DHOS-CS-PC-2402

ENHANCE YOUR HVAC SYSTEM WITH MARUTTO P-SERIES PLANTROOM CONTROLLER

Introducing **MARUTTO P-Series**, now featuring our advanced **DMC Controller** paired with the versatile **DMT IO Expansion Module**.

This cutting edge combination delivers unparalleled compatibility to enhance your HVAC systems. The DMT IO Modules seamless integrate with the DMC Controller, enabling high-speed input/output processing for precise and efficient plant control and monitoring.

Energy consumption in buildings, particularly from HVAC systems, is significant, accounting 45-60% of total energy usage. Inefficient HVAC operation not only waste energy but also contributes to excessive carbon emissions. To address this challenge, the MARUTTO P-Series offers an innovative solution designed to optimise HVAC Systems efficiency, reduce energy consumption, and minimise enviromental impact.

Overall Benefit:

- **Maximise equipment and plant efficiency**
- **Streamline installation and reduce engineering efforts**
- **Simplified maintenance and service support for optimised HVAC performance**
- **Lower carbon emission**

Plant Enabled Controller

Daikin DMC Controller is an intelligent device designed to communicate with and collect data from plant equipment. It comprises several key connection components and features:

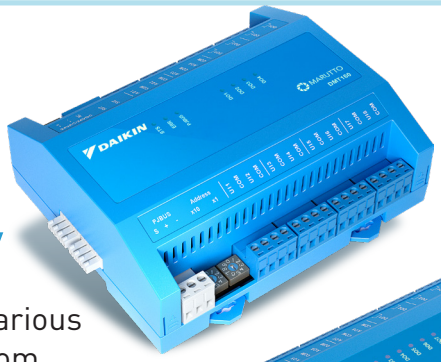
- PJ Communication bus (Panel Bus and Field Bus)
- 2x RS-485 Ports
- 2x Ethernet LAN Ports
- High Powered CPU and Memory
- Modular Design for Touchscreen and Communication Devices*

DMC400

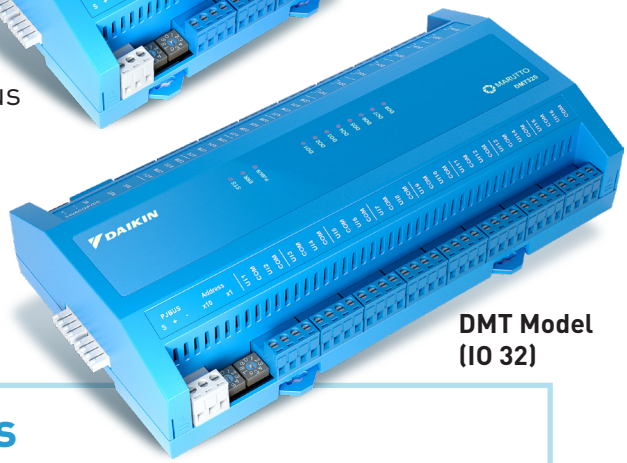
Benefits

- **High-speed IO Modules Communication:** Supports serial communication at speeds up to 500 Kbps.
- **Versatile Serial Connections:** Offers 2 configurable serial ports, supporting BACnet MSTP or Modbus RS485.
- **Third-Party Integration:** Seamlessly integrates with third-party devices.
- **Remote Connection through Internet Connectivity:** Supports web serving, directly from DMC Controller to host and display HTML5 based graphics on standard web browsers.

IO Module: Flexible Expansion for Enhanced Connectivity



DMT Model (IO 16)



DMT Model (IO 32)

Daikin DMT IO Module allows native connection to various HVAC systems equipment, including Chiller Plantroom (Chillers, Pump and Cooling Tower), Air Handling Units, Heat pumps, Ventilation Systems, Lighting control without requiring a separate configuration tool.

Key Components:

IO 16 Module:

1. 8 x Universal Inputs (Configurable as Resistive, Current or Voltage)
2. 4 x Normally Open (NO) Relay Outputs
3. 4 x Analog Outputs (0-10VDC)

IO 32 Module:

1. 16 x Universal Inputs (configurable as Digital Input, Analog Input, 0-10VDC, or Current Input)
2. 8 x Normally Open (NO) Relay Outputs
3. 8 x Analog Outputs (0-10VDC)

Benefits

- **Versatile Connectivity:** Long Range/ Distance IO Module Connection up to 1000 metres
- **High-Speed Processing:** Suitable for bulk IO point monitoring and control applications, including high-speed input pulse counting.
- **Versatile Expansion:** Independent PJ Bus Expansion through Panel Base (Direct connection) or Field Bus (Twisted pair Cabling) for up to 448 IO points.

MARUTTO powered by niagara framework®

- MARUTTO P-Series is powered by Niagara 4.
- Niagara is a robust, open IoT platform designed to normalise data from any protocol.
- Niagara is a Globally recognised and leading BMS Software Solution designed to normalise disparate building data allowing for HVAC System Optimisation and Control.

Key Features of Niagara 4:

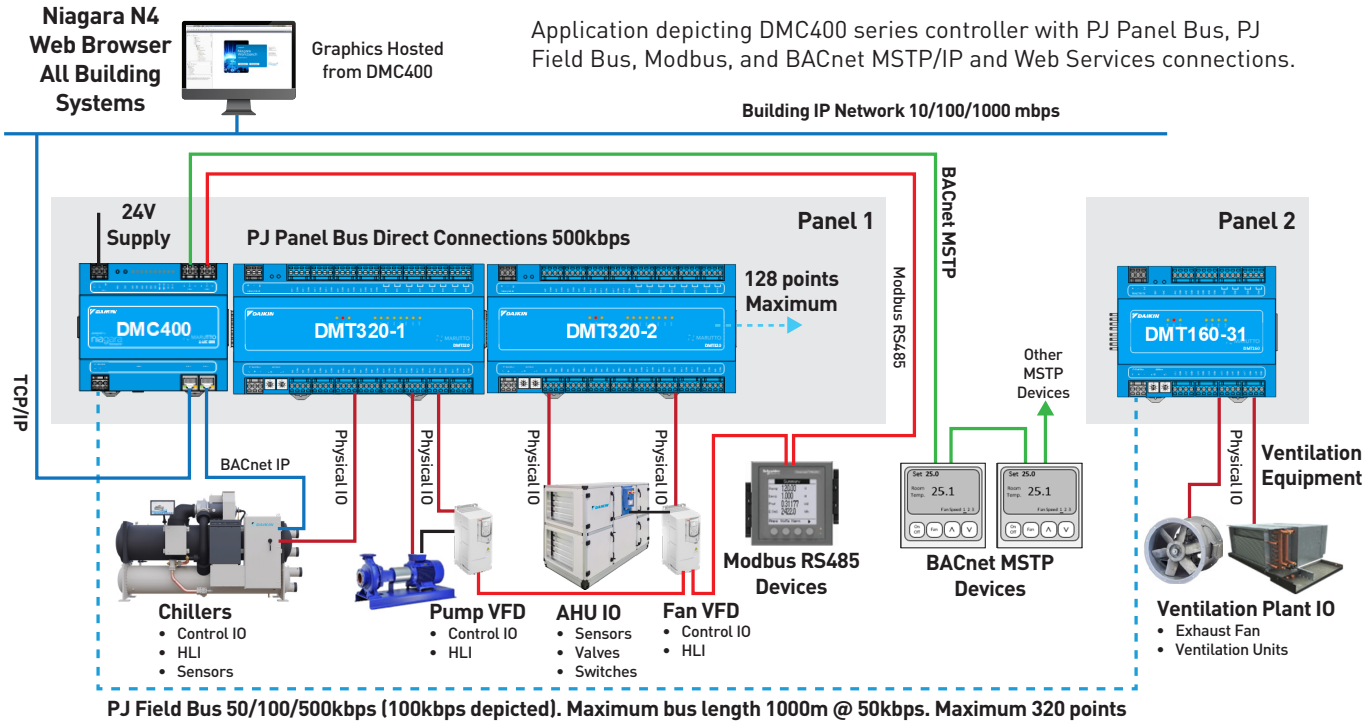
- Built with a modern HTML5-based UX framework, Niagara offers customisable dashboards that allow users to tailor their interface according to their needs. It provides advanced visualisation tools, enabling detailed data representation through powerful charting and graphical capabilities.
- Niagara supports comprehensive data tagging, enabling efficient data management and streamlined tag-based navigation, simplifying the process of locating and organising information.
- Provides repeatable data cleansing capabilities to ensure clean and accurate data.
- Allows easy HVAC System application templating.

MARUTTO P-Series powered by Niagara 4 enables an enhanced cockpit for comprehensive command and control over HVAC systems throughout a building, ensuring reliable and energy-efficient operations at all times.

MARUTTO X iPlantManager

iPlantManager by Daikin provides next generation AI/ML Chiller plant Optimisation. To enable this within the facility, MARUTTO P-Series powered by Niagara 4 is the ideal choice to untap the full potential for building decarbonisation.

Total Plant Ownership and Optimisation



DMC 400 At a Glance

Item	Description	Details
Model Name		DMC400A8G
Hardware	Power Supply	Class 2 Device 24VAC +20% / -15% 24VDC +/-5%
	Power Consumption	9.6VA AC/300mA DC
	Processor	Quad-core Cortex-A53 (ARMv8) 64-bit SoC @ 1.4GHz
	Memory -RAM	2GB DDR4 SDRAM
	Memory -Flash	8GB eMMC storage
	Etheret Communication Ports	Ethernet Ports x 2 10/100/1000 Mbps (1GB connection not presently used)
	Serial communications ports	2 x RS-485 - Modbus RS485, BACnet MSTP. Isolated ports. Supports baud rates up to 115.2kbps
	PJ Panel Bus port for DMT Expansion Modules.	Maximum of 128 IO points per PJ Panel Bus network connection. Preferred baud rate @500kbps
	PJ Field Bus port for DMT Expansion Modules.	Maximum of 320 IO points per PJ Field Bus network connection. Baud rate selectable between 50/100/500kbps
Software	Framework	Niagara N4 Famework, developed by Tridium Fox Protocol – Workbench/Web Browser – Common programming tool
	Protocol Supported	Niagara Protocol (Fox, Foxs), BACnet, Modbus, Web & oBIX
	Others	HTML5 web user interface running Niagara 4 Framework Supports JAVA Web Start without JAVA Plug-ins Supports e-mail service SMTP Protocol Supports SNMP (Simple Network Management Protocol)
Compliance	North America	UL 60730 Energy Management Equipment** FCC 47 CFR Class B, Part 15, Sub-Part B c-UL Canada**
	Europe	IEC 60730, EMC
	UK	UKCA Compliant
	Oceania	RCM Compliant
	Others	RoHS, WEEE, REACH, BACnet Testing Laboratory**
Enviroment	Operating Temperature	0˚C – 50˚C
	Storage Temperature	-20˚C – 65˚C
	Operating Humidity	10% – 90% RH, non-condensing
Mechanical	Dimension	138mm x 120mm x 50mm
	Weight	900 grams
	Material	Base: Plastic Cover: Plastic
	Mounting	35mm DIN rail mount options standard and keyhole slots
	IP Rating	IP20
	Cooling	Internal air convection

IO-16 & IO-32 At a Glance

Item	Description	Details	
Model Name		DMT160A8G	DMT320A8G
Hardware	Power Supply	Class2 24VAC +20% / -15% 24VDC +/-5%	
	Power Consumption	Up to 24VA	
	Processor	GigaDevice ARM Cortex M3 @ 72 MHz	
	RAM	48kb	
	Flash Memory	256kb	
	Communication Ports	2 x PJ Panel Bus connectors 1 x PJ Field Bus terminal block connector	
	Universal Input	12-bit ADC with PGA Resistance – 500 Ohm ~ 300K Ohm, 3% accuracy Voltage – 0-10VDC, 3% accuracy Current – 0-20mA, 3% accuracy Pulse Count – up to 20Hz at 50% duty cycle Digital – voltage free dry contact	
	Analog Output	12bit DAC Voltage Mode 0-10VDC, 3% accuracy Min load impedance 1,000 Ohm at 10mA max	
	Digital Output	Built in onboard LED indicator Voltage Free SPST Normally Open Relay Contact 48VA / 2A at 24VAC	
Compliance	North America	UL 60730 Energy Management Equipment** FCC Class B, Part 15, Sub-part C 15.247 c-UL Canada	
	Europe	CE Compliant	
	UK	UKCA Compliant	
	Oceania	RCM Compliant	
	Others	RoHS, WEEE, REACH	
Enviroment	Operating Temperature	0˚C ~ 50˚C	
	Storage Temperature	-20˚C ~ 65˚C	
	Operating Humidity	10% ~ 90% RH, non-condensing	
Mechanical	Dimension	145mm x 120mm x 50mm	240mm x 120mm x 50mm (overall)
	Weight	400 grams	600 grams
	Material	Base: Plastic Cover: Plastic	
	Mounting	35mm DIN rail mount options standard and keyhole slots	
	IP Rating	IP20	
	Cooling	Internal air convection. Mount horizontally	

Legend
* Launching soon
** Testing in progress

If you have any enquiries, please contact your local sales office.