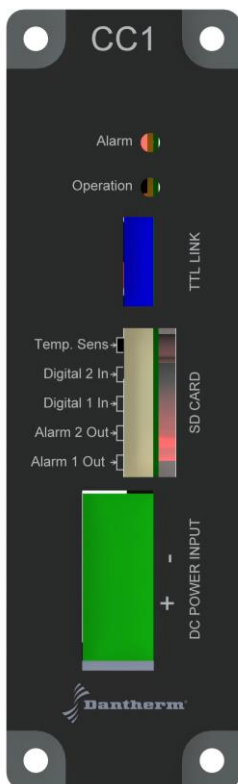
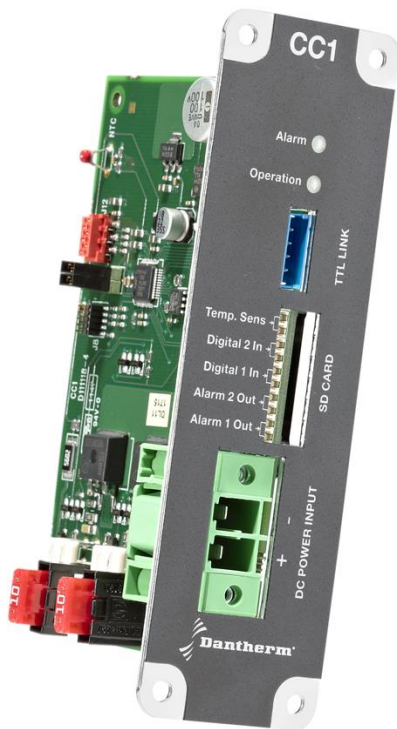


CC1



CC1
TELECOM COOLING CONTROLLER

Dantherm Telecom Cooling Controller CC1 is designed for speed control and monitoring of up to two 24/48V DC operated fans. The controller has an onboard temperature sensor and an option to connect an additional remote sensor.

The fans are speed controlled, to obtain the set temperature inside a cabinet. The temperature set point can be adjusted to customer requirements.

Two digital inputs can be used for surveillance of filter and fire alarm.

FEATURES AND BENEFITS

- Energy saving control strategy: with fans controlled with unique, stable RPM independent of supply voltage fluctuations.
 - Wide supply voltage range accommodating both 24V/48VDC.
 - Supports high power fans up to 10A output.
 - Configuration parameters stored in on-board, non-volatile memory.
 - Configurable digital input/outputs supporting heat exchangers – direct air coolers and thermo siphons.
 - The fan is controlled steeples, with stable RPM independent of supply voltage fluctuations – resulting in minimal power consumption and prolonged fan life time.
 - Wide operating supply voltage: 20-60V DC. Complies with 24/48V DC telecom supply voltage range (both – and +).
 - Supports high power fans - up to 10A for each fan output.
 - Reverse polarity protection of controller.
 - Inrush current limiter, which allows hot insert.
 - Poke-in connection for alarms, remote temperature sensor and digital inputs for quick and reliable wire termination.
 - Galvanic insulated digital outputs. Insulation voltage is 500V.
 - DC power plug with screw terminals, for easy and reliable installation.
 - TTL-Link serial connection to use with TTL/USB cable for laptop.
 - LED for on-site alarm and operation status observation.
 - Easy configuration of customized settings.
 - New configuration to be loaded on SD card.
 - LVD Low Voltage Disconnection – in case of low voltage supply.
 - The fans will stop and thereby prolong backup time and battery life time.
 - Emergency cooling in case of overheating results in 100% fan speed.
- Optional features**
- SD card
 - Remote temperature sensor
 - Serial TTL/USB adapter (Standard adapter for use with standard terminal PC software)

TECHNICAL DATA
CC1

Version Dantherm Telecom Cooling Controller CC1		
Item number		068161
Input		
DC supply voltage range	20-60 V	Phoenix PC 4/ 2-G-7,62
Digital 1	Dry contact (10mA)	AVX IDC Serie 9276
Digital 2	Dry contact (10mA)	AVX IDC Serie 9276
Remote sensor	NTC -30 to 85°C (-22 to 185°F)	AVX IDC Serie 9276
Output		
Fan 1	+, -, T, P (10A)	AMP Mini Universal MATE-N-LOK
Fan 2	+, -, T, P (10A)	AMP Mini Universal MATE-N-LOK
Alarm 1	Optomos (100mA/60V)	AVX IDC Serie 9276
Alarm 2	Optomos (100mA/60V)	AVX IDC Serie 9276
Fan 1	+, -, T, P (10A)	AMP Mini Universal MATE-N-LOK
Fan 2	+, -, T, P (10A)	AMP Mini Universal MATE-N-LOK
Alarm 1	Optomos (100mA/60V)	AVX IDC Serie 9276
Alarm 2	Optomos (100mA/60V)	AVX IDC Serie 9276
Memory		
Onboard EEprom	1K non volatile	Storage of operating parameters
Mass storage device	Up to 32 G SD Flash	For logging and change of parameters
Environmental		
Temperature range	-40 to 85°C (-40 to 185°F)	
Safety	EN/UL 60950-1	
EMC	EN 61000-6-2:2005 EN 61000-6-3:2007	Electromagnetic compatibility (EMC) – Part 6-2: Generic standards - Immunity for industrial environments EMC Emission (EN 55022 version: 1998+A1:200 +A2:2003_ClassB) Electromagnetic compatibility (EMC) – Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments

FAN CONTROL STRATEGY

FAN 1 (internal at closed loop air flow)

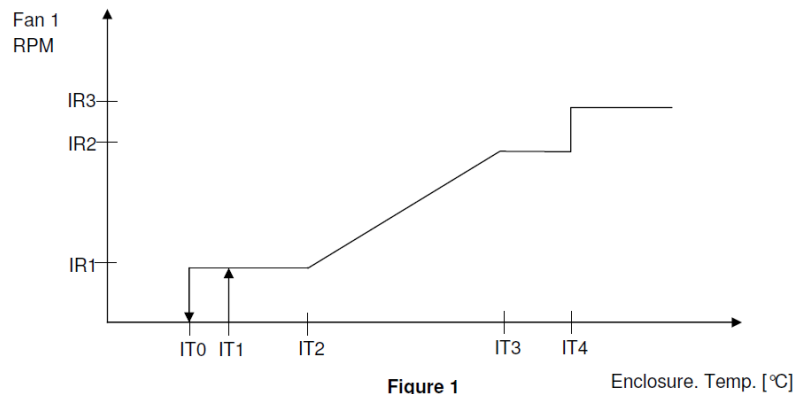
Fan 1 is stopped at return air temperature below (IT1).

When the return air temperature increases above IT1, fan speed is set to IR1.

At increasing temperatures, the fan speed will reach IR2 at temperature IT2.

The fan has an on/off hysteresis; I_{hys}.

The fan is controlled with stable RPM independent of supply voltage fluctuations



Default	°C	Default	RPM
IT0	16		0
IT1	20	IR1	1400
IT2	30	IR1	1400
IT3	50	IR2	2250
IT4	60	IR3	MAX

FAN 2 (external at closed loop air flow)

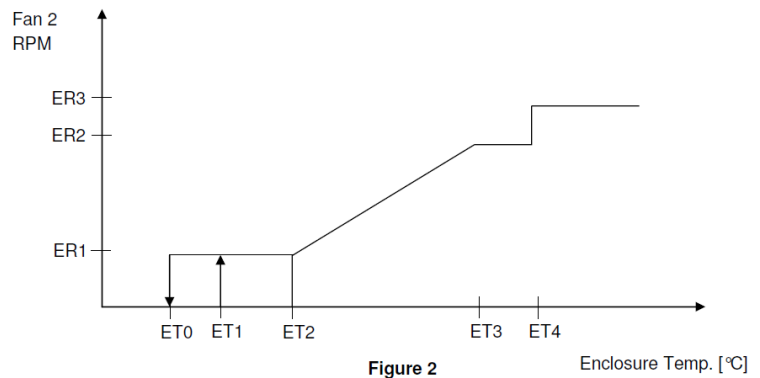
Fan 2 is stopped at return air temperature below (ET1).

When the return air temperature increases above ET1, fan speed is set to ER1.

At increasing temperatures, the fan speed will reach ER2 at temperature ET2.

The fan has an on/off hysteresis; E_{hys}.

The fan is controlled with stable RPM independent of supply voltage fluctuations



Default	°C	Default	RPM
ET0	26		0
ET1	30	ER1	950
ET2	35	ER1	950
ET3	55	ER2	1400
ET4	60	ER3	MAX

Temperature/RPM set points are easily changed by download of configurations file from SD card.