

## nrgSMART® Power Distribution Panels “CTRL” Integrated Controller and “SENS” Sensor versions

Amphenol’s nrgSMART technology provides detailed monitoring of individual circuit current, voltage, and remote temperature conditions, with a controller integrated within the DC power distribution panel.



Figure 1: Integrated controller in a nrg240GT54-CTRL fuse panel

### nrgSMART Features

nrgSMART patented technology provides a rich suite of data collection and monitoring capabilities, down to the circuit level. Reporting of voltage, panel input current, individual circuit output current, and remote temperature provide insights into conditions before alarms are triggered. Deep alarming capabilities allow four threshold points (two “high” and two “low”) per parameter, per circuit. For simplicity, thresholds can be set globally, or on a circuit-by-circuit basis.

### Simple network integration

nrgSMART technology requires no proprietary application software and is designed to inter-operate with existing SNMP management tools and Ethernet networks. The controller has a built-in HTML interface that is accessible via a standard web browser. All system configurations are adjusted via the web interface. Once configured, settings can be exported and can be uploaded into other panels to simplify and standardize your configurations. A variety of parameters can be monitored using SNMP “Get” commands, and alarms are sent via SNMP traps.

### 1:1 or 1:N network connectivity

nrgSMART panels can be configured with a controller board (CTRL) in every panel, providing 1:1 connectivity between the network and each panel (See Figure 2). For installations where a single network connection to multiple nrgSMART panels (1:N) is desired, install only one controller (CTRL) panel and install additional panels with nrgSMART sensing only (SENS) (see Figure 3). Sensor panels are connected to the single Controller panel via a nrgNET serial cable. nrgSMART panels can be interchanged between CTRL and SENS functionality in the field for future-proof flexibility.

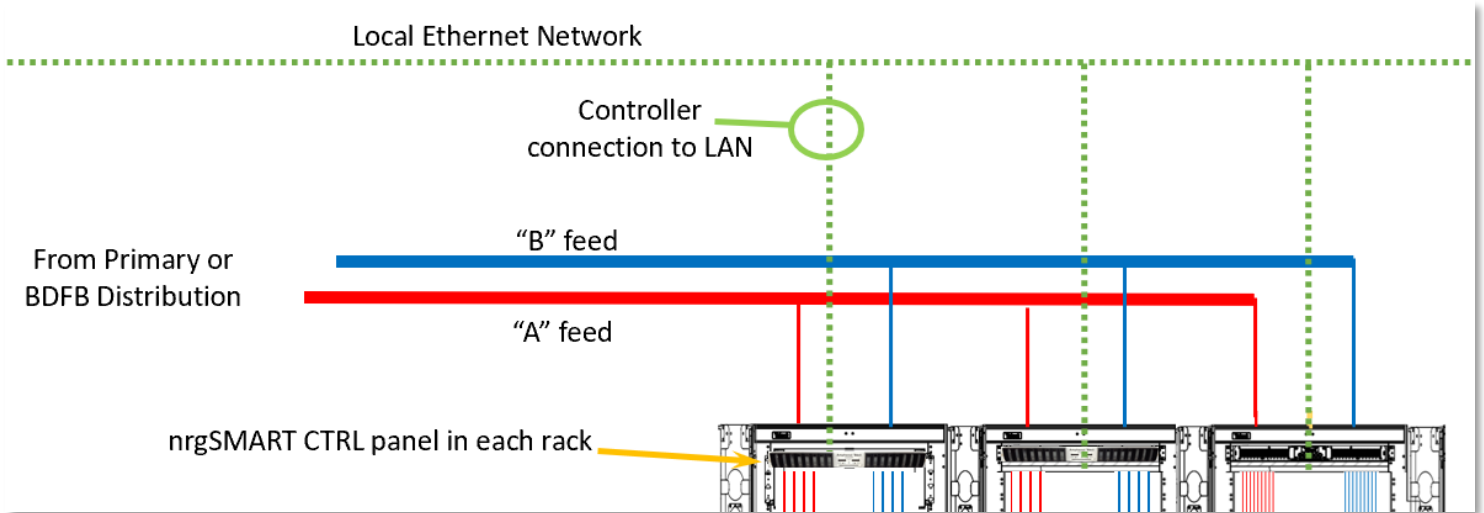


Figure 2: 1:1 network connectivity  
(CTRL integrated controller in each panel)

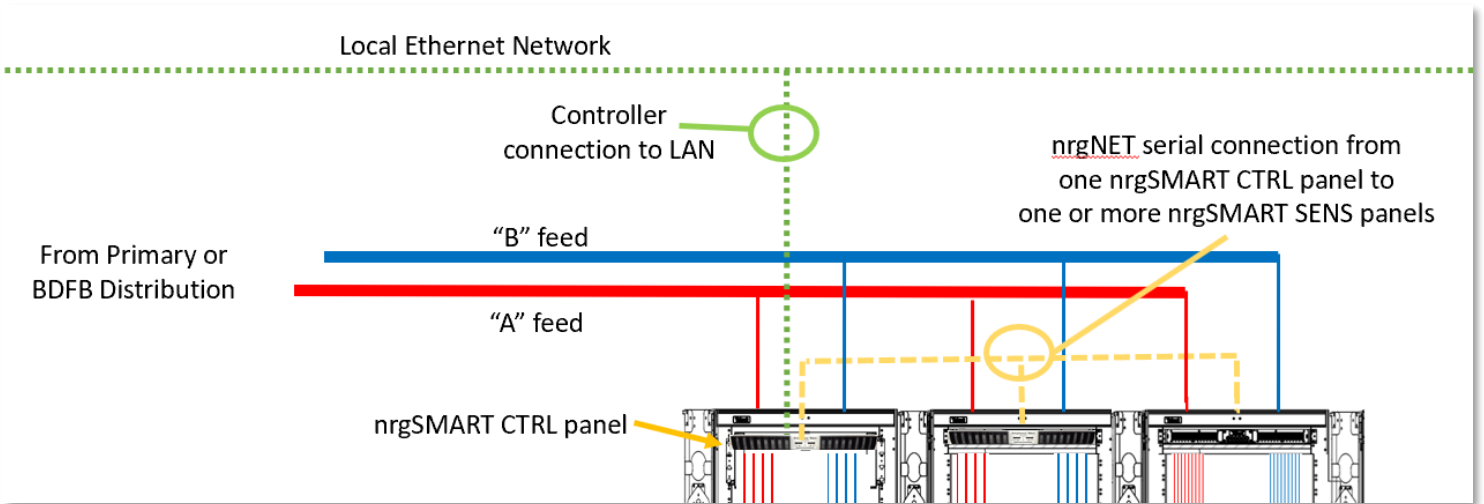


Figure 3: 1:N network connectivity  
(CTRL integrated controller in one panel, connected to multiple SENS panels)

**Primary Benefits**

- 100% passive monitoring
- Collect feed voltage, individual circuit current and remote temperatures
- Data is collected and sent to a customer’s network management system via SNMP
- Universal voltage ( $\pm 12\text{VDC}$ ,  $\pm 24\text{VDC}$  and  $\pm 48\text{VDC}$ ) enables implementation of nrgSMART in a variety of applications.
- No proprietary application software: HTML for user interface
- UL compliant to ensure industry-standard safety and functional requirements

**Panels with integrated nrgSMART® controller technology**

nrgSMART integrated controller technology is available in five (5) different 1RU power panels (see Table 1). All panels are dual-bus, and available with a variety of input and output options. See individual panel data sheets for detailed specifications and ordering information.

Base Panel	Capacity
125GMT10	125A input: 10x10 GMT outputs
125GMT15	125A input: 15x15 GMT outputs
240GT54	240A input: 9x9 TPA/GMT outputs (4 TPA/GMT per bus)
250TPA08	250A input: 8x8 TPA outputs
300CB08	325A input: 8x8 Circuit Breaker outputs

Table 1: 1RU Power Panels available with nrgSMART integrated controller

**nrgSMART® Specifications**

<b>Voltage Sensor:</b>		<b>Specifications:</b>	
Sensor accuracy		-19.99 to +19.99V: ± 0.3V	
		-20V to -60V: ± 0.1V	
		+20V to +60V: ± 0.1V	
Voltage measurement range		-60 to +60 VDC	
NOTE:			
• Voltage measurement may be slightly different than at input terminal blocks due to the voltage drop within the panel.			
• Sensors are factory calibrated and do not require user adjustment.			
<b>Current Sensor:</b>		<b>Specifications:</b>	
Precision / accuracy		±5% precision, ±0.25A accuracy	
		Example: 40A current, will measure 40A ± (40A*5%) ± 0.25A	
		= 40A ± 2.0A ± 0.25A	
		= 37.75A to 42.25A	
<b>Display (CTRL Integrated Controller only)</b>		<b>Specifications:</b>	
OLED, Black & White		2-line display	
		Xx characters	
		Voltage, current, temperature, network parameters, local alarms	
<b>Communication:</b>		<b>Specifications:</b>	
Ethernet (CTRL integrated controller)		SNMPv2 GET (for data retrieval)	
		SNMPv2 Traps (for alarm notification)	
nrgNET communication protocol (between CTRL integrated controller and SENS sensor panels)		RS485 serial protocol used to communicate between panels and Controller, up to 30 interconnected panels	
nrgNET connector		Removable 5-pin connector with screw down terminals	
nrgNET connector functions		nrgNET IN from the nrgCONTROL or upstream nrgSMART panel	
		nrgNET OUT to downstream nrgSMART panel	
<b>Compliance (when installed in an nrgSMART™ power panel):</b>		<b>Specifications:</b>	
UL		Listed	
NEBS		Level 3	