PowerCommand®

Modbus Gateway

(FT-10) LON Input/Output

Description

The PowerCommand Modbus Gateway (also called ModLon gateway) is used to interface PowerCommand networks to devices and systems that communicate in Modbus communication protocol.

The Modbus Gateway (ModLon gateway) provides an Echelon LonWorks to Modbus RTU conversion via an RS232 serial connection. The gateway supplies predefined Modbus RTU registers for PowerCommand network components. Selection of the gateway configuration is done via Echelon LonMaker software, which is also used for the PowerCommand Network installation.

Features

- Converts Echelon LonWorks data streams to register maps that can be read by equipment communicating in Modbus RTU format.
- FTT-10 Transceiver with plug-in terminal block.
- Modbus port EIA-232 configuration.
- Capable of displaying data from PowerCommand genset controls, transfer controls, CCM and DIM modules.
- Service button and LED indicators
- Configured to PowerCommand networks using Echelon LonMaker for Windows.
- Operates on 12VDC, and is available with plug-in AC power supplies at various voltage levels.
- UL listed and labeled; CSA certified; CE Marked.
- FCC Part 15 Class B, CB Scheme report and certificate
- Warranty. PowerCommand Controls are supported by a worldwide network of independent distributors who provide parts, service and warranty support.

Specifications

Signal Requirements

Network Connections: Echelon® LONWORKS®, twisted-pair 78 kbps, FTT-10
Control Power: 12VDC, 3.5W (maximum) 0.8W typical.

Wiring materials for network signals are UL-listed 4 twisted pair wiring. Terminations for control power accept wire up to 16ga.

Modbus Connections: EIA-232 with DB-9 (female) physical connection. (Port B is not active.)

Physical

Weight: 0.8 lbs. (0.36kg) (not including power supply)

Power

Maximum Consumption: 0.25A

Baud: 9600
Parity: None
Word Length: 8
Stop Bits: 1

Network Length: Connects to LonWorks network of Maximum 4600 Feet (1400M) using UL/NEMA level 4 cable.

Environment

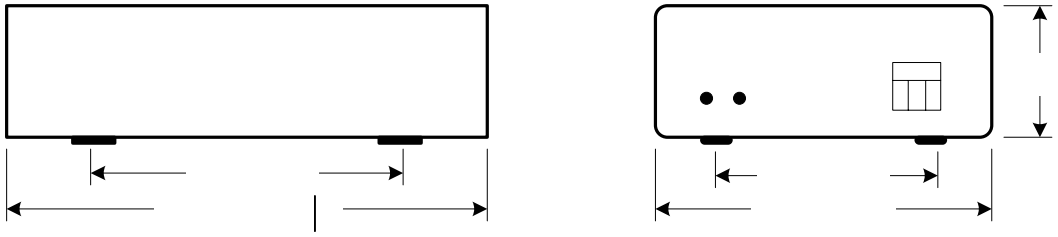
The gateway module is designed for proper operation in ambient temperatures from 0C to +50C, and for storage from –20C to +80C. Control will operate with humidity up to 95%, non-condensing, and at altitudes up to 13,000 feet (5000 meters).

Data and Configurations

Control Type	Data Available
PCC2100, PCC3100, PCC3200, CCM (genset)	Fault messages, state, 3-phase L-L and L-N voltages, 3-phase amps, frequency, percent amps, power factor, kW, percent kW, kVAR, kW-Hr, oil pressure, oil temperature (when available), coolant temperature, exhaust temperature (when available), DC volts, run time hours, number of starts, engine rpm
PowerCommand Transfer Switches	Fault messages, 3-phase L-L and L-N voltages and frequency for each source, transfer switch position, load amps, power factor, kW, kVAR
Control Communication Module: CCM (ATS)	Fault messages, 3-phase L-L and L-N voltages and frequency for load, transfer switch position, load amps, power factor, kW, kVAR
Digital I/O Module: DIM	Status of up to 16 discrete output conditions, and 8 discrete input conditions

Option	**Configuration** (Selected by LonMaker at installation. Hardware is identical.)
1	5 genset controls (any type or combination), 5 transfer switches (any type or combination), and two DIM modules.
2	5 genset controls (any type or combination) including paralleling data, 5 transfer switches (any type or combination), and two DIM modules.
3a	10 genset controls (any type or combination), including paralleling data
3b	10 transfer switch controls (any type or combination)

Dimensions



Ordering Information

Part Number	Description
0541-0717	Modbus Gateway, with 120VDC AC power supply, CD, instructions
Consult factory	Modbus Gateway, with alternate voltage AC power supply, CD, instructions

Typical Register Map for Generator Sets

Structure	Data Point	Modbus Registers					Scaling		
		GCM[0]	GCM[1]	GCM[2]	GCM[3]	GCM[4]	Multipler	Offset	Units
Genset Status									
	state	41001	41101	41201	41301	41401			
	status*	41002	41102	41202	41302	41402			
	fault_type	41003	41103	41203	41303	41403			
	fault_text[0,1]	41004	41104	41204	41304	41404			
	fault_text[2,3]	41005	41105	41205	41305	41405			
	fault_text[4,5]	41006	41106	41206	41306	41406			
	fault_text[6,7]	41007	41107	41207	41307	41407			
	fault_text[8,9]	41008	41108	41208	41308	41408			
	fault_text[10,11]	41009	41109	41209	41309	41409			
	fault_text[12,13]	41010	41110	41210	41310	41410			
	fault_text[14,15]	41011	41111	41211	41311	41411			
	fault_code	41012	41112	41212	41312	41412			
	error	41013	41113	41213	41313	41413			
AC Data (Load)									
	volts_a	41014	41114	41214	41314	41414			VAC
	volts_b	41015	41115	41215	41315	41415			VAC
	volts_c	41016	41116	41216	41316	41416			VAC
	freq	41017	41117	41217	41317	41417	0.1		Hz
	amps_a	41018	41118	41218	41318	41418			A
	amps_b	41019	41119	41219	41319	41419			A
	amps_c	41020	41120	41220	41320	41420			A
	percent_amps_a	41021	41121	41221	41321	41421	0.005		%
	percent_amps_b	41022	41122	41222	41322	41422	0.005		%
	percent_amps_c	41023	41123	41223	41323	41423	0.005		%
	total_pf	41024	41124	41224	41324	41424	0.00005		
	total_kw	41025	41125	41225	41325	41425			kW
	percent_kw	41026	41126	41226	41326	41426	0.005		%
	total_kvar	41027	41127	41227	41327	41427			kVAR
	total_mwh	41028	41128	41228	41328	41428			MWh
Engine Data									
	oil_press	41029	41129	41229	41329	41429	0.1		PSI
	oil_temp	41030	41130	41230	41330	41430	0.1		F
	coolant_temp1	41031	41131	41231	41331	41431	0.1		F
	coolant_temp2	41032	41132	41232	41332	41432	0.1		F
	exhaust_temp1	41033	41133	41233	41333	41433	0.1		F
	exhaust_temp2	41034	41134	41234	41334	41434	0.1		F
	battery_volts	41035	41135	41235	41335	41435	0.1		VDC
	runtime_hrs	41036	41136	41236	41336	41436	0.1		h

Typical Register Map for Generator Sets Cont'd

Structure	Data Point	Modbus Registers					Scaling		
		GCM[0]	GCM[1]	GCM[2]	GCM[3]	GCM[4]	Multipler	Offset	Units
Engine Data Cont'd	runtime_khrs	41037	41137	41237	41337	41437	1000		h
	engine_starts	41038	41138	41238	41338	41438			
	engine_rpm	41039	41139	41239	41339	41439	0.1		rpm
Genset Control									
	Start/Stop	41040	41140	41240	41340	41440			
	Reset	41041	41141	41241	41341	41441			
	Emergency Stop	41042	41142	41242	41342	41442			
							*Data = Multiplier * (Register + Offset)*		

Register	Data Point	Bit	
**status*	*Common Alarm*	0	(LSB)
	Load Dump	1	
	Gen CB Closed	2	
	Leading Power Factor	3	
	Ready To Load	4	
	Switch In Run	5	
	Switch In Auto	6	
	Start Delay	7	
	Stop Delay	8	
	Load Demand Stop	9	
	Paralleling/Single	10	
	Remote Start	11	
	Left Coolant Sensor	12	
	Left Exhaust Sensor	13	
	Right Exhaust Sensor	14	
	Gen CB Inhibit	15	(MSB)

See your distributor for more information

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WARNING ***For Professional Use Only. Must be installed by a qualified service technician. Improper nstallation presents hazards of electrical shock and improper operation, resulting in severe personal injury and/or property damage.***