

# Technical Bulletin

## Modbus TCP/IP Communication Protocol For Diesel Fire Pump Controllers



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

### General Characteristics

Connection Type   Shielded Female connector RJ45 Frame Format        TCP/IP Default IP           xxx.xxx.xxx.xxx  Default SubNet Mask   xxx.xxx.xxx.xxx	DIGITAL VALUES: 16 boolean bits (1=TRUE, 0=FALSE) ANALOG VALUES:16 bits representing a number. Analog signals values are multiply by 10 for communication purpose, unless otherwise specified.
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Main Controls	0 Power Good
BINARY	1 First Service Done
	2 Engine Fuel Solenoid (1)
WORD 30001	3 Engine Stop Solenoid (12)
	4 Engine Start Contactor1 (9)
	5 Engine Start Contactor2 (10)
	6 Engine Run (2)
	7 Jockey Pump Run
	8 HOA in AUTO Position
	9 HOA in HAND Position
	10 HOA in OFF Position
	11 Test Solenoid Valve
	12 Pneumatic Output
	13 Valid Stop Push Button
	14 Test Push Button
	15 Hydraulic Output

Pump Demand (Request)	0 NULL
DIGITAL VALUES	1 LOCAL
	2 MANUAL
WORD 30002	3 AUTOMATIC
	4 FLOW / ZONE
	5 REMOTE
	6 DELUGE
	7 AC FAIL START
	8 PNEUMATIC
	9 HYDRAULIC
	10 EMERGENCY
	11 WEEKLY TEST
	12 MANUAL TEST
	13 EN-12845 MANUAL TEST
	14 EN-12845 STARTUP TEST
	15 ND

Start Type	0 NULL
DIGITAL VALUES	1 LOCAL
	2 MANUAL
WORD 30003	3 AUTOMATIC
	4 FLOW / ZONE
	5 REMOTE
	6 DELUGE
	7 AC FAIL START
	8 PNEUMATIC
	9 HYDRAULIC
	10 EMERGENCY
	11 WEEKLY TEST
	12 MANUAL TEST
	13 EN-12845 MANUAL TEST
	14 EN-12845 STARTUP TEST
	15 ND

Lockout Type	0 NULL
DIGITAL VALUES	1 LOCKOUT
	2 DUAL LOCKOUT
WORD 30004	3 LOW ZONE NOT RUNNING
	4 ND
	5 OUT OF WATER SHUTDOWN
	6 LOW SUCTION PRESSURE SHUTDOWN
	7 NO DC POWER
	8 OVERSPEED
	9 FAIL TO START
	10 PNEUMATIC FAIL TO START
	11 EN-12845 AUTO MODE BYPASS
	12 HYDRAULIC FAIL TO START
	13 ENGINE TEMPORARY START DELAY
	14 ND
	15 ND

Battery Chargers State	0 Charger 1 - NO AC Source
BINARY	1 Charger 1 - Bulk
	2 Charger 1 - Over Charge
WORD 30005	3 Charger 1 - Float
	4 Charger 1 - Lost Track
	5 Charger 1 - Stop
	6 Charger 1 - Power Up
	7 Charger 2 - NO AC Source
	8 Charger 2 - Bulk
	9 Charger 2 - Over Charge
	10 Charger 2 - Float
	11 Charger 2 - Lost Track
	12 Charger 2 - Stop
	13 Charger 2 - Power Up
	14 ND
	15 ND

Alarms Activation	0 AC Failure
BINARY	1 Battery 1 Failure
	2 Battery 2 Failure
WORD 30006	3 Charger 1 Failure
	4 Charger 2 Failure
	5 DC Failure
	6 Engine Trouble
	7 Pump Room Trouble
	8 Service Required
	9 Controller Trouble
	10 Weak Battery 1
	11 Weak Battery 2
	12 Loss of Continuity (Contactor 1)
	13 Loss of Continuity (Contactor 2)
	14 Low Pump Room Temperature
	15 Low Spare Temperature



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Alarms Activation	0 Weekly Test Cut-In not reached
BINARY	1 Weekly Test Check Solenoid valve
WORD 30007	2 Faulty Pressure Transducer
	3 High Discharge (Overpressure)
	4 Low Discharge (Underpressure)
	5 Low Suction Pressure
	6 Flow Start
	7 Weekly Test Required
	8 Cooling No Flow
	9 Water Reservoir Low
	10 Water Reservoir Empty
	11 Flow Meter On
	12 Fuel Tank Leak
	13 Low Fuel Level
	14 High Fuel Level
	15 Engine Fail When Running

Alarms Activation	0 Engine Fail To Start
BINARY	1 Engine ECM in Alternate Position (301)
WORD 30008	2 Fuel Injection Malfunction (302)
	3 Engine High Coolant Temperature (5)
	4 Engine Low Oil Pressure (4)
	5 Engine Overspeed (3)
	6 I/O Diesel Board Communication Loss
	7 I/O Expansion 1 Communication Loss
	8 I/O Expansion 1 Communication Loss
	9 I/O Expansion 1 Communication Loss
	10 I/O Expansion 1 Communication Loss
	11 NLow Raw Water Flow
	12 Expansion Board 1 INPUT 1
	13 Expansion Board 1 INPUT 2
	14 Expansion Board 2 INPUT 3
	15 Expansion Board 2 INPUT 4

Alarms Activation	0 Expansion Board 1 INPUT 5
BINARY	1 Expansion Board 1 INPUT 6
WORD 30009	2 Expansion Board 1 INPUT 7
	3 Expansion Board 1 INPUT 8
	4 Expansion Board 2 INPUT 1
	5 Expansion Board 2 INPUT 2
	6 Expansion Board 2 INPUT 3
	7 Expansion Board 2 INPUT 4
	8 Expansion Board 2 INPUT 5
	9 Expansion Board 2 INPUT 6
	10 Expansion Board 2 INPUT 7
	11 Expansion Board 2 INPUT 8
	12 Expansion Board 3 INPUT 1
	13 Expansion Board 3 INPUT 2
	14 Expansion Board 3 INPUT 3
	15 Expansion Board 3 INPUT 4

Alarms Activation	0 Expansion Board 3 INPUT 5
BINARY	1 Expansion Board 3 INPUT 6
WORD 30010	2 Expansion Board 3 INPUT 7
	3 Expansion Board 3 INPUT 8
	4 Expansion Board 4 INPUT 1
	5 Expansion Board 4 INPUT 2
	6 Expansion Board 4 INPUT 3
	7 Expansion Board 4 INPUT 4
	8 Expansion Board 4 INPUT 5
	9 Expansion Board 4 INPUT 6
	10 Expansion Board 4 INPUT 7
	11 Expansion Board 4 INPUT 8
	12 Battery Charger 1 Communication Loss
	13 Battery Charger 2 Communication Loss
	14 Battery 1 Overvoltage
	15 Battery 2 Overvoltage

Alarms Activation	0 Water Reservoir High
BINARY	1 Low Ambient Temperature (Internal Sensor)
WORD 30011	2 High Ambient Temperature (Internal Sensor)
	3 Main Relief Valve Open
	4 Engine Run Warning
	5 CANBUS Communication System Failure
	6 FILE System Failure
	7 Engine Low Coolant Temperature (312)
	8 Engine ECM Warning (303)
	9 Engine ECM Fault (304)
	10 Pump on Demand Warning
	11 Invalid Cut-In
	12 Test Mode
	13 Pneumatic Fail To Start
	14 EN-12845 Automatic Mode Bypass
	15 Hydraulic Fail To Start

Alarms Activation	0 ND
BINARY	1 Low Pneumatic Pressure
WORD 30012	2 Bell Silenced
	3 ND
	4 ND
	5 ND
	6 ND
	7 ND
	8 ND
	9 ND
	10 ND
	11 ND
	12 ND
	13 ND
	14 ND
	15 ND



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WORD 30013      Pressure Transducer PT1 ANALOG VALUES (10X)	WORD 30014      Pressure Transducer PT2 ANALOG VALUES (10X)
WORD 30015      System Pressure ANALOG VALUES (10X)	WORD 30016      Suction Pressure ANALOG VALUES (10X)
WORD 30017      Water Level ANALOG VALUES (10X)	WORD 30018      Spare Temperature ANALOG VALUES (10X)
WORD 30019      Flow ANALOG VALUES (10X)	WORD 30020      Temperature (Internal Sensor) ANALOG VALUES (10X)
WORD 30021      Fuel Level ANALOG VALUES (10X)	WORD 30022      Oil Pressure ANALOG VALUES (10X)
WORD 30023      Engine Coolant Temperature ANALOG VALUES (10X)	WORD 30024      Engine Speed (RPM) ANALOG VALUES
WORD 30025      AC Voltage ANALOG VALUES (10X)	WORD 30026      Battery 1 Voltage ANALOG VALUES (10X)
WORD 30027      Battery 1 Current ANALOG VALUES (10X)	WORD 30028      Battery 2 Voltage ANALOG VALUES (10X)
WORD 30029      Battery 2 Current ANALOG VALUES (10X)	WORD 30030      Cut-In ANALOG VALUES (10X)
WORD 30031      Cut-Out ANALOG VALUES (10X)	WORD 30032      Run Period Timer (Automatic Shutdown) ANALOG VALUES
WORD 30033      Sequential Start Timer ANALOG VALUES	WORD 30034      Weekly Test Schedule MIXED VALUE Bit 15                      Enabled Bit 14                      Active Week Bit Value (11-12-13)      Day of the week ( 0 is Sunday ) Bit Value (6-7-8-9-10)      Hour of the day Bit Value (0-1-2-3-4-5)      Minutes of the hour
WORD 30035      Weekly Test Duration ANALOG VALUES	WORD 30036      Manual Run Test Duration ANALOG VALUES
WORD 30037      Cut-Out ANALOG VALUES (10X)	WORD 30038      ND ANALOG VALUES
WORD 30039      ND ANALOG VALUES	WORD 30040      ND ANALOG VALUES

MODBUS SLAVE	WRITE REGISTER
DIGITAL VALUES	0 MODBUS Remote Manual Start
	1 MODBUS Automatic Start
	2 MODBUS Manual Run Test Start
WORD 40001	3 ND
	4 ND
	5 ND
	6 ND
	7 ND
	8 ND
	9 ND
	10 ND
	11 ND
	12 ND
	13 ND
	14 ND
	15 ND



• Ethernet Connection

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