

# Application Note

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**Monitoring Individual Feeders in  
Distribution Panels using Multi  
Load Monitor – ML 1400**



## Overview

From past to present, the needs and technologies have shifted. Substation may not have always been metered directly in the past for every individual feeder, except for critical loads. But over the years, technology and engineering requirements have changed rapidly, thus increasing the network of critical loads. As the need for increased amounts of data for analysis grows, the importance of additional information streams is essential for understanding the changes in the electrical environment of the substation. To that end, metering devices designed especially for the task of providing answers, and not just data are likely to become the norm. The continuous and reliable monitoring of each and every feeder is essential to keep the power system healthy as well as for periodic inspections.

## Problem Statement

For metering purposes, supply from substation is received to the distribution panel room. For monitoring of individual feeders, each feeder is accompanied with a meter to monitor the energy consumption. So the number of meters is equal to the number of feeders. Thus, the system complexity is increased for each additional feeder and monitoring each feeder becomes a tedious task.

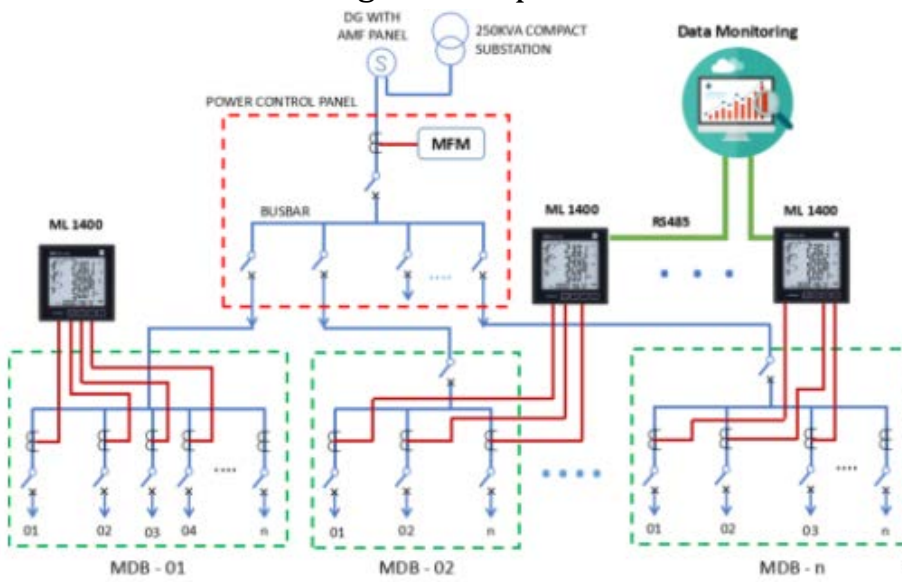
**Solution**

**ML1400:**

ML1400 measures important electrical parameters of multiple loads simultaneously in a single unit, eliminating the need and cost of multiple panel meters. The combination of ML1400 along with 3phase RJ12 CT, or Quick fix Module for conventional CT can be employed for three or four individual feeders. Below table represents the list of products along with the purpose they serve the application.

Sr.No	Product	Purpose
1	ML1400	For feeders to display & monitor multiple load parameters
2	3Ph RJ 12 CT	Used where CT ratings are above 30A (since product range starts from 60A)
3	X-MER CTs (Individual) + Quickfix module	Used where CT ratings are below 30A with the help of Xmer CT & Converts RJ input to ML1400

From the single line diagram , we can see that the outgoing feeders from the power control panel are further taken to individual main distribution boxes (MDB), where it is divided into multiple feeders for individual loads. ML1400 takes input from individual feeders through the respective CT connected at each feeder.



## Benefits

- Individual parameters of Multiple 3 phase distribution feeders can be monitored simultaneously.
- Due to less complexity in wiring, chances of connection error are reduced
- Power saving (Blue impact)
- Relay with multiple output options such as Tariff based tripping, Health monitoring, Residual current monitoring (RCM)
- Operators can easily check the status of each feeder by using a single meter for respective MDB
- System transparency at a glance

## Features

- Multi Load monitoring of 4 x 3 phase loads and 12 x 1 phase loads (Hybrid)
- Residual Current Monitoring
- Three Phase Load Health Monitoring
- Tariff Based Tripping
- Monitoring Of Individual Harmonics up to 31st
- Direct remote access via Modbus/Ethernet
- Analog Graphical Representation Of Load Current
- Larger LCD display available for better visibility over distances

## Other Applications

### **Below are some other application areas for ML1400**

- Sub tenant energy consumption
- Individual load management
- Residual current monitoring
- Data center metering





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