

PowerCommand® ModLon II Gateway ModBus® - LON Converter



> **Specification sheet**

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**Power
Generation**

Description

The PowerCommand® ModLon II Gateway is used to interface PowerCommand Networks to devices and systems that communicate in Modbus® communication protocol.

The ModLon II Gateway provides an Echelon® LonWorks® to Modbus RTU or Modbus ASCII conversion via an RS232 serial connection. The gateway supplies predefined registers for PowerCommand Network components. Selection of the gateway configuration is done by setting the dipswitches on the device.

Features

- Converts Echelon LonWorks data streams to register maps that can be read by equipment communicating in Modbus RTU and Modbus ASCII format.
- FTT-10 transceiver.
- Modbus port EIA-232 configuration.
- Capable of displaying data from PowerCommand Generator set controls, transfer controls, CCM and DIM modules.
- Service button, reset button and LED indicators.
- Configured to PowerCommand networks using Echelon LonMaker™ for Windows®.
- Operates on 9 - 32 VDC.
- CE and UL Listed and labeled.
- 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: 9 - 32 VDC.

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

Modbus connections: EIA-232 with DB-9 (female) physical connection.

Physical

Weight: 0.11 kg (0.245 lbs)

Power

Current draw: 9 VDC = 0.15 A, 24 VDC = 0.06 A

Baud: Configurable through LonWorks

Parity: Configurable through LonWorks

Word length: Configurable through LonWorks

Stop bits: Configurable through LonWorks

Network length: Connects to LonWorks network of maximum 1400 m (4600 ft) using UL/NEMA Level 4 cable.

Environment

The gateway module is designed for proper operation in ambient temperatures from 0 °C to +50 °C (32 °F to +122 °F) and for storage from -20 °C to +60 °C (-4 °F to +140 °F).

Data and configurations

Control type data available

PCC 2100, PCC 3100, PCC 3200, 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, runtime 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.

Template configuration (selected through dipswitches)

- 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).
- 5 5 genset controls (any type or combination), 5 transfer switches (any type or combination) and 2 DIM modules. Register map is identical to ModLon map for TP-78 PowerCommand Network devices.

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Typical register map for generator sets (see instruction sheet for complete maps)

Structure	Data point	Modbus registers					Scaling	
		GEN [0]	GEN [1]	GEN [2]	GEN [3]	GEN [4]	Multiplier	Units
nvoGenStatus	Name [0,1]	40001	40101	40201	40301	40401		
	Name [2,3]	40002	40102	40202	40302	40402		
	Name [4,5]	40003	40103	40203	40303	40403		
	Name [6,7]	40004	40104	40204	40304	40404		
	Name [8,9]	40005	40105	40205	40305	40405		
	Name [10,11]	40006	40106	40206	40306	40406		
	Name [12,13]	40007	40107	40207	40307	40407		
	Name [14,15]	40008	40108	40208	40308	40408		
	Device type	40009	40109	40209	40309	40409		
	Control switch	40010	40110	40210	40310	40410		
	State	40011	40111	40211	40311	40411		
	Fault code*	40012	40112	40212	40312	40412		
	Fault type	40013	40113	40213	40313	40413		
	Percent kW	40014	40114	40214	40314	40414	0.5	%
	Total kW	40015	40115	40215	40315	40415		
	NFPA 110	40016	40116	40216	40316	40416		
	Extended	40017	40117	40217	40317	40417		
nvoGenACData	Frequency	40018	40118	40218	40318	40418	0.1	Hz
	Total pf	40019	40119	40219	40319	40419	0.00005	PF
	Total kva	40020	40120	40220	40320	40420	1.0	KVA
	Total kW	40021	40121	40221	40321	40421	1.0	KW
	Total kvar	40022	40122	40222	40322	40422	1.0	KVAR
	Volts ab	40023	40123	40223	40323	40423	1.0	Volts
	Volts bc	40024	40124	40224	40324	40424	1.0	Volts
	Volts ca	40025	40125	40225	40325	40425	1.0	Volts
	Volts a	40026	40126	40226	40326	40426	1.0	Volts
	Volts b	40027	40127	40227	40327	40427	1.0	Volts
	Volts c	40028	40128	40228	40328	40428	1.0	Volts
	Amps a	40029	40129	40229	40329	40429	1.0	Amps
	Amps b	40030	40130	40230	40330	40430	1.0	Amps
	Amps c	40031	40131	40231	40331	40431	1.0	Amps
	Percent amps a	40032	40132	40232	40332	40432	0.5	%
Percent amps b	40033	40133	40233	40333	40433	0.5	%	
Percent amps c	40034	40134	40234	40334	40434	0.5	%	
nvoGenEngData	Battery voltage	40035	40135	40235	40335	40435	0.1	Volts DC
	Oil pressure	40036	40136	40236	40336	40436	0.1	KPA
	Oil temp²	40037	40137	40237	40337	40437	0.1	Deg Kelvin
	Coolant temp	40038	40138	40238	40338	40438	0.1	Deg Kelvin
	Misc temp 1⁴	40039	40139	40239	40339	40439	0.1	Deg Kelvin
	Misc temp 2⁴	40040	40140	40240	40340	40440	0.1	Deg Kelvin
	Fuel rate³	40041	40141	40241	40341	40441	1.0	GPH
	Engine RPM	40042	40142	40242	40342	40442	1.0	RPM
	Engine starts	40043	40143	40243	40343	40443	1.0	starts
	Eng runtime (high)^{1,5}	40044	40144	40244	40344	40444		
	Eng runtime (low)	40045	40145	40245	40345	40445	0.1	Sec
	Total kwh (high)¹	40046	40146	40246	40346	40446		
	Total kwh (low)	40047	40147	40247	40347	40447	1.0	kwh
Total fuel (high)^{1,3}	40048	40148	40248	40348	40448			
Total fuel (low)	40049	40149	40249	40349	40449	0.01	Gal	
Genset control	Start/stop	40050	40150	40250	40350	40450		
	Reset	40051	40151	40251	40351	40451		

* Fault codes are listed in the generator set operator/service manuals.

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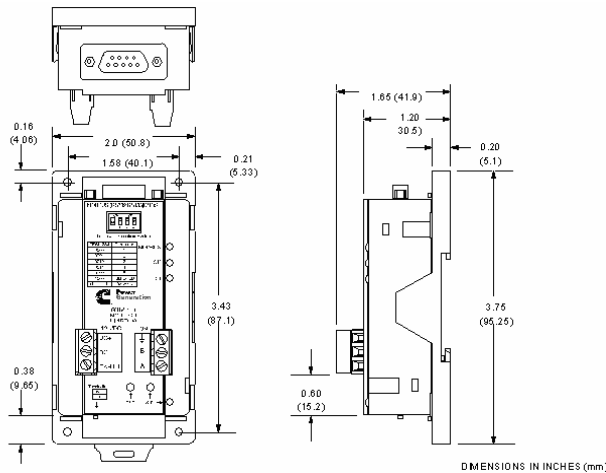
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NFPA 110 description	Bit	
Normal power	0	(MSB)
Genset supplying load	1	
Genset running	2	
Not in auto	3	
High battery voltage	4	
Low battery voltage	5	
Charger AC failure	6	
Fail to start	7	
Low coolant temperature	8	
Pre-high engine temperature	9	
High engine temperature	10	
Pre-low oil pressure	11	
Low oil pressure	12	
Over speed	13	
Low coolant level	14	
Low fuel level	15	(LSB)

Extended description	Bit	
Check genset	0	(MSB)
Ground fault	1	
High AC voltage	2	
Low AC voltage	3	
Under frequency	4	
Overload	5	
Overcurrent	6	
Short circuit	7	
Reverse KW	8	
Reverse KVAR	9	
Fail to sync	10	
Fail to close	11	
Load demand	12	
Genset circuit breaker tripped	13	
Utility circuit breaker tripped	14	
Emergency stop	15	(LSB)

Dimensions



Notes:

- For the data points engine runtime, the total kWh and total fuel for the two registers designated as high and low are put together as an unsigned double integer. This is accomplished by multiplying the value in the high register by 65536 and adding it to the value in the low register. Most software packages automatically perform this calculation if the value is simply identified as an unsigned double integer.
- Value not supported in the 3200 controller.
- Value not supported in the 3100 controller.
- Value not supported.
- With 3100 and 2100 controllers, the units are hours. With the 3200 controller, the units are seconds. The multiplier is always 0.1

For all 3100 controllers, the values given are based on using EEPROM firmware, version 2.0 or greater. The values for engine runtime and total kwh are not available on QST-30 gensets.

Ordering information

Part number	Description
0541-1149	ModLon II Gateway, CD, instructions, cable

See your distributor for more information.

Cummins Power Generation

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