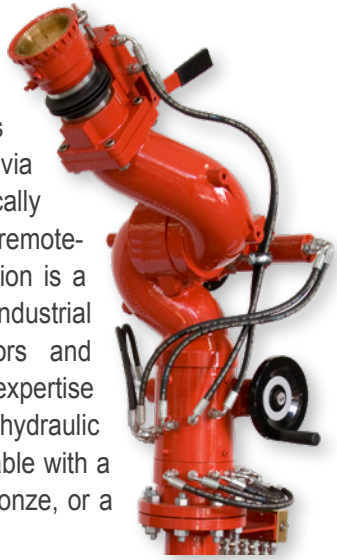
Firefighting Monitors

FM APPROVED

Fire Protection Solutions

Automatic Firefighting Monitors

Foreword



Automatic monitors are devices used to deliver large amounts of water or water/foam solution to remote targets. These monitors can be controlled manually via local mechanisms or automatically by means of actuators and remote-control stations. SA Fire Protection is a well-known manufacturer of industrial heavy duty firefighting monitors and control systems with a strong expertise in electric, electro-hydraulic and hydraulic controls. The monitors are available with a full Bronze, Nickel Aluminium Bronze, or a Stainless-Steel body.

Manufactured with extreme care, every piece is designed to withstand extreme conditions granting a very long product lifetime. In this respect, the variety of special materials or surface treatments makes this equipment very robust. Depending on the application, the monitors can be equipped with jet/fog nozzles or branch pipes designed for water and water/foam solution. The automatic movements on the horizontal and the vertical plane as well as the stream control (jet/fog) can be provided with hydraulic, electro-hydraulic or electric actuators.

Every monitor is designed to be controlled either manually or by remote controls available on a fixed or mobile wireless control station. The control stations are designed according to the client specifications and may be manufactured for either hydraulic or electric actuators.

Also, the electric consoles may be equipped with a PLC, achieving complete standalone firefighting systems, or can integrate accessories such as lightweight portable wireless consoles. System interconnections may be designed traditionally or with a Modbus redundant serial link (only for electric monitors) that allows sensible saving of the system's cable quantity requirements.

All components, such as monitors and consoles, are available for hazardous area installations in compliance with ATEX 204/34/EU Directive.

The design and production of monitors and their accessories are carried out according to SA Fire's rigorous quality standards by skilled engineers in high tech production facilities.

Niagara

The Niagara series of firefighting monitors represents one of the most advanced automatic monitor series available nowadays for the fire industry. The monitors are designed to withstand extreme harsh and adverse environmental conditions offering designers durable Bronze and Aluminium Bronze castings with waterways ranging from 3" to 6". The monitors are ideal for highly demanding installations such as jetties, harbours, refineries, chemical plants and offshore installations. The Niagara is available as an automatic monitor with a selection of three controls: hydraulic, electric and electro-hydraulic.

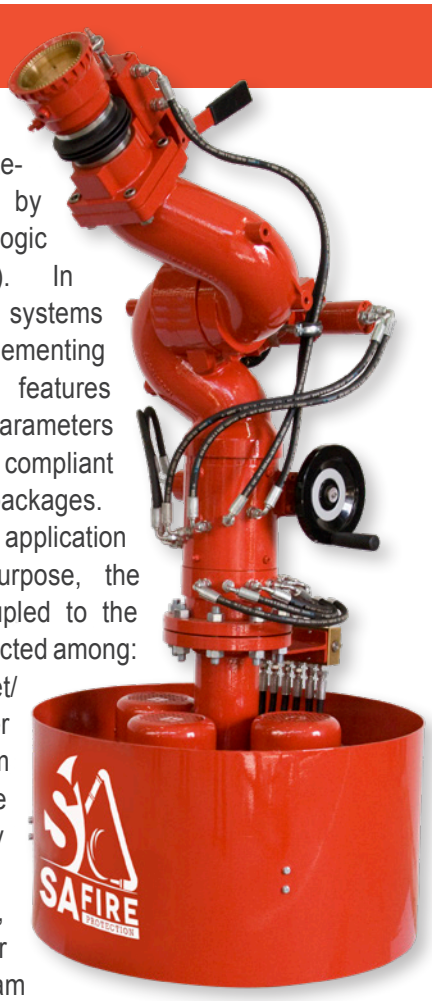
The hydraulic Niagara is the traditional configuration of remote controlled monitors. It requires a hydraulic power pack that pumps oil into different metallic tubes. Each tube drives a movement of the hydraulic actuator governing the monitor movement. For each hydraulic actuator SA Fire always includes an emergency hand-wheel for each movement that is used locally to take over the main power transmission.

An evolution of the Niagara is the electro-hydraulic series. These fire monitors are delivered with the hydraulic power pack installed underneath the monitor itself forming a unique standalone package that connects the electrical interface to the remote-control panel and the hydraulic interface to the monitor actuators.

This configuration allows for installation using electrical wiring from the control panel up to the hydraulic power pack, limiting the hydraulic tubing to a very short final interconnection. The absence of metallic tubing required in traditional hydraulic installations is appreciated in terms of lower installation and maintenance cost.

Both the hydraulic and the electro-hydraulic Niagara can rotate on the horizontal plane for 360° stop to stop. For both, a special version of horizontal joint G/360 allows the monitor to rotate continuously. Those Monitors are often preferred for installations where protection of multiple targets is required.

The other configuration of Niagara monitors is electrical. A configuration that is achieved using electric actuators located on each monitor joint offering the maximum achievable remote-control precision in the monitor movements. The electric monitors can be controlled



by simple remote-control stations or by programmable logic controllers (PLC). In such cases the systems can be built implementing additional software features and reliability parameters that allow for SIL 2 compliant automatic monitor packages. Depending on the application and firefighting purpose, the terminal to be coupled to the monitor may be selected among: Nozzles for Jet/ Fog stream, water cannons or foam branch pipes. The nozzles are the only solution that will include a control, whereas water cannons and foam branch pipes are normally fixed. Only in some cases an automatic deflector is added to foam branch pipes. Independently from the controls used, the nozzles are designed for high performance and reliability and therefore are equipped with corrosion resistant materials and sand storm protectors.

Marmora

The Marmora monitors can be fabricated with a 4” to 10” body and can be base flanged 4” to 12” to grant flows up to 40000 lpm. The Marmora’s are shaped to withstand high flows, distributing the reaction force in such a way that the structure of the monitor is not compromised. These auto-monitors embody all the actuation features of the Niagara monitors and so can be hydraulically, electrically and electro-hydraulically actuated and can rotate horizontally 360° continuously. The Marmora range of remote-controlled monitors are the Stainless-Steel counterpart to the Niagara. Like the Niagara, the Marmora is designed for use in harsh environments for onshore and offshore applications.

As with all SA Fire hydraulic firefighting monitors, the Marmora’s are fitted with a hydraulic power pack that pumps oil into different metallic tubes. Each tube drives a movement of the hydraulic actuator governing the Marmora’s monitor movement. Electro-hydraulic configurations of the Marmora use electrical wiring from the control panel up to the hydraulic power pack, limiting the hydraulic tubing to a very short final interconnection. The absence of metallic tubing required in traditional hydraulic installations is appreciated in terms of lower installation and maintenance cost. Alternatively, the Electric Marmora offers the maximum achievable automated accuracy in the monitor movements.

Platforms

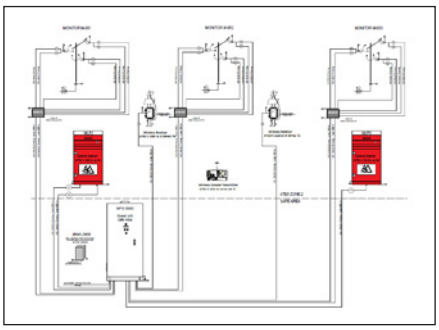
Automatic monitors are often selected to protect marine terminals or refining installations where it is required to approach the fire from a certain height above ground. In this respect SA Fire has developed a series of self-standing modular designed structures that may be used to set up monitors at the highest level above protected targets. The structure is manufactured as a module and designed for easy erection on site.

The turret comes together with all accessories, such as external cooling system, internal main feeder, base valves and external ladder. The top of the turret may be equipped with a rotating platform that moves on the horizontal plane together with the automatic monitor. Mechanical connections from the monitor to the turret are built in the monitor bodies making the installation easy and straightforward. Below the turret, service controls for monitor enabling and disabling are available for maintenance operators.

This is to safeguard operators from being hurt by any erroneous remote operation that may come from ground stations. The rotating platform on top may be provided with 360° rotation, allowing the remote-controlled monitors to move freely on the whole horizontal plane.

Remote Actuation: Electric & Electro-Hydraulic

Monitor control panels are used to provide commands, signal the monitor position and the status of the automatic monitors. There are various possible panel configurations depending on system architecture, communication protocol, and classification of the installation area. Usually, the fixed stations are manufactured with one, two or three monitor controls together with their water and foam control valves. For each monitor, the panel is equipped with a joystick for horizontal and vertical monitor movements, a joystick for stream control (jet/fog) and two couples of push buttons for water and foam control valves. These consoles can be used to control either electric or electro-hydraulic monitors. Larger and more complex control panels can be designed to host a PLC and control the electrical monitors using a serial communication protocol. This solution is based on a redundant communication link



and also allows system programming that provides fully automatic installations. The same technology may be used to design multiple control stations or to manage one or more wireless monitor consoles. Dedicated visualisation software is also available for specific control room requirements.

Explosion Proof Panels

For some installations, the power module or monitor control panel needs to be installed in the hazardous area. SA Fire designs and manufactures Explosion Proof Panels for Zone I that may be used as slave or standalone master installations. The panels are available for standard installation or can be equipped with a slave PLC to form part of larger system architectures.

Wireless Monitor Console: Monix

Monix is a wireless mobile control station designed to control one or more monitors. The Monix console forms part of the main PLC based control system where the wireless module is integrated. The Monix consoles are normally kept on site in custom built boxes where they are connected to their battery charger and controller. When needed, the operator can activate the Monix and wear the portable console. The monitor selection is made by simply selecting the monitor with the frequency selector. Once the monitor is selected, the operator is capable of taking control by operating the joystick and the open/close buttons for the control valves. To switch to another monitor, one can simply rotate the selector switch and take control. Monix is available for safe and hazardous area installations.

Manual Firefighting Monitors

Foreword

Manual monitors are hand operated devices used to fight fires which require a large amount of water or water/foam solution to be delivered to remote targets. Every monitor is designed to be easily operated by its commands, requiring very little force by the operator even when adjusted during operation.
The Monitor bodies are available in Bronze or Stainless Steel for installation within harsh industrial environments. Each piece is designed and manufactured with extreme care to be robust and grant a long service life in adverse environmental conditions. Depending on the application, manual monitors can be equipped with nozzles or branch pipes capable of discharging water or water/foam solution. Nozzles and foam branch pipes are also available with a built-in inductor that allows water and foam proportioning before discharge. Each monitor can be coupled to a large variety of accessories such as self-oscillating units, hydrant supports, nozzles and branch pipes. Design and production of monitors and their accessories is carried out according to SA Fire's rigorous quality standards by skilled engineers well equipped at high tech production facilities.

Iguana Manual Monitors

The Iguana is a hand lever operated manual monitor, with a 3" single water way bronze body. Very easy to operate, the Iguana is ideal for low flow applications and may be base flanged 3" or 4" UNI/DIN or ANSI. Movements on the vertical & horizontal plane can be performed by a lever that amplifies the operator force towards the monitor joints, making the monitor movements very easy. Both vertical and horizontal joints can be secured by two manual locks that allow the operator to adjust the monitor with the wanted orientation and leave it operational. Both joints are built in the monitor casting using a double channel hosting the rotational spheres. Shaped to keep the concentrated pressure losses to a minimum, the casting has a single internal waterway and can be used for water or water foam solution. Addressing the specific requirements for harsh industrial environments & offshore applications requiring small manual monitors.

Niagara Manual Monitors

The Niagara is a hand wheeled manually operated monitor, with a 3", 4" or 6" single waterway bronze body. Very easy to operate, it is capable of withstanding flows up to 20000 lpm and may be base flanged 3", 4", 6" or 8" UNI/DIN or ANSI. Movements on the vertical & horizontal plane can be performed by rotating a wheel that uses a gear to amplify the operator force towards the monitor joints, making the monitor movements very easy. Both joints are built in the monitor casting using a

double channel hosting the rotational spheres. Shaped to keep the concentrated pressure losses to a minimum, the casting has a double internal waterway and can be used for water or water foam solutions. Addressing the specific requirements for harsh industrial environments & offshore applications.

Marmora Manual Monitors

The hand wheeled manual Marmora monitors are manufactured with a 4" to 10" single waterway body in stainless steel. The manual Marmora's can be base flanged 4" to 12" granting high flows of up to 40000 lpm. This hand wheeled manual monitor is ideal for high flow requirements. Movements on the vertical and horizontal plane of the Marmora can be performed with ease by rotating the handwheel which transfers the operators force through gearboxes to the monitor joints. The body is designed to balance the reaction force and is suitable to be coupled with a number of discharge nozzles/ branch pipes.