

CONNECT AND PROTECT

Single-Point Electronic Controller for Fire Protection Pipe Tracing Systems

PRODUCT OVERVIEW



The nVent RAYCHEM 465 is a c-UL-us Listed single point heat tracing controller designed for fire sprinkler/fire suppression systems. It includes a 5" inch color touch screen display for intuitive set up and programming right out of the box. The 465 controller may be used with line-sensing or ambient-sensing and Proportional Ambient-Sensing Control (PASC) modes. It measures temperatures with two 2 KOhm / 77°F (25°C), 2-wire Thermistors connected directly to the unit. The controller can also measure ground fault current to ensure system integrity. The controller includes ground fault current sensing and relaying equipment compliant with UL1053 standard

FEATURES

- 5" color touch screen for easy set-up and programming
- Easy to install push-in cage-clamp wire terminals
- Standalone unit that can be DIN Rail mounted
- Ground fault equipment protection (GFEP) compliant with UL1053
- User-defined settings for ground fault alarm and trip levels
- User-defined high temperature cut-out setting
- Autocycle feature to automatically and regularly test the system for any problems
- Energy efficient PASC mode available
- Alarm relay for remote alarm annunciation to the fire panel
- Two temperature sensors that can be used for ambient and line sensing
- Programmable in advance in power-off mode by using external power bank/charger and USB connection

GENERAL

Area of use	Non-hazardous locations
Approvals	c-UL-us Listed for Fire Sprinkler Systems (VGNJ, VGNJ 7)



GROUND FAULT PROTECTION

Built-in GFEP. Heat tracing circuit equipped with the 465 controller do not require additional ground fault protection equipment, simplifying installation and reducing costs. It automatically tests the integrity of the integrated ground fault circuitry, ensuring protection in the event of a ground fault.

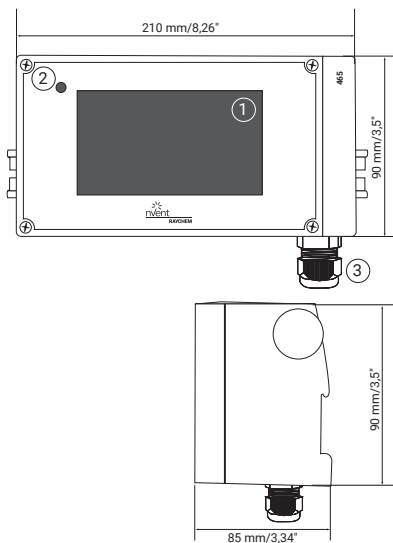
ELECTRICAL PROPERTIES

Supply voltage	120/208/240/277 VAC, 50/60 Hz
Ambient operating temperature range	32°F (0°C) to 105°F (40°C)
Ambient storage temperature range	-4°F (-20°C) to 122°F (50°C)
Internal power consumption	9 W maximum
Output relay switching capacity	Double pole single throw relay, 24 A @ 120/208/240/277 +/-10% Vac; 50/60 Hz
Supervisory relay	Single pole double throw relay, volt-free; maximum switching capacity (resistive load only) 1 A/24 VDC, 1 A/24 VAC
Circuit breaker	30 A maximum
Ground fault	30 mA, complies with UL 1053 standard
Real time clock	Automatic daylight saving time and leap year correction
Clock accuracy	+/-10 minutes per year
Keylock	Password protection for parameter settings
USB port	For pre-setup in power off mode; for firmware upgrades

ENCLOSURE

Dimensions	210 mm x 90 mm x 85 mm / 8.26" x 3.5" x 3.34"
Ingress protection class	TYPE 12 – indoor use only
Enclosure material	Polycarbonate
Mounting option	Mountable DIN RAIL, 35 mm
Conduit entries	Two each-1/2 in conduit entries
Cable gland	3 -hole grommet for temperature sensors maximum cable size -2 wire: 20 AWG (0,5 mm ²)
Flammability class	DIN EN 60730/VDE 0631-1

TYPICAL DIMENSIONS AND MODULE LAYOUT



1. Touch screen: 5" resistive
2. LED Green: Normal operation, heater on: 1.5 sec on/0.5 sec off
Normal operation, heater off: 1.0 sec on/1 sec off
Alarm condition: 0.2 sec on/1.8 sec off
3. M20 Gland: Sensor ambient/sensor pipe/external alarm

PROGRAMMING

Maintain temperature setpoint	32°F (0°C) to 105°F (40°C)
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SENSOR

Temperature sensor type	Thermistor 2 KOhm / 77°F (25°C), 2-wire
Sensor tip dimensions	Ø 0.2" (5 mm); length 0.8" (20 mm)
Sensor cable length	10 ft (3 m) cable extension up to 328 ft (100 m) / 2 x 16 AWG Note: To reduce the likelihood that electrical noise will affect temperature measurement, keep extension wires as short as possible. It is recommended to use the shielded cable for sensor extensions. Shield of the cable can be terminated to the PE terminal.
Sensor temperature range	-40°F (-40°C) to 194°F (90°C)

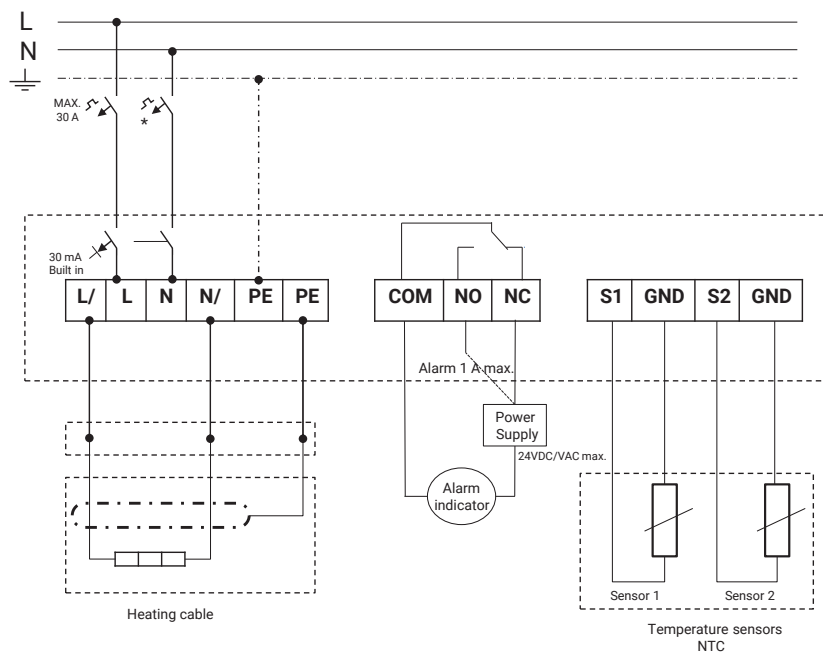
MONITORING

Temperature	Low alarm range:	-40°F to 120°F (-40°C to 49°C)
	High alarm range:	32°F to 120°F (0°C to 49°C)
Ground fault	Alarm range:	20 - 200 mA
	Trip range:	20 - 200 mA
Autocycle	Built-in (Daily)	
Supervisory Relay	The supervisory relay is used to provide supervisory signal to a fire alarm system for any of the following alarm conditions:	
	1. Ground fault current	
	2. Low system temperature	
	3. High system temperature	
	4. Temperature sensor failure	
	5. Internal error	
	6. Loss of continuity	
	7. Loss of incoming supply voltage	
Audio (buzzer) and visual alarm (LED light, screen display) for any alarm conditions.		

MEMORY

Parameters	All parameters are stored in nonvolatile memory, except date and time
Clock back-up time	10 days

ELECTRICAL SCHEME



Size power supply terminals	3 x 6 mm ² maximum/10 AWG
Size heating cable terminals	3 x 6 mm ² maximum/10 AWG
Size alarm terminals	3 x 1,5 mm ² maximum/16 AWG
Size sensor terminal - pipe	2 x 1,5 mm ² maximum/16 AWG
Size sensor terminal - ambient	2 x 1,5 mm ² maximum/16 AWG

ORDERING DETAILS

Description	Catalog	Part Number	Weight
Single-point heat tracing controller for fire sprinkler/fire suppression systems	465 Controller	P000002339	2.3 lbs/1050 g
2K NTC Sensor 10 m long	SENSOR-NTC-10M	1244-015847	0.2 lbs/90 g

North America

Tel +1.800.545.6258
thermal.info@nVent.com



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