



Technical Data of PLC programmed Electric Monitors for Automatic "Water Wall" System

A4-El-Matic/FOG Monitors

- Electric remote controlled water monitors A4-El-Matic/FOG type, for elevated mounting on standing pole with height 6 m. from ground level to the monitor's nozzle centre line, in Ex-proof execution, for automatic programmed operation of horizontal and vertical movement and of nozzle straight stream / narrow cone / wide cone jet (water wall), or for remote operation by means of joy-sticks from control panel,
- body in bronze B ZN 7, rotating joints in bronze/aluminum G-Cu Al 11 Fe 4 (ASTM B 148/954) with ball bearings in stainless steel AISI 304, for sea water service or heaviest environmental conditions,
- horizontal and vertical movements with Ex-proof electric multiturn actuators IP 67, with integrated electric motors 400 V / 3 Ph / 50 Hz, 0,75 kW, Eexd IIC T4, equipped with
 - adjustable limit switches,
 - torque switches (overload protection),
 - thermal switches,
 - position transmitter 4-20 mA (monitor output), positioner 4-20 mA (monitor input) and auxiliary potentiometer 5 k Ω (monitor analog output) for remote position control of the horizontal and vertical movement,
 - integrated electric power command and control devices (contactors),
 - serial interface RS 422 for all command and feed back signals,
 - anti-condensation heaters,
 - hand wheels for local manual operation of the monitor with automatic (safety-) disconnection device while the monitor is electrically remote operated,
- with gear wheel protection in carbon steel plate,
- horizontal and vertical movements on ball bearings with greasing nipples, rotation range 360° (adjustable), elevation range +75°/-60° (adjustable),
- inlet flange 4" ANSI 150 lbs R.F.,
- with electric adjustable pressure balance water nozzle for full jet to fog jet, in special Water Wall execution, equipped with Ex-proof electric part-turn actuator IP 67, with integrated electric motor 400 V / 3 Ph / 50 Hz, 0,03 kW, Eexd IIC T4, equipped with:
 - adjustable limit switches, torque switches (overload protection) and thermal switches,



- position transmitter 4-20 mA (monitor output), positioner 4-20 mA (monitor input) and auxiliary potentiometer 5 k Ω (monitor analog output) for remote position control of the nozzle straight stream / narrow cone / wide cone jet,
- integrated electric power command and control devices (contactors),
- serial interface RS 422 for all command and feed back signals,
- hand wheel for local manual operation of the nozzle with automatic (safety-) disconnection device,

material hard coated Aluminum-Silicon alloy with bumper in synthetic rubber,
max. spray angle 120°,
self-adjusting (pressure balance) flow rate 1.000÷7.500 lt./min. at 7 bar at nozzle (about 8 bar at monitor inlet flange),
range of jet 85 m. with full jet at max. flow rate,

- weight 270 kg.,
- with Ex-proof double junction box (one for the power cables, one for the command and signal cables) installed at the monitor base flange and completely cabled with armored and flame proof cables to the monitor,
- external protective painting: n.1 epoxy primer coat d.f.t. $\geq 40\mu$,
n.2 final polyurethanic coat red RAL 3000, d.f.t. $\geq 30\mu$ each,
total d.f.t. $\geq 100\mu$

The A4-EI-Matic monitors are provided (for the horizontal and vertical movement of the monitor - pan and tilt - and for the operation of the nozzle from wide cone fog jet to narrow cone fog jet) with packaged Ex-proof actuators which include in the unit itself all the contactors and protection devices for the motors.

In this model of actuators, all limit switches and torque switches signals are managed internally.

The interface with the external control and command system can be performed either by means of digital direct signals and analog position feed back signals (voltage 0÷10 V or current 4÷20 mA feed back signal), or utilizing a single serial interface with a standard protocol for the communication (Profibus, RS 422, Modbus or equivalent).

Alternatively (for reduction of the overall size of the monitor and to place all the electrical maintenance relevant components in a location with easier accessibility), the A4-EI type monitors can be supplied equipped with packaged Ex-proof actuators but without built-in contactors and protection devices.

The contactors, the protection devices as well as the PLC for the direct interface with the 3 actuators of the monitor are in this case placed in an Eexd separate panel, suitably placed in a position close to the monitors.

The same single interface with the external control and command system is provided in the panel, either with direct signals or with serial interface (Profibus, RS 422, Modbus or equivalent).



Standing poles 6 m. for electric remote controlled monitors

Considering the importance of the structural calculation of the standing poles for the water wall HF mitigation systems, where the deflection of the standing pole caused by the momentum of the monitor when spraying can essentially affect the proper covering (and, as consequence, the efficiency) of the water wall (as already experimented in previous projects with standing poles supplied by others), our Company is specialized in the dimensioning and supply of the standing poles for this type of application described here below:

- Standing poles for elevated mounting of A4-EI electric remote controlled monitors, height 6 m. (monitor pipe axis),
tubular structure in carbon steel pipe API 5 L (with internal co-axial water feeding pipe), dimensioned for the max reaction forces of the monitor and for the heaviest environmental conditions (wind),
equipped with:
 - fixing base plate for anchoring to a solid structure on the ground,
 - access ladder in carbon steel with protection for the operator,
 - internal feeding pipe 6" to the monitor with flanged inlet DN 6" ANSI 150 lbs. R.F. mounted at 90° at the base of the pole and with upper flange to the monitor DN 6" ANSI 150 lbs. R.F.,
 - internal conduit for the protected passage of the electric cables,

complete with:

- external cooling pipe 1" in carbon steel with full cone water spray nozzles in brass and ball valve 1" for the cooling of the standing pole structure and of the platforms,
- manually operated draining valve 1" on the inlet pipe at the base of the standing pole for draining of the water feeding pipe after operation,
- fixed upper main platform in welded carbon steel,
with trampling grate mounted at height 3 m. from ground level,
dimensions Ø 2,5 m., with access opening with overturning lid, with protective railing in welded carbon steel,
- rotating top platform in welded carbon steel at height 5 m from ground level,
dimensions 1 x 1 m.,
with ball bearing for support and rotation,
with support and feeding pipe dia. 6" in carbon steel pipe API 5 L, standard schedule,
inlet flange DN 6" ANSI 150 lbs. R.F.,
connecting flange to the monitor DN 4" ANSI 150 lbs. R.F.,
with access opening with overturning lid,
with protective railing in welded carbon steel,
- external protection of the standing pole and of the platforms hot dip galvanized.