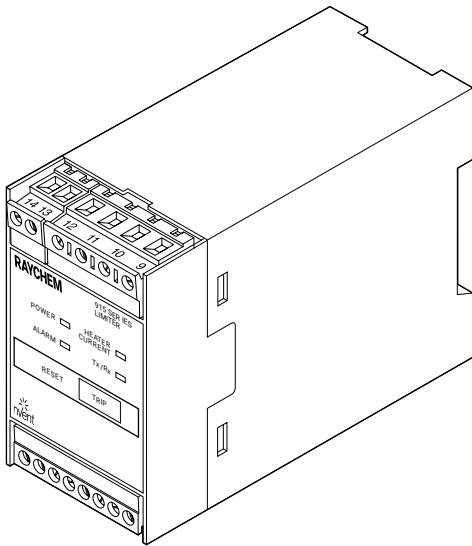# HTC-915-LIM

TEMPERATURE LIMITER

PRODUCT OVERVIEW

The nVent RAYCHEM HTC-915-LIM is a compact, microprocessor-based temperature limiter that provides protection against over-temperature. The HTC-915-LIM has two output relays, one normally closed limiter relay (opening in occurrence of over temperature) and one alarm relay. The HTC-915-LIM is available in two versions: the first one is the base unit for use in conjunction with the HTC-915-CONT (Heat-Trace control system). The lock out temperature of this device can be programmed and altered via the front panel of the HTC-915 control unit. The limiter can be set at any value between 20 and 450°C in steps of 1K.

A second version of the HTC-915-LIM has a preprogrammed lock out temperature. HTC-915-LIM limiters are available for T1, T2, T3, T4 and T5 classified areas as indicated in table at the bottom of next page (*).

OPERATION

The nVent RAYCHEM HTC-915-LIM measures temperature via a 3-wire PT100 connected directly to the input terminals of the unit. In order to assure the hottest temperature is being measured the measuring tip of the PT100 needs to be installed at a representative location. When used with an Ex approved sensor (as is the MONI-PT100-EXE), the HTC-915-LIM can measure temperatures in hazardous area. Open, shorted or out-of-range PT100 resistance is automatically detected. As a result of that the control output will trip open and an alarm will be generated. When in normal operation the set point temperature of the limiter is exceeded the control output will trip open. Once tripped, the control output will remain open even if the measured temperature drops below the set point. The unit will not restart until manually reset. The HTC-915-LIM can be reset via the front panel of the unit by pressing and holding the reset button for 2 seconds or via the alarm menu of the HTC-915-CONT when the limiter is used in conjunction with a HTC-915-CONT Heat-Trace control system. Another possibility to reset the limiter is via the remote input of the HTC-915-CONT controller or via the optional nVent RAYCHEM Supervisor software.

MONITORING

When the limiter is used in conjunction with the nVent RAYCHEM HTC-915-CONT, the combination can be used as a fully featured control and monitoring system that measures a broad variety of parameters such as: temperature, voltage, power, contactor cycles, hours in use, load resistance, load current, and ground-fault current. To ensure system integrity, the controller can be programmed to periodically check the heating cable for faults, alerting maintenance personnel of a heat-tracing problem. Additional alarm outputs are available on the controller (refer to the controller datasheet for the full list of features).

OVERTEMPERATURE ALLOWANCE

The nVent RAYCHEM HTC-915-LIM can be configured such that it will allow its setpoint temperature to be exceeded without tripping. In this instance, the unit is programmed to measure load current, and will allow a temporary over-temperature condition only when no current flows to the load. This feature shall only be used under certain, well-defined circumstances, such as when the process is heated by external heat sources, or when the installation is being steam cleaned.

INSTALLATION

The nVent RAYCHEM HTC-915-LIM can be used as a stand alone unit with a fixed preprogrammed lock-out temperature as well as in combination with a nVent RAYCHEM HTC-915-CONT control unit.
The DIN rail mount plastic enclosure is for use in safe area only.
The HTC-915-CONT operator interface includes all functions required to simplify set-up and integration of the limiter.

APPLICATION

Type	Surface sensing electronic
Area of use	Ordinary area locations, indoors
Approval certification	CE marked
	EAC (Russia, Kazakhstan, Belarus) For other countries contact your local nVent representative.

PRODUCT SPECIFICATION

Temperature range limiter	20°C to 450°C in steps of 1 K
Switching accuracy	1 K

ELECTRICAL PROPERTIES

Connection terminals	Screw type terminals. All terminals suitable for stranded and solid core connection cables having a cross section between 0.5 and 2.5 mm2 (24 to 12 AWG)
Power supply	12 Vdc to 24 Vdc, 100 to 50 mA. Max. (can be directly obtained from a nVent RAYCHEM HTC-915-CONT)
Control output	NC relay contact rated 3 A 250 Vac, 50/60 Hz
Alarm output relay	Relay contact rated 3 A 250 Vac, 56/60 Hz (N.C. in operation opening on alarm or power outage)

TEMPERATURE SENSOR

Type	100 Ω platinum RTD, 3-wire, α = 0.00385 Ω/°C.
Quantity	1 RTD input available
Cable extension	Can be extended with a three core shielded cable of maximum 20 Ω lead resistance per conductor. Open, shorted or out-of-range RTD resistance is detected. If an RTD failure is detected, the control output trips open.

COMMUNICATIONS (TO NVENT RAYCHEM 915 CONTROLLER)

Topology	Point-point (limiter >< controller)
Cable	Four conductor cable, 0.5 mm² (24 AWG) or larger
Length	3 m max.

PROGRAMMING AND SETTING

Method	Via the keypad of the nVent RAYCHEM HTC-915-CONT or Supervisory software
Units of measure	°C or °F, depending on the units setting of the programming device
Alarm conditions	Over-temperature, RTD failure, CT failure, loss of programmed values, limiter reset.

MONITORING

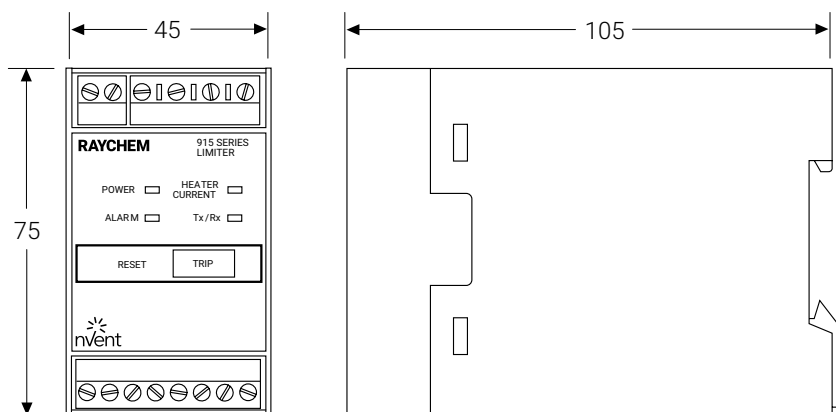|	
LED indicators	LEDs available for: power, presence of heater current, limiter trip, Tx/Rx, alarm
Current (via external CT, optional)	Presence of Heater current, 0.2 A min.

ENCLOSURE

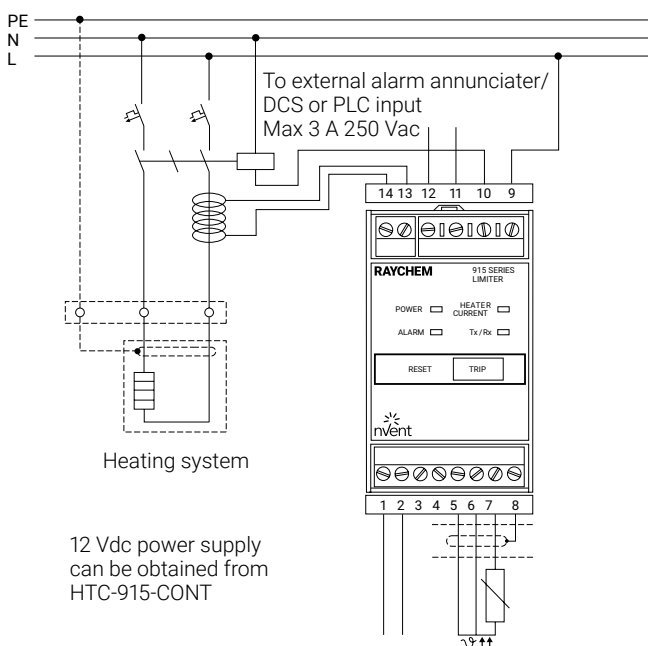|	
Ambient operating temperature range	−40°C to +50°C
Ambient storage temperature range	−40°C to +85°C
Relative humidity	0% to 90% Non condensing
Protection	Housing: IP40, Terminals: IP20
Materials	ASA-PC, color: green
Mounting	Panel mounting on 35 mm DIN rail

(*)	T1	T2	T3	T4	T5
Model	HTC-915-LIM-T1	HTC-915-LIM-T2	HTC-915-LIM-T3	HTC-915-LIM-T4	HTC-915-LIM-T5
Lock out temperature	450°C	300°C	200°C	135°C	100°C

When used in conjunction with the HTC-915-CONT (Heat-Trace control system) the pre programmed set point can be altered

DIMENSIONS (IN MM)

WIRING DIAGRAM

To external alarm annunciater/
DCS or PLC input
Max 3 A 250 Vac

Heating system

12 Vdc power supply
can be obtained from
HTC-915-CONT

Terminal assignments of the limiter

1. Digital common
   (from HTC 13)
2. +12 Vdc in (from HTC 14)
3. RX data (from HTC 15)
4. TX data (to HTC 16)
5. RTD 1 source
6. RTD 1 sense
7. RTD 1 common
8. Shield
9. Control relay output
10. Control relay output
11. Alarm relay output
12. Alarm relay output
13. Load Current CT input
14. Load Current CT input

*   Wiring for Communications with
    HTC-915-CONT Controller omitted for clarity
    Refer to installation instructions for details.
** Current sensor optional and not included

ORDERING DETAILS

Controller	Part description PN (Weight)	HTC-915-CONT 10275-001 (0.4 kg)		
Limiter	Part description PN (Weight)	HTC-915-LIM 10275-003 (0.2 kg)		
Limiter		HTC-915-LIM	base unit for use with HTC-915-CONT	10275-003
		HTC-915-LIM/T1	Preprogrammed to trip at 450°C (+0/−10°K)	10275-004
		HTC-915-LIM/T2	Preprogrammed to trip at 300°C (+0/−10°K)	10275-005
		HTC-915-LIM/T3	Preprogrammed to trip at 200°C (+0/−5°K)	10275-006
		HTC-915-LIM/T4	Preprogrammed to trip at 135°C (+0/−5°K)	10275-007
		HTC-915-LIM/T5	Preprogrammed to trip at 100°C (+0/−5°K)	10275-008
Current sensor (load current transformer)		HTC-915/CT		1244-000276 (0.15 kg)
RTD for Hazardous area zone 1	MONI-PT100-EXE			967094-000 (0.44 kg)

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