

DSL-2XT™ Digital Synchronizer and Load Control

New Features

- ✓ Direct Connect Up to 690 V_{AC}
- ✓ Software selectable 1A/5A CT input
- ✓ Enhanced hardware isolation
- ✓ Three Ethernet communication ports
- ✓ Drop-In replacement*

DESCRIPTION

Woodward's DSLC-2XT synchronizes and controls the generator loading for up to 32 three phase AC generators using the integrated (DSL-2XT/MSLC-2XT) Ethernet communication network. The DSLC-2XT excels in either simple generator or complex generator system applications. The DSLC-2XT/MSLC-2XT combination provides multiple units, segment, utility, and inertia power management for complex power systems.

The DSLC-2XT control combines synchronizer, load sensor, load control, dead bus closing system, VAR, power factor and process control, all integrated into one powerful package. Applications allow up to 32 generators to be precisely paralleled and controlled. Ethernet network A provides dead bus closing, load sharing, and VAR sharing information between DSLC-2XT and MSLC-2XT units. Ethernet ports B/C provides customer remote control and monitoring capability using Modbus TCP allowing easy DCS and PLC interfacing. The Ethernet network provides each device the capability to monitor all other devices on the network. If the Ethernet network is compromised, an alarm is provided and the system can be transferred to a droop control mode.

Redundant load sharing is selectable using both Ethernet A and B networks for enhanced reliability. If one network is compromised, the system automatically switches to the second network. Slip frequency or phase matching automatic synchronizing with or without dead bus closing is selectable. Permissive mode provides synch check relay functionality.

The DSLC-2XT control senses true RMS power and provides soft bump-less loading and unloading functions. It can either base load or set import/export/process power levels against the utility, or accurately share loads on isolated, multiple generator systems.

VAR and power factor control flexibility allows you to either provide a set level of VARs to the utility or to maintain a constant power factor for reliable operation. The VAR/PF control also shares kVARs in an isolated system, maintaining proportional reactive loads (kVARs) on all machines more accurately than droop or cross-current voltage systems.

FEATURES

- Dedicated Ethernet network for precise system communications between all DSLC-2XT's and MSLC-2XT's reduces system wiring.
- Ethernet Modbus TCP, and Modbus RTU, for remote control and monitoring.
- Redundant Ethernet communication for enhanced reliability.
- The "system update" feature allows for removing or adding generator sets.
- Integrated DSLC-2XT and MSLC-2XT system functionality eliminates the need for redundant sensors (like PTs, CTs, and MOPs) that connect to individual modules such as the load sensors and synchronizers.
- Back panel mounting and a reduced size frees up door space and provides easy wiring.
- Eliminates the need for additional relay logic to control dead bus closing.
- Slip frequency paralleling, voltage matching, and speed bias transfer between the synchronizer and load control result in smooth paralleling without the risk of reverse power trips.
- Three-phase true RMS power sensing makes the DSLC-2XT control accurate even with unbalanced phase loading and voltage fluctuations.
- Phase angle correction for GCB when a transformer is included in the system.
- The Woodward ToolKit™ software allows flexible setup using the same basic menu tree as the original DSLC-2 plus an overview screen. Graphical overview of generator and bus bar parameters with trending makes the DSLC-2XT commissioning friendly. All the Woodward devices can be programmed from a single connection to the network.
- The ToolKit can be accessed either via one of the Ethernet ports or via USB port.

- Applications for up to 32 generators with 16 mains/tie breakers
- Complex applications with up to 8 bus segments
- Redundant load and VAR sharing over Ethernet
- Five communication ports:
3 Ethernet, RS-485 & USB ports.
- The "system update" feature allows for removing or adding generator sets in the system.
- Automatic generator soft loading and unloading for bump-less load transfer
- Isochronous load sharing with other DSLC-2XT equipped sets
- Base load and process control modes
- VAR or Power Factor control
- Dead bus closing
- PLC & DCS compatible
- The DSLC-2XT hardware is configurable for multiple speed controls, voltage regulators, and potential transformer configurations
- Application range up to 999.999,9 MW
- UL/cUL & CE listed; ABS type approved

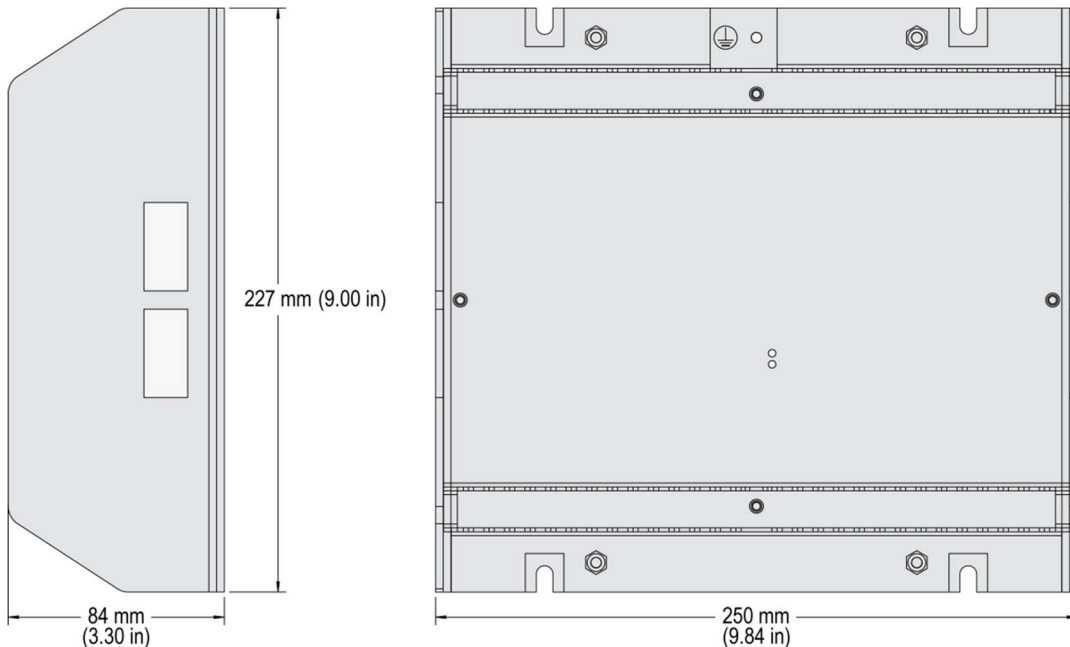
* Woodward offers update files should legacy DSLC-2 be mixed with the new DSLC-2XT

SPECIFICATIONS

Power supply.....	12/24 Vdc (8 to 40 Vdc)
Intrinsic consumption	max. 32 W
Ambient temperature (operation)	-40°C to 70°C / -40 to 158°F
Ambient temperature (storage)	-40°C to 80°C / -40 to 176°F
Ambient humidity.....	95%, non-condensing
Voltage (software configurable)	(Δ / Δ)
Rated ($V_{LLrated}$).....	100 Vac up to 690 Vac
Max. value (V_{LLmax}).....	897 Vac
Rated surge volt. (V_{surge}).....	6.0 kV
Accuracy	Class 0.5
Measurable alternator windings	3p-3w*, 3p-4w, 3p-4w OD
Setting range	primary..... 50 to 650,000 Vac
Linear measuring range	1.3 $\times V_{rated}$
Measuring frequency.....	50/60 Hz (30 to 85 Hz)
High Impedance Input; Resistance per path.....	2.5 M Ω
Max. power consumption per path.....	< 0.15 W
Current (galvanically isolated) Rated (I_{rated})1 A or .15 A
Linear measuring range	$I_{gen} = 3.0 \times I_{rated}$
	$I_{mains/ground} = 1.5 \times I_{rated}$
Setting range	1 to 32,000 A
Burden.....	< 0.10 VA
Rated short-time current (1 s).....	50 A
Accuracy	Class 0.5
Power	
Setting range	0.5 to 999,999.9 MW/kvar

Discrete inputs	galvanically isolated
Input range.....	12/24 Vdc (8 to 40 Vdc)
Input resistance.....	approx. 20 kOhms
Relay outputs	galvanically isolated / potential free
Contact material.....	AgNi
Load (GP)	2.00 Aac@250 Vac
	2.00 Adc@24 Vdc / 0.36 Adc@125 Vdc** / 0.18 Adc@250 Vdc**
Pilot duty (PD).....	
	1.00 Adc@24 Vdc / 0.22 Adc@125 Vdc / 0.10 Adc@250 Vdc
Analog inputs (not isolated)	freely scalable
Type	0 to 10 V / 0/4 to 20 mA
Resolution	14 bits
Analog outputs (galvanically isolated)	freely scalable
Type	± 10 V / ± 20 mA / PWM
Insulation voltage (continuously)	100 Vac
Insulation test voltage (1s).....	[AO2] 500 Vac
Resolution	11/12 Bit (depending on analog signal)
± 10 V (scalable)	internal resistance approx. 500 Ohms
± 20 mA (scalable)	maximum load 500 Ohms
Housing	Sheet metal for back panel mounting
Dimensions	WxHxD 250 x 227 x 84 mm (9.84 x 9.00 x 3.30 in)
Connection.....	screw/plug terminals 2.5 mm ²
Protection system	IP 20
Weight.....	approx. 2,480 g (5.46 lbs.)
Disturbance test (CE)	tested according to applicable EN guidelines
Listings	UL, cUL, CE, CSA, EAC
Marine	ABS (Type Approval), LR (Type Approval)

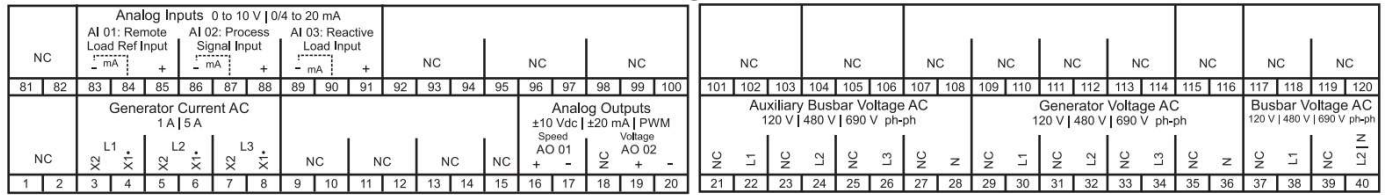
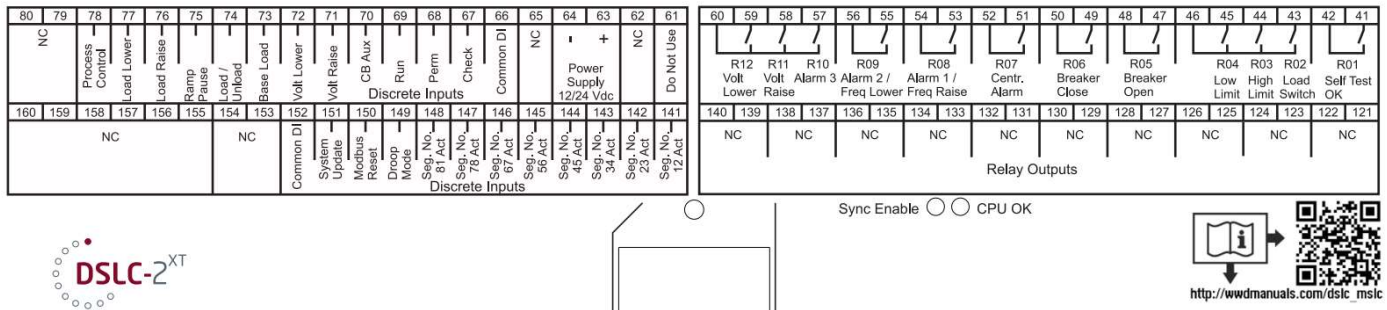
DIMENSIONS



* 3 phase 3 wire Δ constellations are limited to 600 VAC system

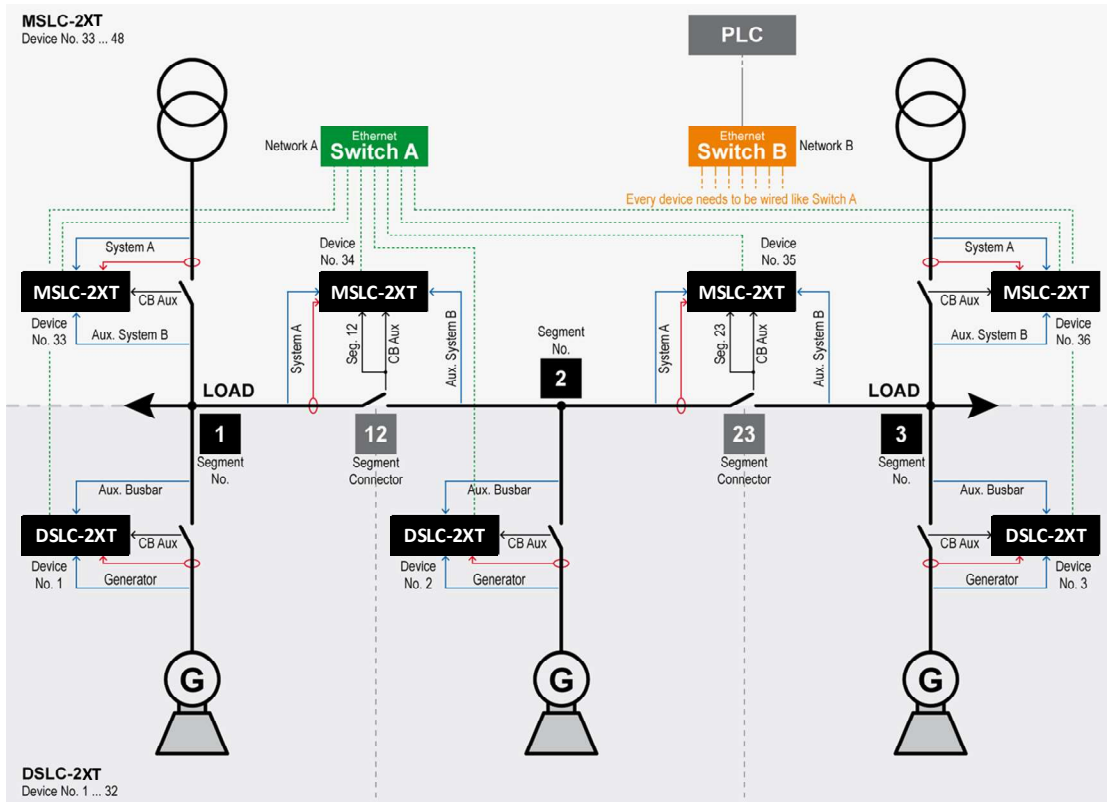
** Relay rating not suitable for USA and Canada applications. Not evaluated by UL

TERMINAL DIAGRAM



DSLС-2ХТ – Terminal diagram

TYPICAL CONFIGURATION



Configuration of a typical application using DSLС-2ХТ und MSLC-2ХТ devices in combination

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Subject to technical modifications.

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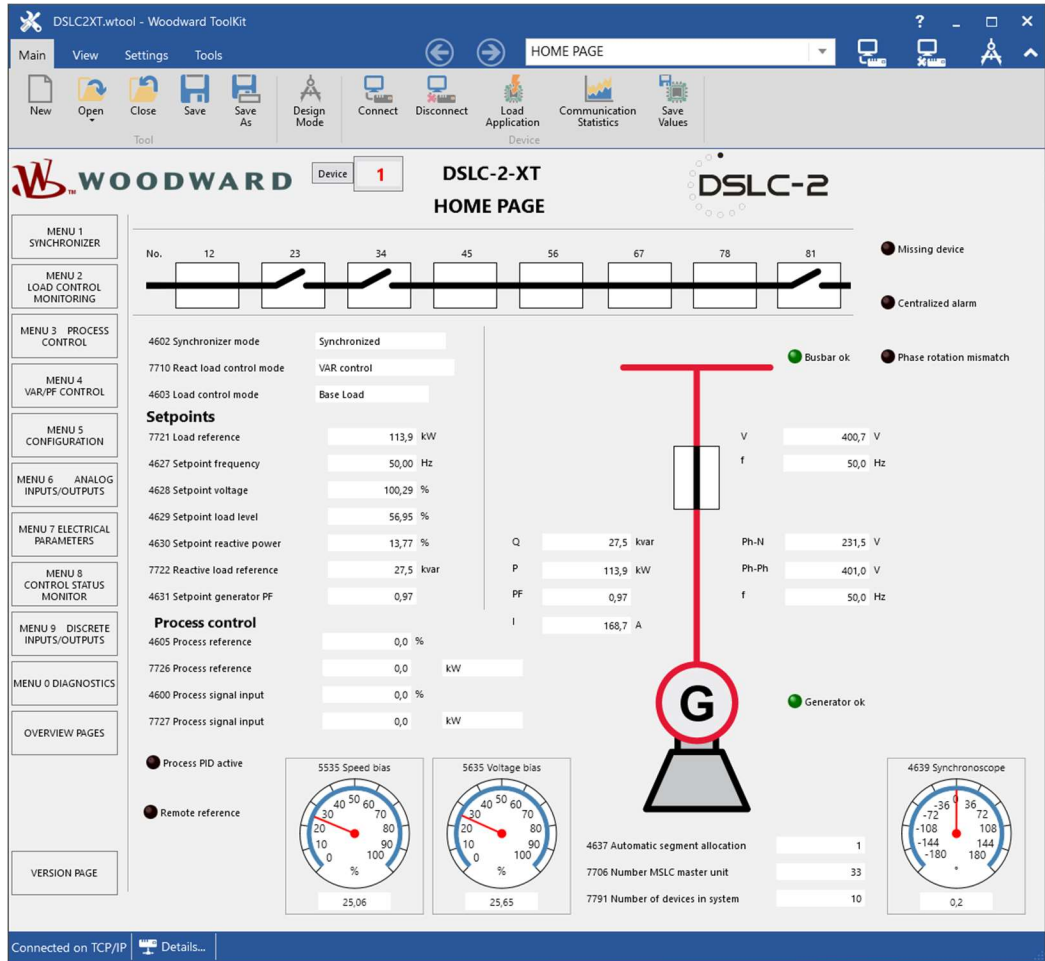
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For more information contact:

Woodward's ToolKit provides user friendly configuration, commissioning assistance, displays all operating modes, and the overview pages show what other controls the DSLC-2XT is communicating with. The DSLC-2XT Home Page is shown below.

Note: The menu tree illustrated on the left side is like the original DSLC-2™ structure.



FEATURES OVERVIEW

	DSLС-2XT	MSLC-2XT
I/Os		
Discrete inputs	23	23
Relay outputs	12	12
Analog inputs	3	3
Analog outputs	2	-
USB Interface	1	1
RS-485 Interface	1	1
Ethernet Interfaces (10/100 Mbit/s)	3	3
LED 1 "CPU OK"	Off / not ready / ready / system update active	Off / not ready / ready / system update active
LED 2 "Sync Enable"	Off / ready / not OK	Off / ready / not OK
Listings/Approvals		
UL / cUL Listing	✓	✓
CSA & EAC	✓	✓
LR & ABS Marine	✓	✓
CE Marked	✓	✓
Part Numbers		
Control with mounting KИTs	8440-2299	8440-2298
Spare connector KИT	8923-2320	

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