

INTRODUCTION

The SIP Daikin solution is one of a range of pre-configured, standardised interface solution packages available for many applications and protocols. They have been developed to help reduce engineering time and costs and to meet the demand for more information and better energy control.

These products and solutions, when used in conjunction with a Trend BMS, can help ensure a building complies with latest Part L2 Building Regulations and can contribute to your Carbon Reduction Commitment.



APPLICATION

This is a complete pre-configured interfacing solution through the SIP Daikin RTD/NET to provide an interface to the Trend Building Management System from the Daikin VRV and Skyair ranges of air conditioning units; VAM and VKM ventilation units via Daikin control interfaces and meters.

Energy Monitoring can be applied to the Daikin units or the network meters or a combination of both.

Product variants that support up to 4, 8 or 16 slave units are available which means the solution can be scaled to an extensive range of applications, from small retail through to large commercial projects. Products are supplied with an equal combination of Daikin Control Interfaces (default addresses 1-8) connected to a group of up to 16 indoor units from an Air Conditioning system and metering devices (default addresses 9-16). It is important to note that no additional hardware is required, for example an IQ3 Trend controller is not needed for storing values.

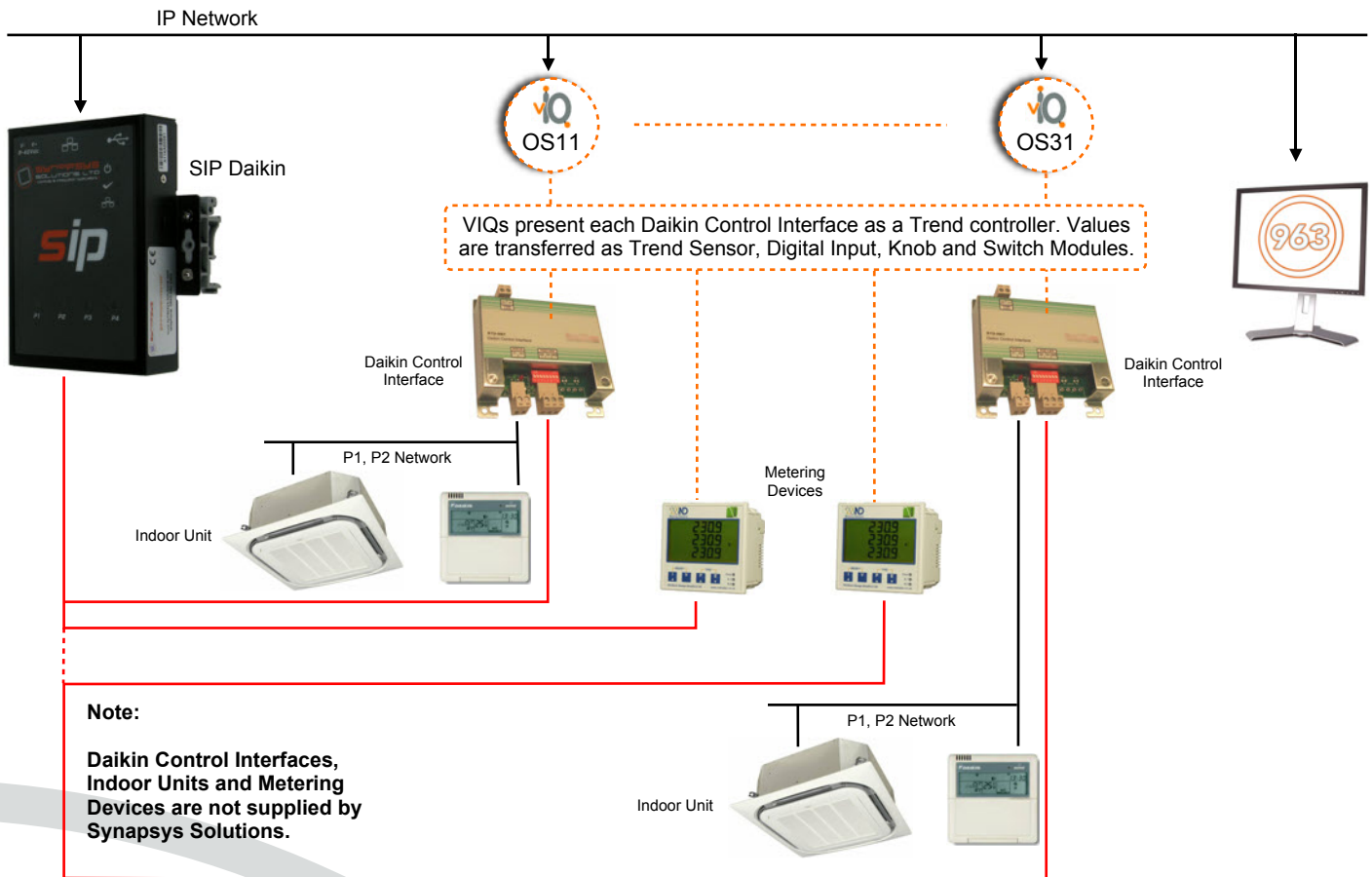
KEY FEATURES

- Ready to install and use
- No configuration required
- Pre-configured communications protocol
- Pre-defined slaves and addresses
- Supports sub-metering

BENEFITS

- Interface sits directly on the Trend LAN
- Complete solution simplifies interfacing
- Pre-configured solution reduces engineering time and cost
- SIP solution developed with the approval of Daikin and Trend

SYSTEM SOLUTION OVERVIEW



TREND COMPATIBLE PARAMETER MODULES

This lists the pre-configured indoor unit and interface parameters.

TREND MODULES	MEASURED POINT	POINTS PER DAIKIN CONTROL I/F	INDOOR UNITS
Sensors	Fault Code		✓
	Return Air Temperature		✓
	Group Fault Code	✓	
	Group Return Air Average Temp.	✓	
	Summary of Group Operation	✓	
	Self Clean Mode	✓	
Digital Inputs	Units in Fault	✓	
	Units in Filter Alarm	✓	
	Units in Defrost Condition	✓	
Knobs	Self Clean Alarm	✓	
	Setpoint	✓	
	Fanspeed	✓	
	Run Mode	✓	
	On/Off	✓	
	Setpoint Update	✓	
	Fanspeed Update	✓	
	Run Mode Update	✓	
	Louvre Update	✓	
	On/Off Update	✓	
	VAM Damper Control	✓	
	VAM Fanspeed	✓	
Switches	Not Used		

This lists the pre-configured meter parameters.

TREND MODULES	MEASURED POINT
Sensors	Total Active Energy (kWh)
	Total reactive Energy (kVArh)
	Apparent Energy (kVAh)
	Total Active Power (kW)
	Total Reactive Power (kVAr)
	Total Apparent Power (kVA)
	Active Power L1, L2 and L3 (kW)
	Current L1, L2 and L3 (A)
	Total Power Factor (pf)
	Reactive Power L1, L2 and L3 (kVAr)
	Apparent Power L1, L2 and L3 (kVA)
	Voltage L1, L2 and L3 (V)
	L1-L2 Voltage (V)
	L2-L3 Voltage (V)
	L3-L1 Voltage (V)

DESIGN AND FUNCTION

The SIP Daikin solution is SPECIFICALLY DESIGNED TO LOG PRE-CONFIGURED PARAMETERS FROM A SLAVE UNIT, I.E. Daikin Control Interface and metering device. Each connected Daikin Control Interface (default addresses 11-18) and metering device (default addresses 19-26) is internally linked to a vIQ (Virtual IQ). This presents each slave unit as a Trend Controller in the Trend BeMS and displays the values using clearly defined labels for each parameter. Sensor values can be plotted allowing the Trend BeMS to display a graph of the indoor unit performance.

INSTALLATION

DIN rail mounting (TS35) using DIN rail clips provided or direct enclosure mounting using the brackets attached.


Note Contact Daikin for termination and cable recommendations

Caution The Daikin Control Interface slave address must be configured between 1 and 8, and the metering device slave address must be configured between 9 and 16.

CONNECTIONS

Tip! Before connecting to the slave, ensure all DIP switches are in the OFF position



- Connect the SIP Daikin from Ethernet port () to the Trend BeMS using standard straight through or crossover Cat 5e cable as necessary.
- Connect the 24VDC power supply.

TERMINAL	DESCRIPTION
V+	Live power supply terminal.
V-	Neutral power supply terminal

- Connect the SIP Daikin from **P1** port to the RS485 network

Note Use the 2.5m TIA/EIA 568A Cat 5e cable supplied to connect the SIP to a terminal block in the enclosure or the first slave unit on the network.

FROM PIN	RS485 SIGNAL	COLOUR	DAIKIN CONTROL INTERFACE SIGNAL
Pin 1	1. N/A		
	2. Data+	Orange	DB+
	3. GND	Green/White	GND
	4. Data-	Blue	DB-
	5-8 N/A		



The image shows the flat side of RJ45 plug.

CONFIGURATION

Typically configuration should be limited to;

- Changing the Local IP settings (to suit building IT policy)
- Managing the slave unit addresses
- Managing the vIQs

Tip! Any further configuration should only be performed by competent personnel.

Open the web page





- Open an internet browser and type the required IP address (default - 192.168.1.227) in the 'navigation' toolbar.

Change the local IP settings






- Login to the 'ModBus' web page (Username - Admin, default Password - password).
- Press 'Local IP setting', edit the the settings and press 'Send and reboot'.

Note The IP address has now changed so you must open the web pages at that IP address.

Manage ModBus slave addresses

- Press 'Map Points' to show pre-configured slave unit addresses.
- Select the slave unit address using the  and  buttons.
Press  to remove or  to create a new slave unit address using the next available.
- Press 'Send' to confirm changes.

Manage vIQs

- Login to the 'vIQ' web page (Username - Admin, default Password - password) and select the out-station number using the  and  buttons.
- Press  to expand Out-station manager area and enter the LAN number.
Press  to remove or  to duplicate the out-station.
- Press 'Send' to confirm changes.

Note Each SIP Daikin assigned to a single LAN.

Tip! If necessary, the Diagnostics web page can be used to read a value from a slave unit.

PRODUCT ORDER CODES

Synapsys Solutions equipment

SIP/DAIKIN/RTD/4VIQ Connects up to 4 slave units.

SIP/DAIKIN/RTD/8VIQ Connects up to 8 slave units.

SIP/DAIKIN/RTD/16VIQ Connects up to 16 slave units.

Note SIP Daikin product variants can easily be configured to support any combination of Daikin UK.RTD/NET and metering devices.

Daikin equipment

UK.RTD/NET Daikin Control Interface - 1 per group of 16 indoor units.

Air Conditioning VRV or Skyair range units.

Ventilation VAM or VKM units.

Metering Device Nortronics Cube 400, Northern Design Cube 400.

DOCUMENTATION

SIP Daikin Interface

- Technical Datasheet
- Quick Start Guide
- Technical Guide

Daikin Control Interface

- Installation and Operating Instructions

Metering Device

- Operating Guide
- Communications Manual