TECHNICAL DATA - MODBUS COMMUNICATION
FOR ELECTRIC FIRE PUMP CONTROLLER

Generals Characteristics	*To modify IP and SubNet Mask: Go to Config / Advanced / Network Config. Check the "Manual" box. Enter the desired IP address and SubNet Mask. Press Apply.*
Connection Type	Shielded female connector RJ45
Possible IP adress	10.0.1.0 – 10.255.255.255 (Class A private) 172.16.0.0 – 172.31.255.255 (Class B private) 192.168.0.0 – 192.168.255.255 (Class C private)
Frame Format	TCP/IP

BINARY	16 boolean (1 = TRUE, 0 = FALSE)
DIGITAL VALUES	16 bits representing a number. The result refers to a list of values
ANALOG VALUES	16 bits representing a number. Analog signals values are multiply by 10 for communication purpose, unless otherwise specified.

Controller Info

WORDS 40001-40040 String	Serial Number	WORDS 40041-40080 String	Model
WORDS 40081-40120 String	Package Name	WORDS 40121-40160 String	Software Version
WORD 40161 ANALOG VALUES	Nominal Voltage (V)	WORD 40162 ANALOG VALUES	Nominal Current (A)
WORD 40163 BINARY	Nominal Frequency (0 = 60Hz, 1 = 50Hz)	WORD 40164 ANALOG VALUES	Custom Locked Rotor Current (A)

Alarms Activation

Alarms Activation 1 BINARY WORD 41001		Alarms Activation 2 BINARY WORD 41002	
	0 Normal Phase Reversal		0 Faulty Pressure Transducer
	1 Phase Loss L1		1 Overpressure
	2 Phase Loss L2		2 Underpressure
	3 Phase Loss L3		3 Low Suction Pressure
	4 Lock Rotor Current		4 Flow Start
	5 Fail to Start		5 NA
	6 NA		6 NA
	7 Power Loss		7 NA
	8 Service Required		8 I/O Electric Board Communication Loss
	9 Undercurrent		9 I/O Transfer Switch Board Comm.Loss
	10 Overcurrent		10 Weekly Test Required
	11 Undervoltage		11 NA
	12 Overvoltage		12 Low Ambient Temperature (Internal Sensor)
	13 Phase Unbalanced		13 High Ambient Temperature (Internal Sensor)
	14 Weekly Test Cut-In not reached		14 Control Voltage Not Healthy
	15 Weekly Test Check Solenoid Valve		15 Soft Starter Fault

Alarms Activation 3 BINARY WORD 41003		Alarms Activation 4 BINARY WORD 41004	
	0 Motor Trouble		0 High Water Level
	1 Pump Room Alarm		1 Main Relief Valve Open
	2 Motor Run		2 High Motor Temperature
	3 CANBUS Communication System Failure		3 High Motor Vibration
	4 Pump On Demand		4 Flow Meter On
	5 Invalid Cut-In		5 User Alarm 1
	6 Test Mode		6 User Alarm 2
	7 Low Zone Not Running		7 User Alarm 3
	8 I/O Expansion 1 Communication Loss		8 User Alarm 4
	9 I/O Expansion 2 Communication Loss		9 User Alarm 5
	10 I/O Expansion 3 Communication Loss		10 User Alarm 6
	11 I/O Expansion 4 Communication Loss		11 User Alarm 7
	12 Ground Fault		12 User Alarm 8
	13 Low Water Level		13 User Alarm 9
	14 Low Spare Temperature		14 User Alarm 10
	15 Water Reservoir Empty		15 User Alarm 11

Alarms Activation 5 BINARY WORD 41005		Alarms Activation 6 BINARY WORD 41006	
	0 User Alarm 12		0 Bypass Contactor Module Failure
	1 User Alarm 13		1 I/O Expansion 5 Communication Loss
	2 User Alarm 14		2 I/O Expansion 6 Communication Loss
	3 User Alarm 15		3 I/O Expansion 7 Communication Loss
	4 User Alarm 16		4 I/O Expansion 8 Communication Loss
	5 User Alarm 17		5 Low Foam Level
	6 User Alarm 18		6 Low Foam Pressure
	7 User Alarm 19		7 NA
	8 User Alarm 20		8 NA
	9 Bell Silenced		9 NA
	10 NA		10 NA
	11 NA		11 NA
	12 NA		12 NA
	13 NA		13 NA
	14 NA		14 NA
	15 Main Contactor Module Failure		15 NA

WORDS 40201-40300

WORDS 40201-40300 BINARY	1 MODBUS Remote Manual Start 2 MODBUS Automatic Start

NFPA Registers

WORD 42001 ANALOG VALUES	Line Voltage L12 (V)	WORD 42002 ANALOG VALUES	Line Voltage L23 (V)
WORD 42003 ANALOG VALUES	Line Voltage L31 (V)	WORD 42004 ANALOG VALUES	Current L1 (A)
WORD 42005 ANALOG VALUES	Current L2 (A)	WORD 42006 ANALOG VALUES	Current L3 (A)
WORD 42007 ANALOG VALUES (10X)	System Pressure (chosen unit)	WORD 42008 ANALOG VALUES (10X)	Suction Pressure (chosen unit)
WORD 42009	NA	WORD 42010	NA

WORD 42011	NA

NFPA Alarms 1		
BINARY	0	Minimum run delay timing high
	1	NA
	2	High zone delay timing high
WORD 42012	3	Sequence delay timing high
	4	Load shed active high
	5	NA
	6	Low suction alarm high
	7	Low suction shutdown active high
	8	System over pressure alarm high
	9	Restart delay timing high
	10	Weekly test demand active high
	11	Failure to start alarm high
	12	Lockout active high
	13	NA
	14	NA
	15	NA

NFPA Alarms 2		
BINARY	0	Pressure start demand high
	1	Remote start demand high
	2	Deluge start demand high
WORD 42013	3	Weekly test start demand high
	4	Local start PB demand high
	5	Manual operator start demand high
	6	Audible alarm high
	7	NA
	8	NA
	9	Load shedding delay timing high
	10	NA
	11	NA
	12	Pressure transducer fault high
	13	NA
	14	NA
	15	Controller in bypass mode (soft start/VFD only high)

NFPA Alarms 3		
BINARY	0	Timed trip timing high
	1	Motor running high
	2	Motor overload alarm high
WORD 42014	3	NA
	4	Phase reversal alarm high
	5	AC voltage low alarm high
	6	NA
	7	NA
	8	NA
	9	AC power available high
	10	NA
	11	NA
	12	NA
	13	NA
	14	NA
	15	NA

NFPA Alarms 4		
BINARY	0	Pump trouble #1 input high
	1	Pump trouble #2 input high
	2	Pump trouble #3 input high
WORD 42015	3	Pump trouble #4 input high
	4	Pump trouble #5 input high
	5	NA
	6	NA
	7	NA
	8	NA
	9	NA
	10	NA
	11	NA
	12	NA
	13	NA
	14	NA
	15	NA

WORD 42016	Start Count
ANALOG VALUES	

WORD 42017	Run Time
ANALOG VALUES	(Hours)

WORD 42018	Hours since last run
ANALOG VALUES	(Hours)

WORD 42019	NA

WORD 43029	Cut-In
ANALOG VALUES	(PSI)

WORD 43030	Cut-Out
ANALOG VALUES	(PSI)