

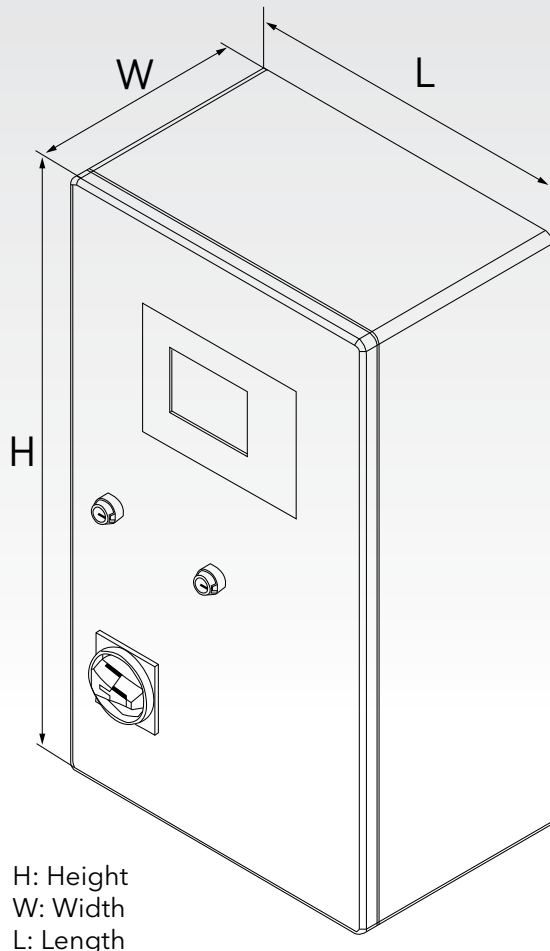


Fire Fighting Electric Pump Control Panel in Compliance with EN 12845 Standard User Manual

1. Specifications

- 3 Mains Voltmeters
- 3 Ammeters Max 1000 A (Possibility For The Connection Of A Single Ammeter)
- Mains Frequency Meter (50/60 Hz)
- Wattmeter (Active Power)
- Varmeter (Reactive Power)
- Voltammeter (Apparent Power)
- Cosphimeter (Power Factor)
- Total Hour Meter (Total Hours Of Pump Operation)
- Partial Hour Meter
- Star / Delta Start Command
- Impedance Start Command
- Button For Test Of The Warning Lights
- Start Stop Buttons
- Historical Report

2. Dimensions



Motor Power		Dimensions		
HP	KW	E (mm)	B (mm)	D (mm)
15	11	400	600	200
20	15	400	600	200
25	18,5	400	600	200
30	22	400	600	200
40	30	400	600	200
50	37	400	600	200
60	45	500	700	260
75	55	500	700	260
100	75	600	800	260
125	90	700	1000	260
150	110	700	1000	260
180	132	800	1200	300
220	160	800	1200	300

Table 1. Dimensions (please ask quotation for the models out of the table)

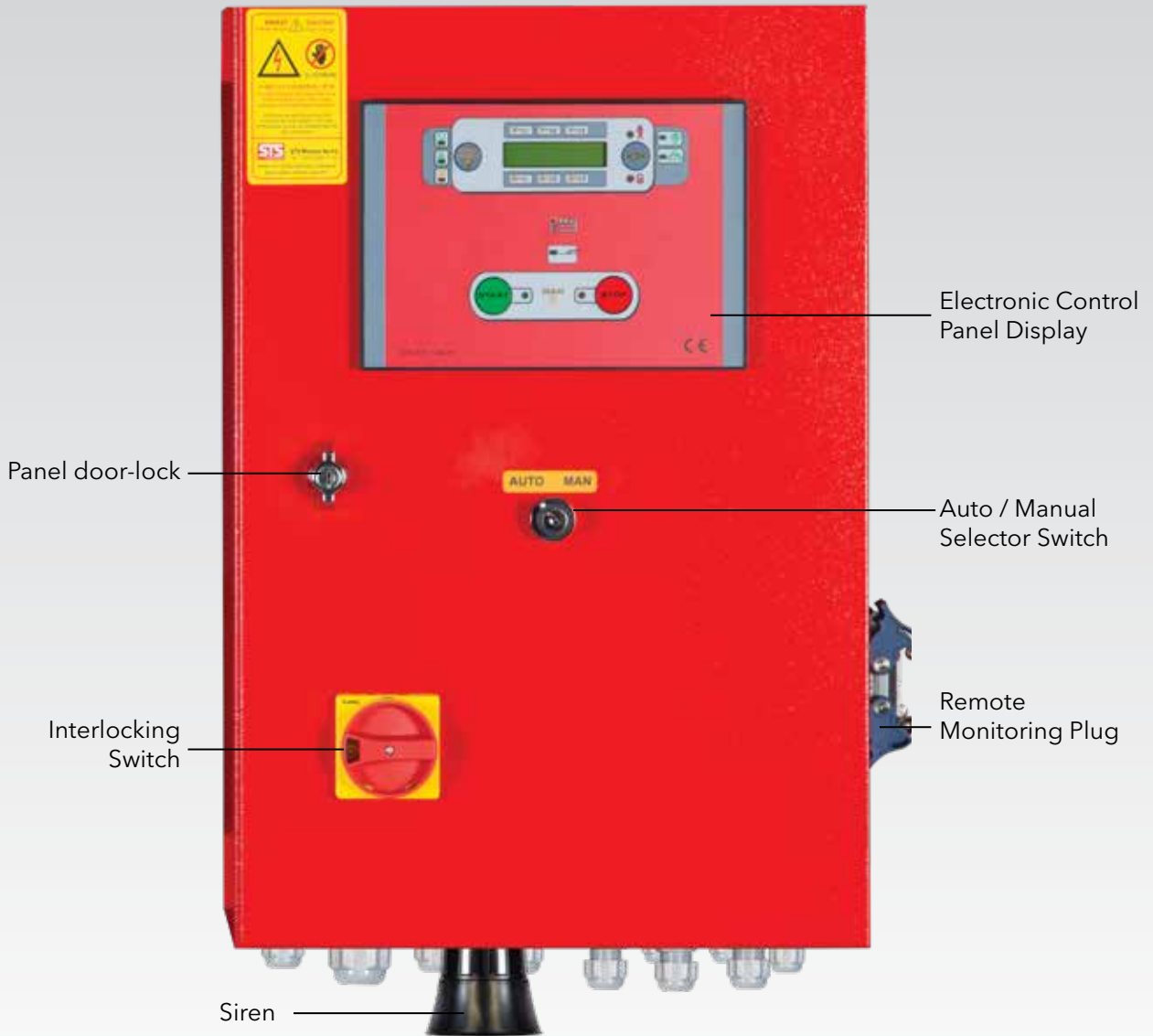


Figure 1. EN 12845 Electric Control Panel- External View

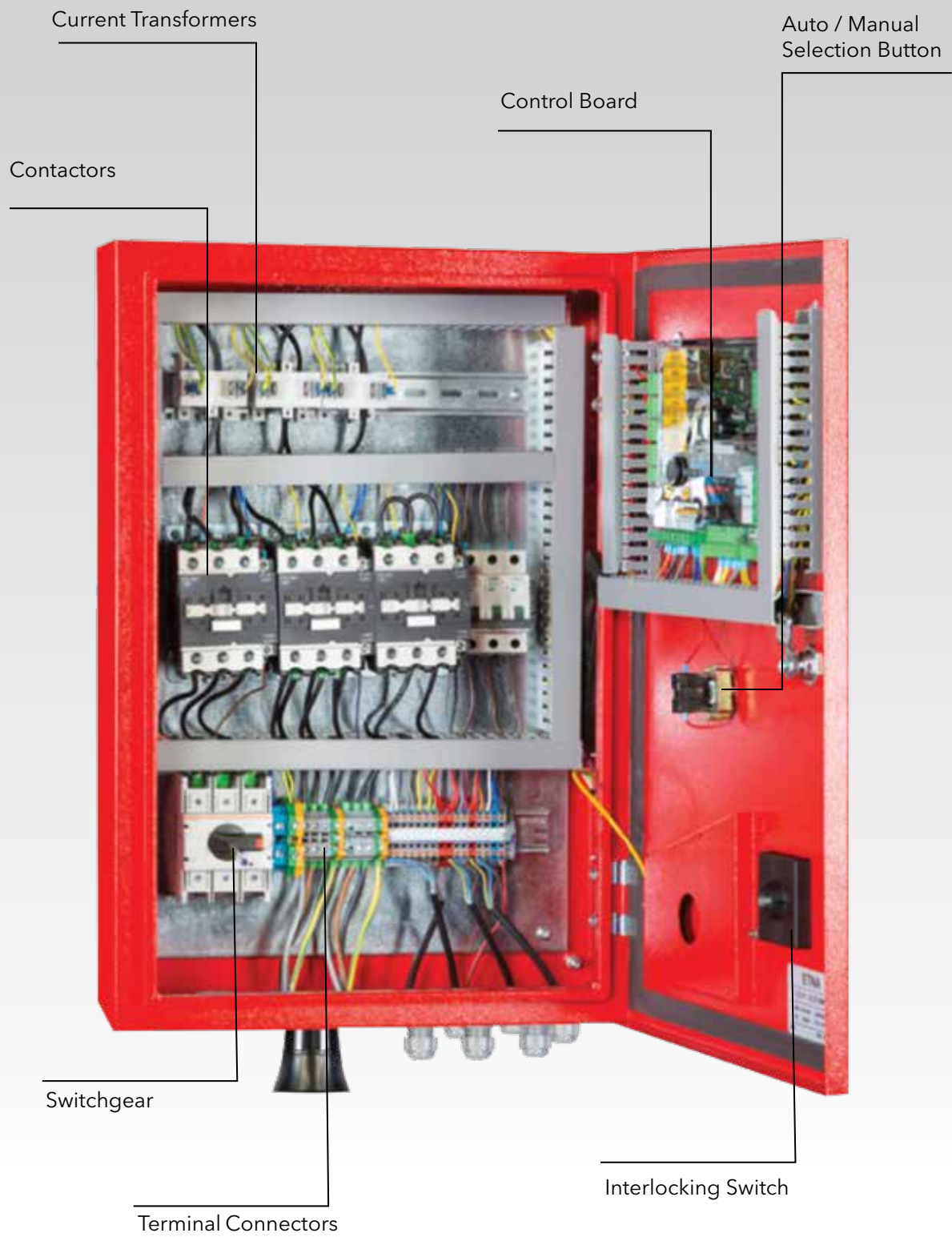
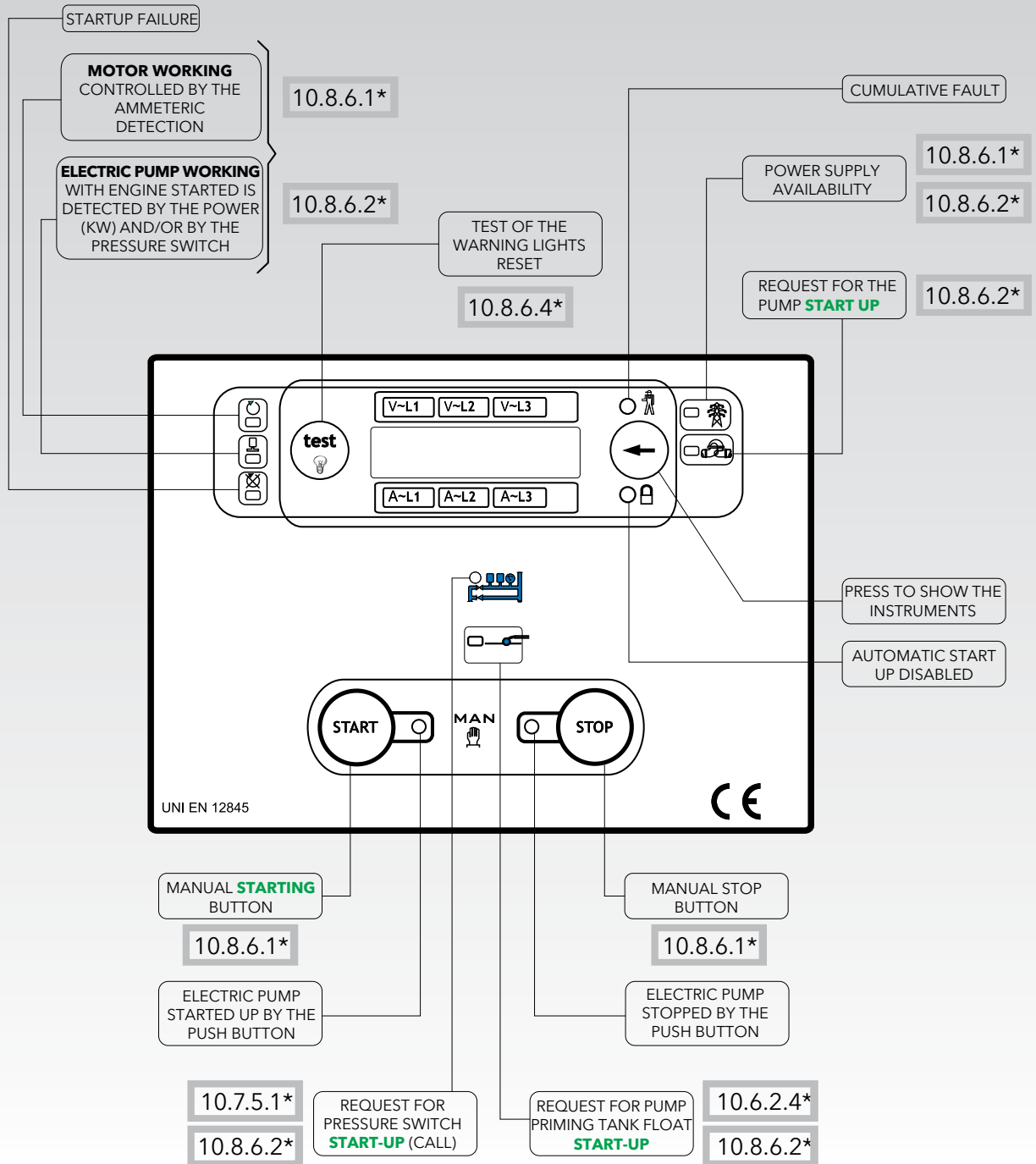


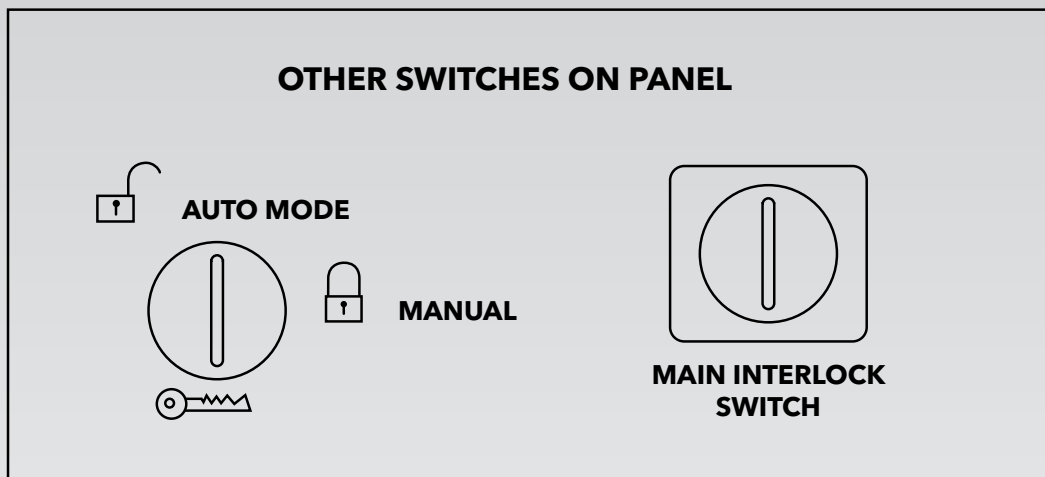
Figure 2. EN 12845 Electric Control Panel- Internal View





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Figure 3. Control Panel Buttons and Indicators

3. Operation Preparation For Automatic





Active with the switch (externally connected) AUTOMATIC START-UP ENGAGED (from this position, it is possible to remove the key). Setting the switch to excluded, the automatic start is blocked. This exclusion is signalled by the flashing   warning light and by the following message displayed on the screen; AUTOMATIC STARTING EXCLUDED

4. Automatic-Manual Starting

AUTOMATIC

When the equipment detects the closure of the “starting call” contact (pressure switch), the electric pump set begins to start up. The control unit checks (without commanding the stopping of the electric pump unit) for possible motor faults, during its operation.


AUTOMATIC

This takes place when the CALL pressure switch contacts are opened, which is shown by a fixed light  coming on. After the pressure switches have closed, the indicator starts flashing. Automatic starting also happens when the pump priming contact is closed, which is shown by a fixed light  coming on. When the compact opens, the indicator starts flashing. Flashing lights stay on for the whole time the motor is running.


MANUAL

With START button.

5. Motor In Operation

 → It is detected when the motor current is higher than the threshold set for the entire duration of the intervention delay.

6. Electric Pump In Operation

 → With motor started it is detected by the value of power (kW) and by closing of the pump pressurized-pressure switch.

7. Stop

THE ENGINE CAN ONLY BE TURNED OFF MANUALLY

It is not possible to stop it when the call from the pressure switches is present and automatic start up engaged.


- With call from the pressure switches present,

Pressing the STOP push button, the following message is displayed on the screen : DON'T SWITCH OFF IN EVENT OF FIRE STOP EXCLUDED.

- With call from the pressure switches absent,

Pressing the STOP push button, the following message is displayed on the screen : DON'T SWITCH OFF IN EVENT OF FIRE.

8. Alarms

The alarms are indicated on the display by the relative led and by a cumulative flashing led  and the switching of relay.


MOTOR SUPPLY ALARMS	MOTOR ALARM	PLANT ALARM
Voltage value failure or lowering even on just one phase	Overcurrent	Working pump pressure switch fault
Incorrect phase sequence		

9. Restoring

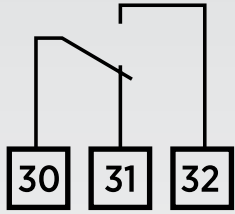

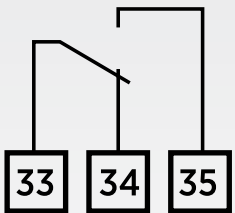
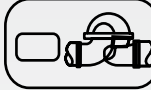
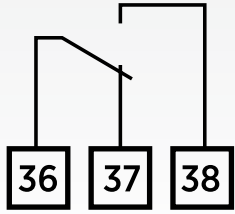

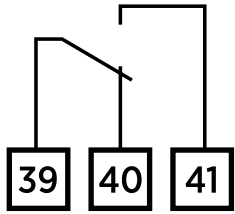
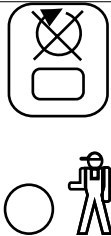
This is done by pressing the RESET  pushbutton: In this way, the protections are activated and the startup cycle controlled by the priming tank float is released.

10. Start Up Failure


It is detected at least one of the following functions after a request for an automatic starting of the motor.

 it is not controlled through amperometric detection when the value of power (kw) of the motor of the pump remains lower than the programmed threshold for the whole of the intervention delay time.

11. Remote Auxiliary Functions

		INTERVENTION	
		SWITCHES THE RELAY	INDICATION SIGNAL
ELECTRIC POWER NOT AVAILABLE	It is detected when at least one of the following faults occur: - Voltage value failure or lowering even on just one phase - Phase sequence not correct (for three-phase systems only) - Blown switchboard fuses - Automatic startup excluded - Alarms		
ELECTRIC PUMP STARTUP REQUEST	It is detected in two ways; - At the opening of the call pressure switches - At the closing of the pump priming tank float contact		
ELECTRIC PUMP IN OPERATION	- see description		
START UP FAILURE	- see description		

12. Partial Hour Meter

Press  to select (PARTIAL HOUR METER) the operating hours and minutes of the last run of the electric pump. The hours indicated are zero-set the next time the motor pump is started up.

13. Warning

- Before making any connections, connect the earth wiring first
- When making connections always follow the instructions and the wiring diagrams
- Check that the user equipment power consumption is compatible with the technical features described.
- Install in such a way that there is always adequate heat disposal
- Always install under other equipment which produces or spreads heat.
- Handle and connect without mechanically stressing the electronic control unit.
- Make sure that no copper conductor cuttings or other waste material fall inside the equipment

This Control Unit Is Not Suitable For Operating Under The Following Conditions

- Where the environment temperature is outside limits (+4/+50 °C)
- Where the air pressure and temperature variations are so rapid to produce exceptional condensations.
- Where there are high levels of pollution caused by dust, smoke, vapor, salts and corrosive or radioactive particles.
- Where there are high levels of heat caused by the sun , ovens etc.
- Where there are attacks from mold or small animals are possible
- Where there is risk of fire or explosions.
- Where the switch board can receive strong vibrations or knocks.

14. Conduction And Maintenance

The following maintenance operations should be performed every week:

- Check that the indicators function
- Check that the conductors are tight , check the condition of the terminals

15. Electromagnetic Compatibility

The control unit functions correctly only if inserted in plants which conform with the CE marking standards; it meets the exemption requirements of the standard EN61326-1 but it can not be excluded that malfunctions could occur in extreme cases due to particular situations.

The installer has the task of checking that disturbance levels are within the requirements of the standards.

16. Technical Data

Nominal mains voltage	400 VAC
Frequency	50/60 Hz
Supply Voltage	24 VAC or 110 / 230 VAC \pm 10 %
Power supply tolerance	\pm 10 %
Absorbed power	4W
Nominal insulation voltage - Terminals at mains voltage - Terminals from 3 to 14	400 VAC 24 VAC
Capacity of contacts - Contactors control - Contacts for remote monitoring	Max 16A (AC1) 250 VAC 24 VAC Max 5A (AC1) 250 VAC
Voltmeters	Max 570 V Precision \pm % 2
Ammeters	Max 1200 A Precision \pm % 2
Frequency meter	0 / 85 Hz Precision \pm % 2
Wattmeter	Max. 830 kW
Serial communication parameters	9600 baud, 8 bit stop; EVEN parity
Control panel protection class	IP 54
Temperature Range	-10 +50 °C

17. EN 12845 Fire Booster Set Inspection and Control Program (ref. EN 12845)

1. User's programme of inspection and checking

a. General

The installer shall provide the user with a documented inspection and checking procedure for the system. The programme shall include instruction on the action to be taken in respect of faults, operation of the system, with particular mention of the procedure for emergency manual starting of pumps, and details of the weekly routine of 2.

2. Weekly routine

a. General

Each part of the weekly routine shall be carried out at intervals of no more than 7 days.

b. Checks

- i)** all water and air pressure gauge readings on installations, trunk mains and pressure tanks; The pressure in the pipework in dry, alternate and pre-action installations should not fall at a rate of more than 1,0 bar per week.
- ii)** all water levels in elevated private reservoirs, rivers, canals, lakes, water storage tanks (including pump priming water tanks and pressure tanks);
- iii)** the correct position of all main stop valves.

c. Water motor alarm test

Each water motor alarm shall be sounded for no less than 30 s.

d. Automatic pump starting test

Tests on automatic pumps shall include the following;

- i)** fuel and engine lubricating oil levels in diesel engines shall be checked;
- ii)** water pressure on the starting device shall be reduced, thus simulating the condition of automatic starting;
- iii)** when the pump starts, the starting pressure shall be checked and recorded;
- iv)** the oil pressure on diesel pumps shall be checked, as well as the flow of cooling water through open circuit cooling systems.

e. Diesel engine restarting test

Immediately after the pump start test of d (20.2.2.4), diesel engines shall be tested as follows:

- i)** the engine shall be run for 20 min, or for the time recommended by the supplier. The engine shall then be stopped and immediately restarted using the manual start test button;
- ii)** the water level in the primary circuit of closed circuit cooling systems shall be checked. Oil pressure (where gauges are fitted), engine temperatures and coolant flow shall be monitored throughout the test. Oil hoses shall be checked and a general inspection made for leakage of fuel, coolant or exhaust fumes.

f. Trace heating and localized heating systems

Heating systems to prevent freezing in the sprinkler system shall be checked for correct function.

3. Monthly routine

The electrolyte level and density of all lead acid cells (including diesel engine starter batteries and those for control panel power supplies) shall be checked. If the density is low the battery charger shall be checked and, if this is working normally, the battery or batteries affected shall be replaced.

4. Service, Testing and Maintenance Schedule

a) General

i) 20.3.1.1 Procedures

In addition to the schedule given in this clause any procedures recommended by component suppliers shall be carried out.

ii) 20.3.1.2 Records

A signed, dated report of the inspection shall be provided to the user and shall include advice of any rectification carried out or needed, and details of any external factors, e.g. weather conditions, which could have affected the results.

b) Quarterly routine

i) 20.3.2.1 General The following checks and inspections shall be made at intervals of no more than 13 weeks.

ii) 20.3.2.2 Review of hazard

The effect of any changes of structure, occupancy, storage configuration, heating, lighting or equipment etc. of a building on hazard classification or installation design shall be identified in order that the appropriate modifications might be carried out.

iii) 20.3.2.3 Sprinklers, multiple controls and sprayers

Sprinklers, multiple controls and sprayers affected by deposits (other than paint) shall be carefully cleaned.

Painted or distorted sprinkler heads, multiple controls or sprayers shall be replaced.

Any petroleum jelly coatings shall be checked. Where necessary the existing coatings shall be removed and the sprinklers, multiple controls or sprayers shall be coated twice with petroleum jelly (in the case of glass bulb sprinklers to the sprinkler body and yoke only).

Particular attention shall be paid to sprinklers in spray booths, where more frequent cleaning and/or protective measures might be necessary.

iv) 20.3.2.4 Pipework and pipe supports

Pipework and hangers shall be checked for corrosion and painted as necessary.

Bitumen-based paint on pipework, including the threaded ends of galvanized pipework and hangers, shall be renewed as necessary.

NOTE: Bitumen-based paint might need renewal at intervals varying from 1 year to 5 years according to the severity of the conditions.

Tape wrapping on pipes shall be repaired as necessary.

The pipework shall be checked for electrical earthing connections. Sprinkler pipework shall not be used for earthing electrical equipment and any earthing connections from electrical equipment shall be removed and alternative arrangements made.

v) 20.3.2.5 Water supplies and their alarms

Each water supply shall be tested with each control valve set in the system. The pump(s), if fitted, in the supply shall start automatically and the supply pressure at the appropriate flow rate shall be no less than the appropriate value in accordance with Clause 10, recognizing any changes required by 20.3.2.2.

vi) 20.3.2.6 Electrical supplies

Any secondary electrical supplies from diesel generators shall be checked for satisfactory operation.

vii) 20.3.2.7 Stop valves

All stop valves controlling the flow of water to sprinklers shall be operated to ensure that they are in working order, and securely refastened in the correct mode. This shall include the stop valves on all water supplies, at the alarm valve(s) and all zone or other subsidiary stop valves.

viii) 20.3.2.8 Flow Alarms

Flow alarms (flow switches or/and pressure switches) shall be checked for correct function.

ix) 20.3.2.9 Replacement

The number and condition of replacement parts held as spare shall be checked.

c) Half-yearly routine

General

The following checks and inspections shall be made at intervals of no more than 6 months.

i) 20.3.3.2 Dry alarm valves

The moving parts of dry alarm valves, and any accelerators and exhausters, in dry pipe installations and subsidiary extensions shall be exercised in accordance with the supplier's instructions.

NOTE: Alternate installations need not be tested in this way since they are exercised twice a year as a result of the changeover from wet to dry operation and back.

ii) 20.3.3.3 Fire brigade and remote central station alarm

The electrical installation shall be checked.

d) 20.3.4 Yearly routine

General

The following checks and inspection shall be made at intervals of no more than 12 months.

i) Flow test

ii) Automatic pump flow test

Each water supply pump in the installation shall be tested at the full load condition (by means of the test line connection coupled to the pump delivery branch down stream of the pump outlet non-return valve) and shall give the pressure/flow values stated on the nameplate. Appropriate allowances shall be made for pressure losses in the supply pipe and valves between the source and each control valve set.

iii) Flow test where no pump is installed

Each water supply in the installation shall be tested at the full load condition by means of the test line connection coupled to the water supply upstream of the control valve set and shall meet the required flow/pressure values.

Appropriate allowances shall be made for pressure losses in the supply pipe and valves between the water supply and each control valve set.

iv) Diesel engine failed-to-start test

The failed-to-start alarm shall be tested to be in accordance with 10.9.7.2.

Immediately after this test the engine shall be started using the manual starting system.

v) Float valves on water storage tanks

Float valves on water storage tanks shall be checked to ensure they function correctly.

vi) Pump suction chambers and strainers

Pump suction strainers and settling chamber and their screens shall be inspected at least annually and cleaned as necessary.

d) Yearly routine

General

The following checks and inspections shall be made at intervals of no more than 3 years.

i) 20.3.5.2 Storage and pressure tanks

With the exception of tanks designed not to need maintenance within 10 years (See 9.6.2b), all tanks shall be internally inspected and if necessary drained and cleaned. They shall be examined for corrosion based on the manufacturer's recommendations and all tanks shall be repainted and/or have the corrosion protection refurbished, as necessary.

ii) 20.3.5.3 Water supply stop valves, alarm and non-return valves

All water supply stop valves, alarm and non-return valves shall be dismantled, examined and replaced or overhauled as necessary.

e) 10 yearly routine

At no more than 10 year intervals, all storage tanks shall be cleaned and examined internally and the fabric attended to as necessary.

NOTE: Cleaning of tanks usually requires them to be drained, but alternative solutions might be acceptable to save water.

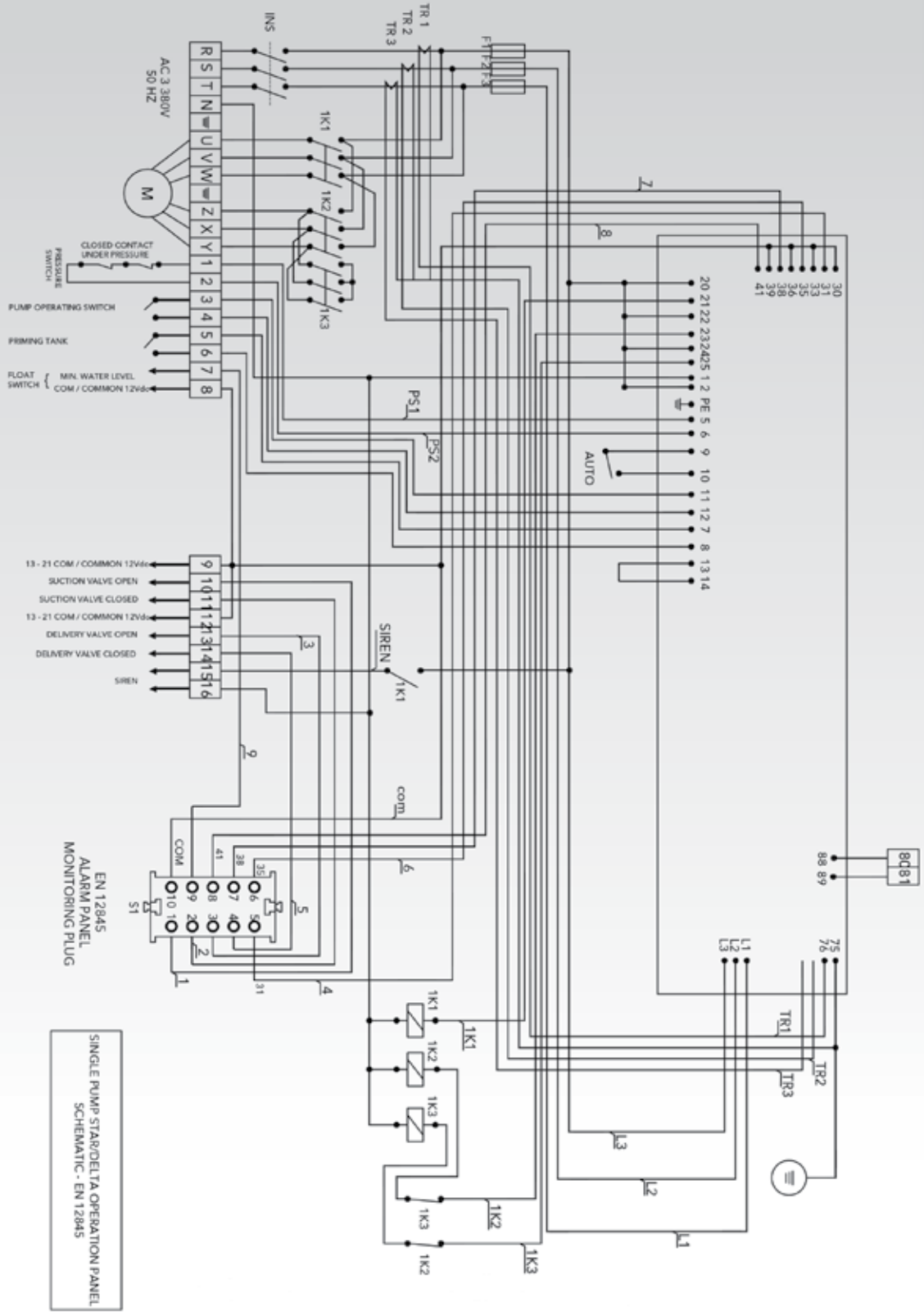


Figure 4. Electric Motor Control Panel Electric Schema



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