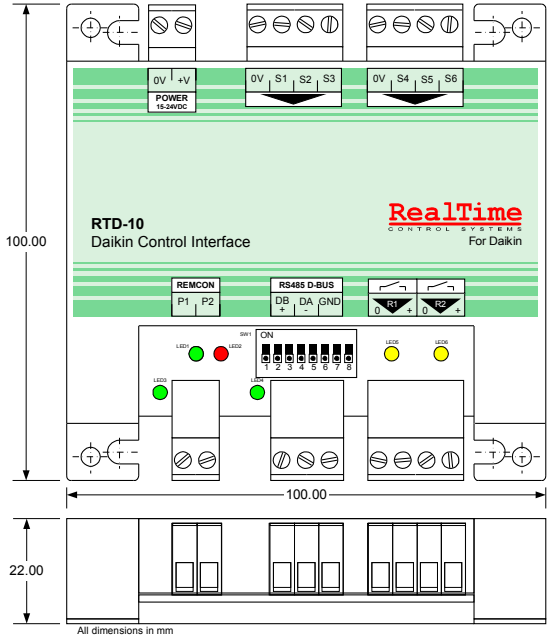
RTD-10 Control Interface v1.04

Advanced Configuration Instructions



RTD-10 Description

The RTD-10 is a monitoring and control interface for Daikin VRV and Skyair ranges of air-conditioners; and VAM and VKM ventilation units. The interface is compatible with all units that have a P1,P2 remote controller network connection and allows control of upto 16 units in a single group.

Control Functions

HARDWIRED CONTROL. Unit control can be achieved through resistance inputs using resistor, potentiometer and volt-free contact inputs.

BMS INTEGRATION. Unit control can be achieved through 1-10V voltage inputs integrated with BMS control outputs.

HEATING INTERLOCK. Units can be interlocked with external heating systems.

DUTY/STANDBY. Multiple groups can be operated with rotating duty/standby with fault and high temperature alarming.

MODBUS CONTROL. The RTD supports the Modbus Protocol for network control and monitoring.

CUSTOM CONTROL. RTD interfaces can be supplied in custom configurations to suit specific applications.

Warnings and Cautions

Do not exceed the specified fault relay ratings

Observe precautions for handling Electrostatic Sensitive Devices

Configuration Parameters

CONFIGURATION TABLE

A number of parameters of the RTD-10 are user configurable to allow the RTD-10 functionality to be modified to suit specific purposes.

Adjustable parameters are modified by writing to Modbus Holding Registers in the range H11301 to H11316. The adjustable parameters are given in the following table.

Name	Holding Register	Default Value	Function
K1	11301	0	R1 Relay Function (see Relay Function Table)
K2	11302	0	R2 Relay Function (see Relay Function Table)
K3	11303	0	R1 Relay Invert (0:Not Inverted, 1: Inverted)
K4	11304	0	R2 Relay Invert (0:Not Inverted, 1: Inverted)
K5	11305	16	S1 Setpoint Range Minimum
K6	11306	32	S1 Setpoint Range Maximum
K7	11307	22	S1 Setpoint Default Open Circuit Value
K8	11308	19	Standard Control RC Setpoint Limit Minimum
K9	11309	23	Standard Control RC Setpoint Limit Maximum
K10	11310	20	Duty/Standby RC Setpoint Limit Minimum
K11	11311	32	Duty/Standby RC Setpoint Limit Maximum
K12	11312	2	Duty/Standby L1 Alarm Temperature Rise (°C)
K13	11313	4	Duty/Standby L2 Alarm Temperature Rise (°C)
K14	11314	20	Duty/Standby Temperature Alarm All Units Run-On Time (mins)
K15	11315	10	Duty/Standby Fault Alarm Units All Units Run-On Time (mins)
K16	11316	0	Duty/Standby Number of standby units. 0: Configured from RTD-10 dip switches 1-7: Number of standby units*
K17	11317	0	Duty/Standby Master Fault Relay Mode 0: L1 and L2 alarms reported for all groups 1: L1 and L2 alarms only reported for Duty/Standby Master
K18	11318	0	RTD-10 Extended Mode Select 0: RTD-10 Standard Functionality 1: RTD-10 Extended Functionality

*maximum allowed standby units is always one less than the number of RTD-10s, so at least one RTD-10 group is always running.

In a RTD-10 with Standard Factory Configuration all register values are initially 65535 and the values in the Default Column of the above table are applied. To reset a register to the default factory value, write the value 65535 into the register.

RTD-10s can be supplied with above configuration options pre-configured. Contact Daikin for details.

If a Factory Reset is performed then all registers will be reset to default values.

CAUTION: The register table is stored in EEPROM. Only write to the values for initial configuration. Repeated writes to the registers can lead to EEPROM corruption.

RELAY FUNCTION TABLE

Relay Function Value	Name	Relay Function
0	AUTO	Operation as defined by standard RTD-10 operation mode
1	RUN	Unit is switched ON
2	RUN:HEAT	Unit is switched ON and in HEAT or AUTO:HEAT
3	RUN:COOL	Unit is switched ON and in COOL, AUTO:COOL or DRY
4	FAULT	Unit is in Fault
5	FILTER ALARM	Filter dirty indication
6	THERMO ON	Unit has Thermostat Demand*
7	THERMO HEAT	Unit has Thermostat Demand* for Heating
8	THERMO COOL	Unit has Thermostat Demand* for Cooling
9	DEFROST	Unit is in Defrost or pressure equalisation mode
10	MODBUS	Relay controlled from Modbus Register (see section below)
11	FORCE OFF	Relay output permanently OFF
12	FORCE ON	Relay output permanently ON
13	SELF CLEAN	Self Clean Operation
14	SC ALARM L1	Self Clean Alarm Level L1 or Higher
15	SC ALARM L2	Self Clean Alarm Level L2 or Higher
16	SC ALARM L3	Self Clean Alarm Level L3 or Higher
17	SC ALARM L4	Self Clean Alarm Level L4 or Higher

**Thermostat Demand indication in Skyair units is generated by the indoor unit. Thermostat Demand in VRV units is calculated by the RTD-10*

MODBUS RELAY CONTROL

Setting the Relay Function value to 10 allows direct control of the output relays from Modbus Holding registers. The relay state is then determined by writing a value of 0 or 1 to the following Modbus Holding registers:

Holding Register	Name	Range
12001	Relay 1 Output	0: OPEN >=1: CLOSED
12002	Relay 2 Output	0: OPEN >=1: CLOSED

RTD-10 LED POWER-UP SEQUENCE

If any of the holding registers are modified then the power-up LED sequence of the RTD-10 is modified to indicate a custom configuration. A standard RTD-10 will power-up and flash the GREEN LED with the RED LED constant on. A customer RTD-10 will flash the RED LED with the GREEN LED constant on.