Automatic Fire Fighting Monitors

Fire Protection Solutions

Automatic
Fire Fighting 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 fire fighting monitors and control systems with a strong expertise in electric, electro-hydraulic and hydraulic controls. The monitors are available with a full bronze body suitable for heavy duty application such as aggressive chemicals plants or offshore platforms. 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 PLC, achieving complete stand alone fire fighting systems, or can integrate accessories such as lightweight portable wireless consoles. Systems interconnections may be designed traditionally or with modbus redundant serial link (only for electric monitors) that allows sensible saving of system's cables quantity requirements. All components, such as monitors and consoles, are available for hazardous areas installation in compliance with ATEX 94/9/CE Directive.

Design and production of monitors and their accessories are carried out according to SA is rigorous quality standards by skilled engineers with high tech production facilities.

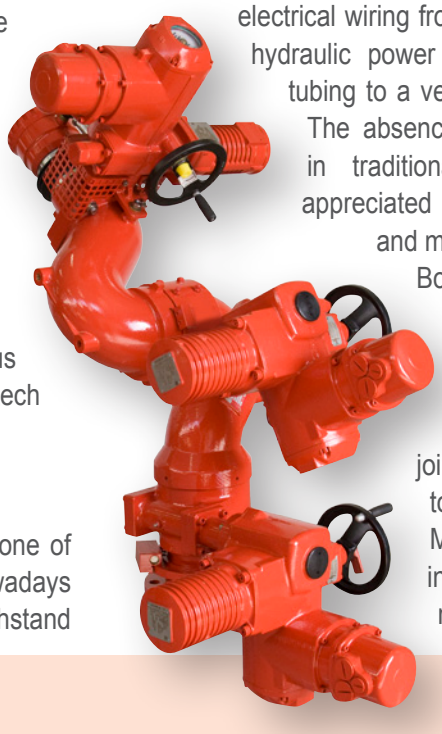
Niagara

The Niagara series fire fighting monitor represents one of the most advanced automatic monitors available nowadays for the fire industry. The Monitor is designed to withstand extreme harsh and adverse environmental conditions offering to designers durable Bronze and Aluminium Bronze castings with waterways ranging from 3" to 6". The monitors are ideal for high demanding installation such as jettys, harbours, refineries, chemical 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 an 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 always includes an emergency hand-wheel for each movements 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 offers 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 installation is appreciated in terms of lower installation and maintenance cost.



Both hydraulic and 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.

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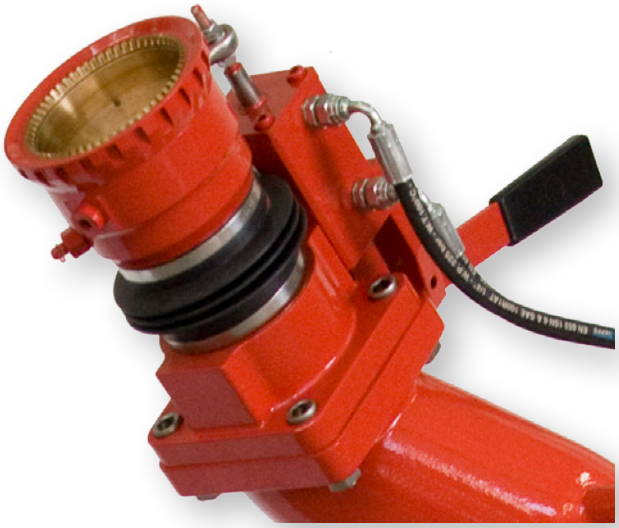
The other configuration of the Niagara monitor is electrical. A configuration that is achieved using electric actuators located on each monitor joint offering the maximum achievable remote control precision in the monitor movements. The electric monitors can be controlled by simple remote control stations or by programmable logic controllers PLC. In such cases the systems can be built implementing additional software features and reliability parameters that allows for SIL 2 compliant automatic monitor packages.

Depending on the application and fire fighting 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. SA Fire Protection offers a complete range of discharge options to achieve flow rates up to 20.000 L/min when used with the largest Niagara 6". 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 protector.



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 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 in 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 Niagara monitor body making the installation easy and straightforward. Below the turret, service controls for monitor enabling and disabling are available for maintenance operators.
This is in order to safeguard them 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 Niagara Monitors to move freely on the whole horizontal plane.

Remote Actuation:

electric & electro-hydraulic

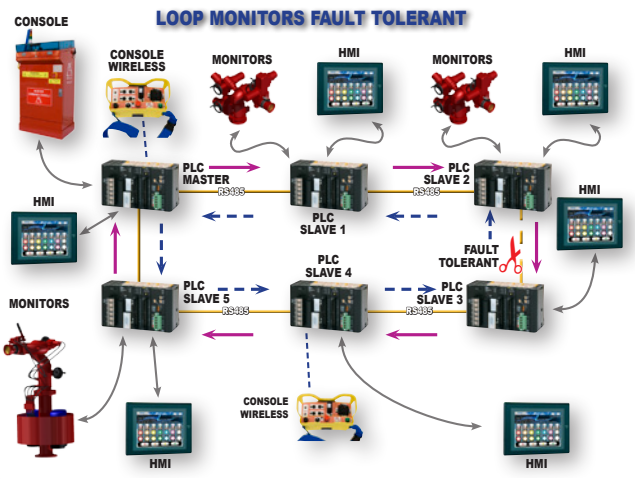
Monitor control panels are used to provide commands and signal position and status of automatic monitors. There are various possible panel configurations depending on system architecture, communication protocol, and classification of the installation area. Usually, the fixed stations are manufactured 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 Niagara monitors. Larger and complex control panel can be designed to host a PLC and control the Niagara electrical monitors using a serial communication protocol. This solution is based on a redundant communication link and allows also 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 visualization software is also available for specific control room requirements.

Explosion proof panels

For some installations it is required to install the power module or monitor control panel in Hazardous area. SA designs and manufactures Explosion Proof panels to Zone I that may be used as slave or stand alone master installations. The panels are available for standard installation or equipped with slave PLC to form part of larger system architectures.

Wireless Monitor Consol: Monix

Monix is a wireless mobile control station designed to control one or more monitors. The Monix console forms part of a 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 simply 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. The Monix is available for safe and hazardous area installations.



Manually Operated Fire Fighting Monitors

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Manual
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Foreword

Manual Monitors are hand operated devices used to fight fires which require large amoount of water or water/foam solution to be delivered to remote targets. Every monitor is designed to be easily operated through 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 industrial harsh 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. Nozzle 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's rigorous quality standards by skilled engineers well equipped with high tech production facilities.

Iguana

The Iguana is a hand lever operated manual monitor, with a 3" single water way bronze body. Very easy to operate, it is capable of withstanding flows up to 3000 L/min and may be base flanged 3", 4" or 6" 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. Specifically addressed for industrial harsh environments & offshore applications requiring small manual monitors.

Niagara Manual Monitors

The Niagara is a hand wheeled manual 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 L/min 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. Specifically addressed to industrial harsh environments & offshore applications.

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