TECHNICAL DATA - MODBUS COMMUNICATION
FOR DIESEL ENGINE 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	BINARY	16 boolean (1 = TRUE, 0 = FALSE)
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)	DIGITAL VALUES	16 bits representing a number. The result refers to a list of values
Frame Format	TCP/IP	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 AC Voltage (V)	WORD 40162 ANALOG VALUES	Nominal Battery Voltage (V)
WORD 40163	NA	WORD 40164	NA

Alarms Activation

Alarms Activation 1 — BINARY — WORD 41001
0 AC Failure
1 DC Failure
2 Battery 1 Failure
3 Battery 2 Failure
4 Charger 1 Failure
5 Charger 2 Failure
6 Engine Trouble
7 Pump Room Alarm
8 Controller Trouble
9 Service Required
10 Weak Battery 1
11 Weak Battery 2
12 Loss of Continuity (Contactor 1)
13 Loss of Continuity (Contactor 2)
14 Weekly Test Cut-In not reached
15 Weekly Test Check Solenoid Valve

Alarms Activation 2 — BINARY — WORD 41002
0 Faulty Pressure Transducer
1 Weekly Test Required
2 Cooling No Flow
3 Engine Fail When Running
4 Engine Fail to Start
5 Engine Overspeed (3)
6 I/O Diesel Board Communication Loss
7 I/O Expansion 1 Communication Loss
8 I/O Expansion 2 Communication Loss
9 I/O Expansion 3 Communication Loss
10 I/O Expansion 4 Communication Loss
11 I/O Alarm Communication Loss
12 Low Ambient Temperature (Internal Sensor)
13 Engine Run
14 CANBUS Communication System Failure
15 Pump On Demand

Alarms Activation 3 — BINARY — WORD 41003
0 Invalid Cut-In
1 Test Mode
2 Pneumatic Fail to Start
3 Auto-mode Bypass
4 Hydraulic Fail to Start
5 Bell Silenced
6 APSAD General Default
7 Overpressure
8 Underpressure
9 Low Suction Pressure
10 Flow Start
11 Battery 1 Overvoltage
12 Battery 2 Overvoltage
13 High Ambient Temperature (Internal Sensor)
14 NA
15 Low Raw Water Flow

Alarms Activation 4 — BINARY — WORD 41004
0 Low Spare Temperature
1 Water Reservoir Low
2 Water Reservoir Empty
3 Water Reservoir High
4 Flow Meter On
5 Fuel Tank Leak
6 Low Fuel Level
7 High Fuel Level
8 Electronic Control Module in Alternate Position
9 Fuel Injection Malfunction
10 Engine High Temperature
11 Engine Low Temperature
12 Engine Electronic Control Module Warning
13 Engine Electronic Control Module Fault
14 Engine Low Oil Pressure
15 Low Pneumatic Pressure

Alarms Activation 5 — BINARY — WORD 41005
0 Main Relief Valve Open
1 User Alarm 1
2 User Alarm 2
3 User Alarm 3
4 User Alarm 4
5 User Alarm 5
6 User Alarm 6
7 User Alarm 7
8 User Alarm 8
9 User Alarm 9
10 User Alarm 10
11 User Alarm 11
12 User Alarm 12
13 User Alarm 13
14 User Alarm 14
15 User Alarm 15

Alarms Activation 6 — BINARY — WORD 41006
0 User Alarm 16
1 User Alarm 17
2 User Alarm 18
3 User Alarm 19
4 User Alarm 20
5 NA
6 NA
7 NA
8 NA
9 High Raw Water Temperature
10 PLD Low Suction Pressure
11 Low Hydraulic Pressure
12 I/O Expansion 5 Communication Loss
13 I/O Expansion 6 Communication Loss
14 I/O Expansion 7 Communication Loss
15 I/O Expansion 8 Communication Loss

WORDS 40201-40300

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

NFPA Registers

WORD 42001 ANALOG VALUES (10x)	Battery 1 Voltage (V)	WORD 42002 ANALOG VALUES (10x)	Battery 2 Voltage (V)
WORD 42003 ANALOG VALUES	NA	WORD 42004 ANALOG VALUES (10x)	Battery 1 Current (A)
WORD 42005 ANALOG VALUES (10x)	Battery 2 Current (A)	WORD 42006 ANALOG VALUES	NA
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 WORD 42012	0 Minimum run delay timing high 1 NA 2 High zone delay timing high 3 Sequence delay timing high 4 Engine running high 5 NA 6 Low suction alarm high 7 Low suction shutdown active high 8 System over pressure alarm high 9 Overspeed alarm high 10 Weekly test demand active high 11 Failure to start alarm high 12 Lockout active high 13 Crank on battery #1 high 14 Crank on battery #2 high 15 Resting high	NFPA Alarms 2 BINARY WORD 42013	0 Pressure start demand high 1 Remote start demand high 2 Deluge start demand high 3 Weekly test start demand high 4 Start contactor #1 fail high 5 Start contactor #2 fail high 6 Audible alarm high 7 NA 8 NA 9 Pump demand high 10 Control switch in auto high 11 Control switch in manual high 12 Pressure transducer fault high 13 NA 14 AC power fail start high 15 NA
NFPA Alarms 3 BINARY WORD 42014	0 Battery #1 failure alarm high 1 Battery #2 failure alarm high 2 Pump trouble group alarm high 3 System trouble #1 alarm high 4 AC power fail alarm high 5 Battery #1 over voltage alarm high 6 Battery #2 over voltage alarm high 7 Electronic control module in alternate position high 8 Fuel injection malfunction high 9 Electronic control module warning high 10 Electronic control module fault high 11 High raw water temperature high 12 Low raw water flow high 13 Low engine temperature high 14 Low oil pressure alarm high 15 NA	NFPA Alarms 4 BINARY WORD 42015	0 Pump trouble #1 input high 1 Pump trouble #2 input high 2 Pump trouble #3 input high 3 Pump trouble #4 input high 4 Pump trouble #5 input high 5 Pump trouble #6 input high 6 Pump trouble #7 input high 7 Pump trouble #8 input high 8 Battery #1 in equalize high 9 Battery #2 in equalize high 10 Battery #1 OK high 11 Battery #2 OK high 12 Charger #1 fail alarm high 13 Charger #2 fail alarm high 14 System trouble #2 alarm high 15 NA

WORD 42016 ANALOG VALUES	Start Count	WORD 42017 ANALOG VALUES	Run Time (Hours)
WORD 42018 ANALOG VALUES	Hours since last run (Hours)	WORD 42019	NA
WORD 43029 ANALOG VALUES	Cut-In (PSI)	WORD 43030 ANALOG VALUES	Cut-Out (PSI)