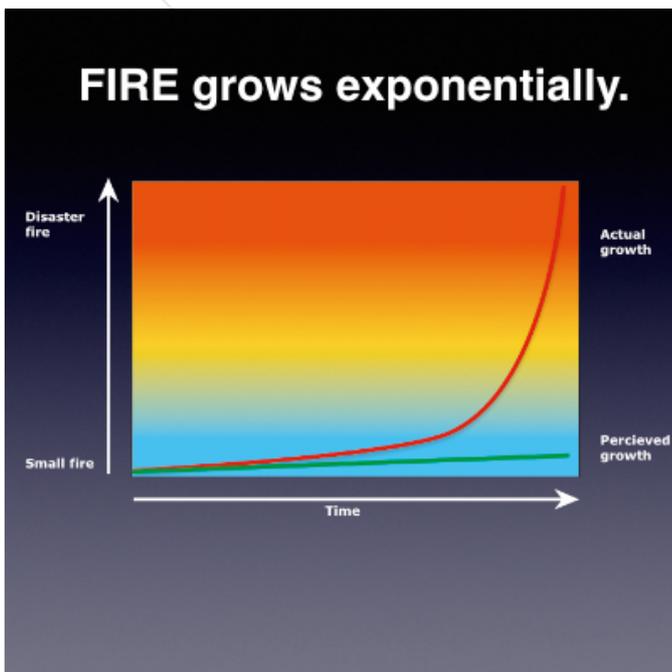
Introducing the first-of-its kind, fully automatic fire detection & high flow extinguishing robotic nozzle system.



A first-person perspective from a firefighter looking through a hose nozzle. A large, powerful stream of water is being directed towards a fire. The fire is bright orange and yellow, with flames rising from a structure. The scene is dimly lit, with the primary light source being the fire and the water stream. The nozzle of the hose is visible in the bottom right corner, and the hose itself is coiled. The background shows the interior of a building with wooden walls and ceiling.

**Welcome to  
21st Century  
Firefighting!**

# Traditional Method, with a 21st Century Kick



## The Problem

Fire grows exponentially quickly. Traditional methods often result in late detection of a fire and long waits until adequate suppression can begin. By that time, loss to property and life can be catastrophic.

## The Solution

*Rapid detection, coupled with rapid suppression, is the key to successful fire extinguishing, before it spreads out of control.*

**Enter FlameRanger.** It constantly detects for the presence of flames, 24/7/365. Any fire that breaks out is detected almost instantaneously. Unifire's sophisticated computing and software technology guide its advanced robotic nozzles with precision to aim a high volume of water or foam to directly douse the fire (or fires) at their source. Fires are extinguished in as little as 5 seconds, long before they get out of control.

**Problem → Solved.**

# **Detect, Aim, Extinguish. Robotically. 24/7/365**



## **Enter the Age of Robotics**

FlameRanger is the first-of-its-kind robotic nozzle system that automatically detects a fire, determines its size and location in three dimensions, and directs a high volume of water or foam, with great accuracy, directly onto the fire—all within seconds of a fire breaking out, and without any human intervention.

*Unifire's Force Robotic Nozzles are the World's Most Advanced, Intelligent Firefighting Robots*

**Quality &  
Technology,  
Unleashed**



# So, What Is It, Exactly?

*With regard to robots, in the early days of robots people said, 'Oh, let's build a robot' and what's the first thought? You make a robot look like a human and do human things. That's so 1950s. We are so past that.*

*Neil deGrasse Tyson*

## Background & Objective:

Every large fire starts as a small fire and grows exponentially. Rapid detection and suppression are crucial to successfully fighting fire before it has a chance to develop into a catastrophic, fully developed fire.

## What FlameRanger XT Does:

The FLAMERANGER XT is a high capacity, fully automatic, fire detection and extinguishing system designed to provide rapid detection and extinguishing of fire incidents on the exterior of buildings.

## How it Works:

The system uses 2 x FV300 Array IR Detectors to detect and locate a fire in 3 dimensions (x, y, z). Up to 4 fires can be detected simultaneously, and the system knows the size and volume of the fire(s) as well.

When a flame is detected, the system extends from the building a robotic arm mounted with an advanced robotic nozzle. The TARGA Robotic Nozzle PLC opens the valve or starts pump when the nozzle is aimed at the target fire.

A large flow of water is then accurately aimed directly onto the target fire (or fires). The spray angle is also automatically adjusted. The stream dynamically follows the flame if the flame moves or spreads.

When no more fire is detected, the system automatically shuts off and returns to stand-by mode, and the water supply closes automatically, retracts the robotic arm and nozzle, and the system remains ready to reactivate should a flame reignite.

## Network / Web-Server:

Each individual, fully self-contained, stand alone system has a built-in web-server with UniWeb™ technology. The FLAMERANGER XT web-server allows remote monitoring and remote control of all systems, providing personnel, in the control room and/or in the field, with the exact status of each unit 24/7/365.

The web-server also makes it possible to manually remote control any system. If there is a fire in a car on the street below, for example, fire fighters can start the FLAMERANGER XT nozzle and fight the fire, without even being at the scene.

## Groups of FLAMERANGER's cooperate:

A FLAMERANGER system that detects a flame can activate its neighboring systems to provide support to the extinguishing and to provide protection to the rest of the building

## How many units are required?

Unifire estimates that, at a minimum, one FLAMERANGER XT system should be installed on each side of a building for every 100 meters. One system for each side; normally 4 systems to achieve full 360° protection.

A 300 meter tall building may require 12-16 systems, depending on the layout of the individual building. The reach is approximately 50 meters horizontally, and with help of gravity, 70-80 meters of effective range can be achieved when shooting downwards. Depending on pressure the nozzle can shoot up to 30 meters upwards.

Recent high rise fires show massive chunks of burning debris that could easily ignite unprotected neighboring buildings. The units can also be configured such that when a fire is detected, the neighboring nozzles are also activated to support the extinguishing and to prevent any fire spread. When a fire is detected in one building, the neighboring buildings can use the nozzles to assure fire is not spread.

# A Melange of Technology, Seamlessly Blended



## Unifire Force™ Robotic Nozzle

Industrial robot BLDC motors, highest quality internal gears, stainless steel 316L construction



## Tyco FV311SC IR Array Flame Detectors

Accurate detection of flames, long range, two-dimensional coordinate data, CCTV camera, & extraordinarily low false alarm risk



## Advanced Computing & Software

Seamlessly enable interactive data and control from any authorized device anywhere in the world



### Full Situational Awareness

While completely autonomous and fully automatic, the system informs authorized personnel anywhere in the world of real-time system status, fire alarms with exact location, and full remote control intervention capabilities.



**Fully Automatic,  
with  
Remote Oversight  
&  
Total Control**

# Fully Networked, of Course



An infinite number of FlameRanger systems can be easily networked, monitored, and remote controlled from anywhere in the world.

The system provides 24 hour peace of mind by instantly alerting the appropriate individuals of any fire detected, its exact location and size, and allows for full, manual, remote control on- or off-site from any authorized device—smart phone, tablet, laptop, or PC.

Moreover, the system is self-monitoring, around the clock. If any faults on the system are detected, the system instantly alerts authorized individuals to the error and provides complete details of the exact component or issue in need of attention.

FLAMERANGER

Room 21 Lvl 13 192.168.1.158

**Fire Detected**

3D Tools

2D Overscan

Active Alarms

Trigger	Time	Coordinates	Height	Sys Action
Fire Detected	16 seconds ago	x5 y50	3 m	Valve Open

**Flame Detectors**  
Combined Scannings

Alarm Trigger level

Attention level

Normal operation

**Detector 1** Status ● AUTO EXTI

Alarm Level Alarm Type 5

Analog scan

Raw Data

N_RX	N_WVE	N_WWP	WMKADC4
RECV	4.25 V	78 W	0.3093

**Detector 2** Status ● AUTO EXTI

Alarm Level Alarm Type 4

Analog scan

Raw Data

N_RX	N_WVE	N_WWP	WMKADC4
RECV	4.13 V	66 W	0.2073

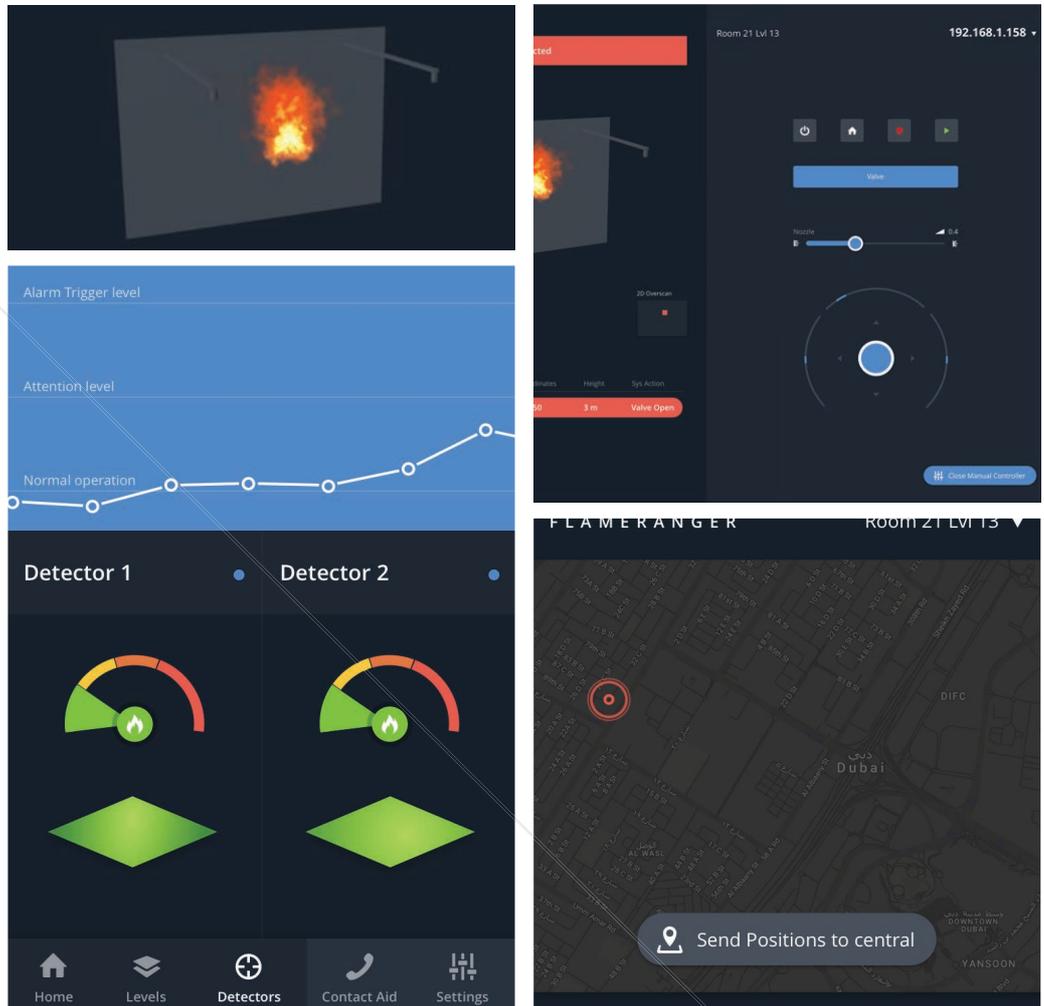
**Water Cannon** Status ● AUTO EXTI

Valve Position

OPEN x-axis -51° y-axis 12°

Open Manual Controller

# All Data. All the Time. At Your Fingertips.



# Unlimited Applications



## Marine Fire Protection

Aircraft carriers and other large storage areas on naval vessels and ships present a significant challenge to fire safety. FlameRanger provides ideal automatic fire protection on the high seas.



## High-Rise Building Exteriors

Protecting the exteriors of high-rise buildings is a formidable challenge. Until now. Unifire's FlameRanger XT has been specifically developed to detect and extinguish these fires with speed & precision.



## Oil & Gas Facilities

Unmatched detection and suppression for oil & gas facilities of many kinds. Targeted, high-volume foam suppression begins in seconds of a fire's breaking out. Large networked systems centrally monitored & controlled.



## Tunnel Fire Protection

Tunnel fires are among the most difficult to combat and among the most destructive in terms of loss of life and property. FlameRanger is like having a firefighting crew on site the moment fire erupts.



## Factories, Warehouses, Storage Facilities ...

Traditional methods of protecting large open spaces in building interiors from fire are often ineffective. FlameRanger offers unprecedented fire protection capabilities in these environments.



## Aircraft Hangars

Trust FlameRanger to protect even the highest value aircraft and hangar facilities. Our system detects fires around the clock and, in seconds of breakout, deploys a high volume of foam, directly on the fire, until it's out!

# Unparalleled Quality

DS/EN ISO 9001:2008 Certified  
Manufacturing Facilities



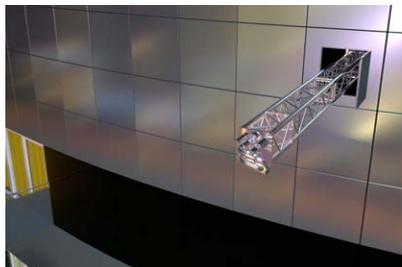
# Introducing FlameRanger XT

## Protecting High-Rise Building Exteriors.



### Flame Detectors Monitor Building 24/7

Flame Detectors are mounted so as to view the building's façades around the clock. In the event of fire, the robotic nozzles kick in to immediately begin extinguishing.



### Boom Extends to Extinguish

When a fire is detected, a boom with the Force™ Robotic Nozzle automatically extends from the building, aims at the fire, opens the valve and begins extinguishing.



### Fire Extinguishing Starts in Seconds

Extinguishing commences within seconds of detection. This is the key to successfully saving lives and property from catastrophic loss.



# Shift Your Paradigm.

*The FlameRanger can be adopted to numerous types of installations to suit virtually any application.*

# Global Service

**FlameRanger is available around the globe.**

From initial consultation to project planning, sales, installation, support and service, Unifire and its world-class partners can assist around the globe.

Contact us.

[www.FlameRanger.com](http://www.FlameRanger.com)

Unifire AB, Bultgatan Sweden, SE442-40 Kungälv, Sweden

+46 303 248 403 | [sales@Unifire.com](mailto:sales@Unifire.com)

