

Application Note

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**Using Multiload Monitor with SM61 for Testing, Monitoring
and Logging of Illuminating Lamps**



Overview

The right area lighting provides a wide distribution, uniform lighting experience for large spaces to increase safety. Street lights illuminate roadways, parking lots, sidewalks, and other public areas. They improve security and driving safety by enhancing vision in poor light conditions. Broad beamed, high intensity flood lights provide illumination for large areas with superior protection from the elements. These different lights are important to be monitored while testing to find out the working electrical supply ranges, consumption and harmonics generated from these lights.

Problem Statement

Six lamps are tested at a time through a single testing unit. For monitoring individual lamps each lamp is accompanied with a meter to monitor the different electrical parameters. So the number of meters is equal to the number of lamps. Thus, the system complexity is increased for each additional lamp and monitoring each lamp becomes a tedious task. Also, they want to log all the important parameters of each lamp and simultaneously want to view parameters of all the lamps while testing through a single testing unit.

Solution

ML1410 measures important electrical parameters of multiple loads simultaneously in a single unit, eliminating the need and cost of multiple panel meters. The combination of ML1410 along with Quick fix Module for conventional CT can be employed for six or twelve individual single phase lamps. Along with ML 1410 Lumel Datalogger SM61IoT is used to log and to communicate the different multiple ML 14xx with the system via ethernet or server.

Below table represents the list of products along with the purpose they serve the application:

Sr.No	Product	Purpose
1	Rish ML 1410	For monitoring multiple load parameters
2	Xmer CTs + QuickFix Module	Used CT rating of 10A/5A along with 3x 5A to 3 phase 100mA RJ05 Quickfix converter
3	Lumel SM61IoT	For logging and communicating data through server

From the below layout diagram , we can see that a single phase supply is available which is supplied from the test unit. Multiload lamps connected in parallel with the supply unit. ML1410 takes input from individual lamps through the respective CT connected at each lamp.

A common voltage supply is given to the multiload monitor. The CT measures the load current of each lamp and sends the output current of 5A to the Quick Fix module. The Module RJ05 will convert 3x 5A current to 3phase 100mA later which is given to ML1410 with the help of RJ12 Cable. The multiload monitors are interconnected with each other via RS 485. A daisy chain connection is made between the meters. The connection is done with the SM61IoT data logger. SM61 will take all the important parameter data from the respective multiload monitor and will send it to server or PC via Ethernet. The user can view all the important data of individual lamps in a single software at a time, and also it can log the parameters of those meters for future reference and analysis purposes.

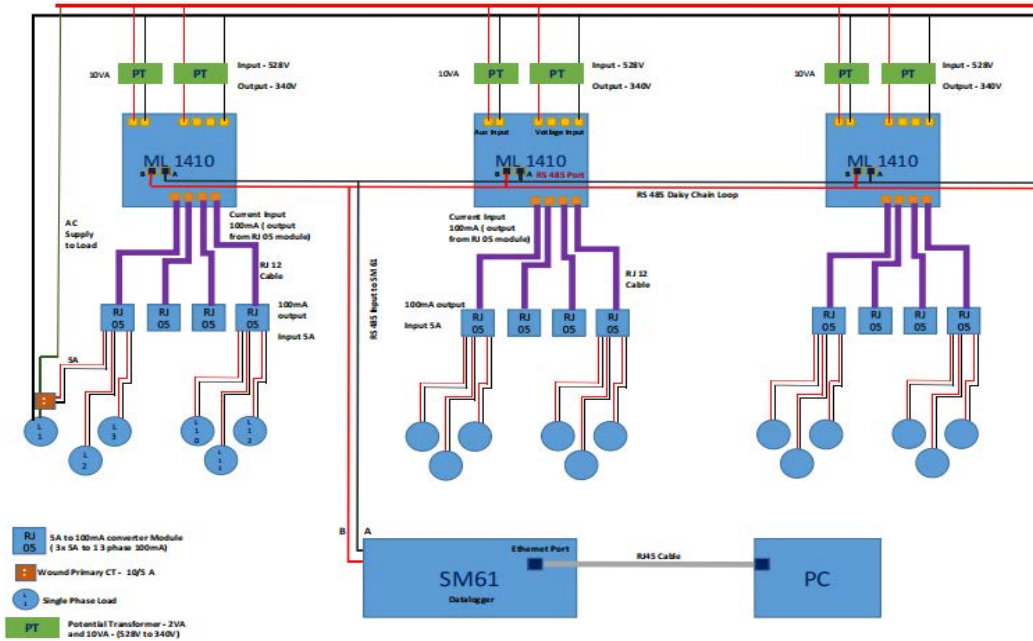


Fig. 1. Layout diagram of Multiload monitor along with SM61 logger.

When switching the R phase multi-step switch from OFF to Position 1 (45 degree rotation), 2 bulbs will glow. Further, after rotating the switch from position 1 to position 2, another 2 bulbs will glow along with the previous bulbs. Similarly when the switch is at position 6, total 12 bulbs will glow. Like this if all 3 switches are kept at position 6, total 36 bulbs will glow simultaneously. The variation of the load can be observed in the voltage and current reading with the help of analog meters. This is done for the AC section of the test bench.

Similarly for the DC section a 2 pole Isolator Switch is used to turn On and OFF the DC motor. You can see the connection terminals on the test bench where multimeter probes can be connected to view the instantaneous Voltage, current, resistance and continuity parameters.

Benefits

- Single window solution
- Various operations can be performed in a single kit
- Aesthetically looks good
- Provides IP 20 terminal protection
- Long distance visibility

Features

- Compact Size
- Reliable Design
- Quick & Easy Installation
- High Protection Class
- High Mechanical and Electrical Life
- Low contact resistance

Below are some other application areas for Cam Switches

- Distribution Board
- Breaker Panels
- Busbar Coupler Panels
- LV Panels



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