Energy Management

Balanced Edge and Endpoint Computing

Grid Feed-in and Demand-side Management

Micro-service SaaS

IOT-Ready

All-in-one Solution of Distributed Energy Management for Embedded Energy Networks

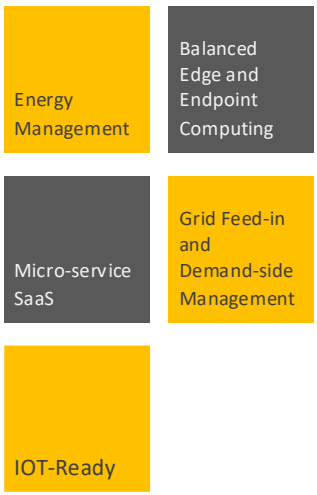
iDLC3350 Dynamic Logic Controller

infinode.

The iDLC3350 Dynamic Logic Controller integrates the functionalities of a power meter and a logic controller, allowing for the data collection of energy consumption from multiple loads and distributed energy resources.

Leveraging the customizable logic framework of the iDLC3350, users can easily define the priorities and control logics for both loads and distributed energy sources. This aids businesses and residential users in achieving objectives such as carbon reduction, maximizing the utilization of renewable energy, and implementing grid export limit.

The iDLC3350 can further expand its functionality and connectivity via iMxx series expansion modules.



Model number	Name	Functionality
iM01	LAN module	Expansion of another LAN port
iM11	Fusion bus module	Expansion of a Fusion bus master port
iM21	Lan/Fusion bus dual module	Expansion of a LAN port and a Fusion bus master port
iM31	2DI/2DO module	Expansion of two digital inputs and two digital outputs
iM32	2DI module	Expansion of two digital inputs
iM33	2DO module	Expansion of two digital outputs
iM34	4DO module	Expansion of four digital outputs

Versatile and Configurable Communication Modes Supporting IoT Applications

Combining High-Speed Measurement and Control in One Unit

Enabling Connectivity and Control of Third-Party Distributed Energy Resources

Fusion BUS Expansion for Multi-circuit Measurement

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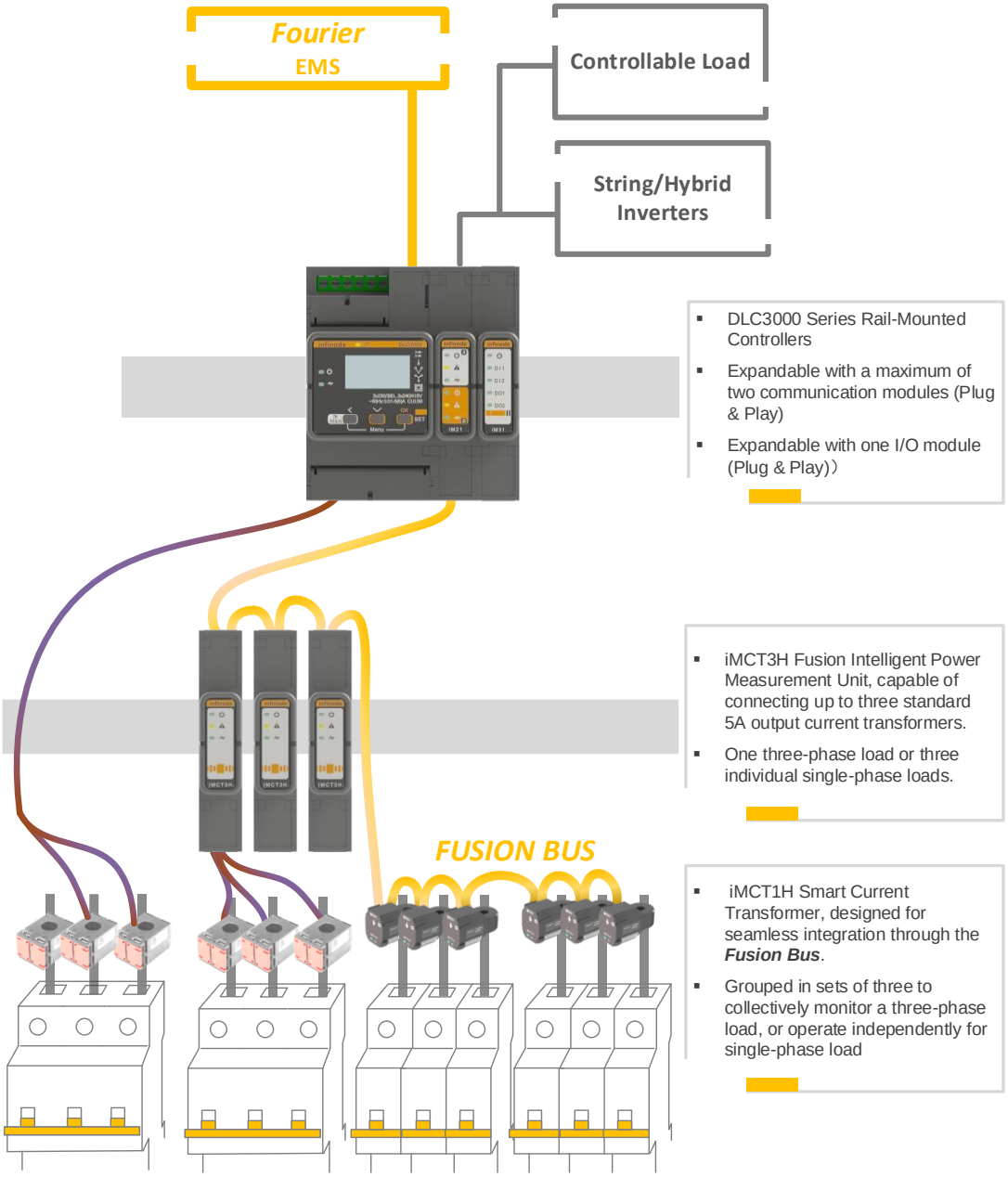
*Below is an example of the expansion, featuring expansion modules respectively the ethernet/fusion bus dual-comm iM21 module and the digital I/O iM31 module for the control of up-to two loads. Particularly noteworthy is the **FUSION BUS** featured in the iM21 module. Through **FUSION BUS**, the iDLC3000 can conveniently expand multiple measurement circuits (based on the iMCT1H smart CT and iMCT3H multi-channel measurement module) for energy management or pure energy logging applications.*



- DLC3000 Series Rail-Mounted Controllers
- Expandable with a maximum of two communication modules (Plug & Play)
- Expandable with one I/O module (Plug & Play)）

- iMCT3H Fusion Intelligent Power Measurement Unit, capable of connecting up to three standard 5A output current transformers.
- One three-phase load or three individual single-phase loads.

- iMCT1H Smart Current Transformer, designed for seamless integration through the ***Fusion Bus***.
- Grouped in sets of three to collectively monitor a three-phase load, or operate independently for single-phase load

Features and Benefits of Using iDLC3350

iDLC3350 alone:

- **Measurement and Calculation (single or three phase)**
    - High sampling rate measurement of power and energy data
    - Power demand calculation
    - Power quality measurement and calculation: harmonic, unbalance
    - Max, min and average calculation of power and power quality data
- **Alert and Alarm**
    - Frequency deviation, loss of phase
    - Phase sequence
    - Ct wiring under 3-phase configuration
- **User Interface**
    - LCD display
    - LED indicators
    - Pulse output of kWh
- **Data Storage**
- **Operation**
    - Realtime clock
    - Firmware upgrade via the Polaris PC software
- **M2M Interface**
    - RS485 interface (Modbus master)
    - Ethernet interface (Modbus TCP server)
    - Digital inputs
- **Security**
    - Password protection
    - Configurable Modbus TCP port
    - Sealed enclosure
- **Control Logic**
    - Control logic definition of loads and distributed energy resources (DER), such as PV inverters
    - Pre-defined third-party DER interface, configuration via the Polaris PC software

More Benefits if Used with FOURIER EMS and PV EZY:

- **Remote and Wireless Grid Protection Mapping**
    - For multi-dwelling embedded networks with an aggregated solar PV higher than 30kVA where grid protection relay is required per the AS4777 standard
    - Seamlessly mapping of the relay output of grid protection relay to each PV point
    - Centralized monitoring of PV and grid protection relay mapping

- **Data Collection, Storage and Analysis**
    - Circuit level general power and energy data logging up to 5 years
    - Circuit level energy usage anomaly analysis
    - Potential third party analysis service expansion
- **Dynamic Demand and Export Control for Embedded Network**
    - Site level demand and export control by managing each iDLC3350 within the network
- **Cloud Interface and Data Visualization**
    - Cloud access to site level data and visualization for a better customer engagement
    - Pipeline for potential servicing business build-up

When Using iDLC3350 Makes Sense

- Customer (both commercial and residential) wants a better control of their loads and DER, a better control of when to turn-on their loads to maximize the usage of clean energy and reduce their energy bill
- Embedded network where the aggregated solar PV is higher than 30kVA where the extra grid protection requirements apply
- Embedded network with both prosumers and consumers where export limit applies, and the embedded network manager needs a better and smart way of controlling the export of solar energy while also wants to maximise the solar PV generation

Operation Philosophy

iDLC3350 can be implemented both as a standalone system, or as part of the **FOURIER EMS**. Whichever way it is implemented, the fundamental operation philosophies are the same, which is provided by the iDLC3350 controller.

Each iDLC3350 controls one ***solar PV*** (optional) and five loads, and the loads are further categorised into ***demand-side response load*** or ***smart load***, which is configurable.

Solar PV	Demand-side response load	Smart load

Each iDLC3350 has ***demand limit***, ***export limit***, and ***smart load thresholds***. The demand limit and export limit are the two limits where the managed property can draw from and export to the parent power grid (whether utility grid or embedded power network), while the smart load thresholds are the instantaneous power for certain loads ('smart load') to turn ON/OFF, especially when there is surplus solar generation. The idea of introducing smart load is to locally make the most use out of solar generation.

It shall be noted that if the managed property does not have solar PV installed yet, the iDLC3350 will work like a demand side management solution, and the user can always retrofit a solar PV system later.

USING WITH FOURIER EMS AND PV EZY

> **When using iDLC3350 within an embedded network along with other iDLC3350, FOURIER EMS, AND PV EZY, the FOURIER EMS will constantly update the demand limit, export limit of each iDLC3350, which is calculated based on the status of the power consumer/prosumers within the embedded network.**