



## TECHNICAL DATA - MODBUS COMMUNICATION FOR DIESEL ENGINE FIRE PUMP CONTROLLER

*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. The Modbus node address is 1.*

### Generals Characteristics

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	<ul style="list-style-type: none"> <li>0 AC Failure</li> <li>1 DC Failure</li> <li>2 Battery 1 Failure</li> <li>3 Battery 2 Failure</li> <li>4 Charger 1 Failure</li> <li>5 Charger 2 Failure</li> <li>6 Engine Trouble</li> <li>7 Pump Room Alarm</li> <li>8 Controller Trouble</li> <li>9 Service Required</li> <li>10 Weak Battery 1</li> <li>11 Weak Battery 2</li> <li>12 Loss of Continuity (Contactor 1)</li> <li>13 Loss of Continuity (Contactor 2)</li> <li>14 Weekly Test Cut-In not reached</li> <li>15 Weekly Test Check Solenoid Valve</li> </ul>	Alarms Activation 2 BINARY WORD 41002	<ul style="list-style-type: none"> <li>0 Faulty Pressure Transducer</li> <li>1 Weekly Test Required</li> <li>2 Cooling No Flow</li> <li>3 Engine Fail When Running</li> <li>4 Engine Fail to Start</li> <li>5 Engine Overspeed (3)</li> <li>6 I/O Diesel Board Communication Loss</li> <li>7 I/O Expansion 1 Communication Loss</li> <li>8 I/O Expansion 2 Communication Loss</li> <li>9 I/O Expansion 3 Communication Loss</li> <li>10 I/O Expansion 4 Communication Loss</li> <li>11 I/O Alarm Communication Loss</li> <li>12 Low Ambient Temperature (Internal Sensor)</li> <li>13 Engine Run</li> <li>14 CANBUS Communication System Failure</li> <li>15 Pump On Demand</li> </ul>
---	---	---	--

Alarms Activation 3 BINARY WORD 41003	<ul style="list-style-type: none"> <li>0 Invalid Cut-In</li> <li>1 Test Mode</li> <li>2 Pneumatic Fail to Start</li> <li>3 Auto-mode Bypass</li> <li>4 Hydraulic Fail to Start</li> <li>5 Bell Silenced</li> <li>6 APSAD General Default</li> <li>7 Overpressure</li> <li>8 Underpressure</li> <li>9 Low Suction Pressure</li> <li>10 Flow Start</li> <li>11 Battery 1 Overvoltage</li> <li>12 Battery 2 Overvoltage</li> <li>13 High Ambient Temperature (Internal Sensor)</li> <li>14 NA</li> <li>15 Low Raw Water Flow</li> </ul>	Alarms Activation 4 BINARY WORD 41004	<ul style="list-style-type: none"> <li>0 Low Spare Temperature</li> <li>1 Water Reservoir Low</li> <li>2 Water Reservoir Empty</li> <li>3 Water Reservoir High</li> <li>4 Flow Meter On</li> <li>5 Fuel Tank Leak</li> <li>6 Low Fuel Level</li> <li>7 High Fuel Level</li> <li>8 Electronic Control Module in Alternate Position</li> <li>9 Fuel Injection Malfunction</li> <li>10 Engine High Temperature</li> <li>11 Engine Low Temperature</li> <li>12 Engine Electronic Control Module Warning</li> <li>13 Engine Electronic Control Module Fault</li> <li>14 Engine Low Oil Pressure</li> <li>15 Low Pneumatic Pressure</li> </ul>
---	--	---	--

Alarms Activation 5 BINARY WORD 41005	<ul style="list-style-type: none"> <li>0 Main Relief Valve Open</li> <li>1 User Alarm 1</li> <li>2 User Alarm 2</li> <li>3 User Alarm 3</li> <li>4 User Alarm 4</li> <li>5 User Alarm 5</li> <li>6 User Alarm 6</li> <li>7 User Alarm 7</li> <li>8 User Alarm 8</li> <li>9 User Alarm 9</li> <li>10 User Alarm 10</li> <li>11 User Alarm 11</li> <li>12 User Alarm 12</li> <li>13 User Alarm 13</li> <li>14 User Alarm 14</li> <li>15 User Alarm 15</li> </ul>	Alarms Activation 6 BINARY WORD 41006	<ul style="list-style-type: none"> <li>0 User Alarm 16</li> <li>1 User Alarm 17</li> <li>2 User Alarm 18</li> <li>3 User Alarm 19</li> <li>4 User Alarm 20</li> <li>5 NA</li> <li>6 NA</li> <li>7 NA</li> <li>8 NA</li> <li>9 High Raw Water Temperature</li> <li>10 PLD Low Suction Pressure</li> <li>11 Low Hydraulic Pressure</li> <li>12 I/O Expansion 5 Communication Loss</li> <li>13 I/O Expansion 6 Communication Loss</li> <li>14 I/O Expansion 7 Communication Loss</li> <li>15 I/O Expansion 8 Communication Loss</li> </ul>
---	--	---	---

Alarms Activation 7 BINARY WORD 41007	<ul style="list-style-type: none"> <li>0 NA</li> <li>1 NA</li> <li>2 NA</li> <li>3 NA</li> <li>4 NA</li> <li>5 NA</li> <li>6 NA</li> <li>7 NA</li> <li>8 NA</li> <li>9 NA</li> <li>10 NA</li> <li>11 NA</li> <li>12 NA</li> <li>13 NA</li> <li>14 NA</li> <li>15 NA</li> </ul>
---	--

WORD 40201 BINARY	0 MODBUS Remote Manual Start 1 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	0 Minimum run delay timing high 1 NA 2 High zone delay timing high (option) 3 Sequence delay timing high (option) 4 Engine running high 5 NA 6 Low suction alarm high (option) 7 Low suction shutdown active high (option) 8 System over pressure alarm high (option) 9 Overspeed alarm high 10 Weekly test demand active high 11 Failure to start alarm high 12 Lockout active high (option) 13 Crank on battery #1 high 14 Crank on battery #2 high 15 Resting high
WORD 42012	

NFPA Alarms 2 BINARY	0 Pressure start demand high 1 Remote start demand high 2 Deluge start demand high (option) 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
WORD 42013	

NFPA Alarms 3 BINARY	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
WORD 42014	

NFPA Alarms 4 BINARY	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 (option) 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 42015	

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)
-----------------------------	------------------