

ENERGY AUDIT CERTIFICATE

This is to certify that Energy Audit has been successfully completed by M/s. Saur Engineers & Consultants Pvt. Ltd. Empanelled Energy Auditor(CLASS-A) MEDA, Government of Maharashtra and an ISO 14001:2015 company and suggestions for improvements have been given. The Audit activity has been executed for beneficiary with following Details:-

SONOPANT DANDEKAR SHIKSHAN MANDALI
Tahasil & District Palghar, Maharashtra 401404

Date of Audit: 20/08/2023

Assessment Period: 2021-2023 Valid till: 19/08/2025



ANUP A. SAMANT
TECHNICAL DIRECTOR



ASHUTOSH V. THAKUR
MANAGING DIRECTOR

Saur Engineers & Consultants Pvt. Ltd.

Registration No: EA-28 MEDA/ECN/2023-24/Class-A/EA 28

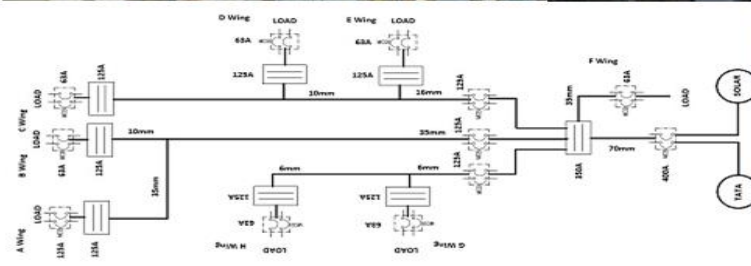
Empanelled Energy Auditor-CLASS A, MEDA, Government of Maharashtra

The report is generated from data, information, answer to asked questions, standards and procedures defined by different and concerned authorities time to time, available site condition, weather condition, operational and availability conditions provided by beneficiary on the day of survey. If any changes on above said measures on any other parameters affecting these measures may lead to change, alter, in-corrections even falsifying calculations, results, recommendations and suggestions. The values, figures, amounts mentioned are indicative to the site situation and condition; it may not reflect each and every aspect of it. The report is generated restricted to given scope and available conditions and measures.



- Liasoning
- Energy Audit
- Safety Audit
- Electrical Projects
- Solar Projects

**Sonopant Dandekar Shikshan Mandali (SDSM)
Tahl. & Dist. Palghar, Maharashtra**



Report By

**M/s. Saur Engineers & Consultants Pvt. Ltd.,
Mumbai.**

- Registered Energy Auditor
- Power Consultant
- Channel Partner-MNRE, Govt. of India.
- Channel Partner-MEDA, Govt. of Maharashtra.
- Solar Grid Engineers, NISE, Govt. of India
- Licensed Electrical Contractor,



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**Detailed Report
Energy Audit**

=====
**Project Beneficiary
2021-2023**

=====
Sonopant Dandekar Shikshan Mandali
=====

Tahl. & Dist. Palghar
Palghar Maharashtra 401404

=====
Consultants & Auditor
=====

**SAUR
Engineers & Consultants
Pvt. Ltd.**

REGISTRATION NO. : EA-28

=====
D-8, Plot No. 108, Akshay, Rsc-16,
Gorai-1, Borivali (west), Mumbai-400092
MAHARASHTRA
+919867499812/+919168402909
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This activity is jointly executed by auditor and beneficiary to account energy use and conservation opportunity without sacrificing it's purpose. The main object was to assess the existing system for Energy saving opportunities, High quality professional and sustainable power quality management, Adopt best practices and Standard operating procedures.

Beneficiary premise is a leading educational service utility in semi-urban area. The college is run as per the norms and standards and having awareness and approach towards energy saving. The management and staff are keen on saving energy on every opportunity available.

We sincerely acknowledge efforts of Management and staff members for smooth execution of audit process. We sincerely acknowledge the leaders and guides of the activity who helped to design and supported to the execution of the process

- | | | | |
|-----|------------------------|---|--------------------------------|
| 1) | CA Mr. Sachin G. Kore | : | President |
| 2) | Mr. Dhanesh Vartak | : | Vice President |
| 3) | Mr. Pratap Varaiya | : | Vice President |
| 4) | Mr. Mangesh Pandit | : | Treasurer |
| 5) | Mr. Sudhir Kulkarni | : | Secretary |
| 6) | Mr. Anil Patil | : | Secretary |
| 7) | Dr. Kiran J. Save | : | Principal & Team Head |
| 8) | Dr. Payal Cholera | : | Principal – Law College |
| 9) | Prof. Mahesh Deshmukh | : | Vice Principal & IQAC Convener |
| 10) | Prof. (Dr.) Tanaji Pol | : | Vice Principal |
| 11) | Mr. Tejas Chaudhari | : | Assistant Professor |
| 12) | Mrs. Rupali More | : | Senior Clerk |
| 13) | Mr. Himanshu Patil | : | Accountant |
| 14) | Mr. Prakash Chabke | : | Junior Clerk |
| 14) | Mr. Umesh More | : | Estate Manager |
| 15) | Mr. Prabhal Patil | : | Electrician |

and all other technical, teaching, non-technical staff and students of college.

Energy, Electrical & safety Audits | Solar and Electric Consultation | Power Management by IOT
Solar Rooftop EPC | New Electric Connections| Meters (New, Shifting, additional)
Load Management | Electrical Installation & Maintenance| Permissions, approvals, liasoning

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Name of Beneficiary: Sonopant Dandekar Shikshan Mandali

Registration Number: F/24 PALGHAR

Address: Tahl. & Dist. Palghar, Maharashtra 401404

Contact Person: Prof. Mahesh Deshmukh

Contact Number: 02525252163

Date of Audit: 20/08/2023

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Mumbai - 400 091.

Sign & Seal

Saur Engineers & Consultants Pvt. Ltd.

Registration No: EA-28

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1. Introduction

Energy Audit is a Basic essential activity to be done for saving in electrical billing and also allied with any energy saving projects like renewable energy project and solar projects. Energy Audit is an assessment of usage, consumption and pattern of energy used in the premises based on all above parameters along with conditions and benchmarks as resource and Building Envelope Analysis, working, operational and Maintenance Procedure Analysis, Utility Data Analysis, Load Data Analysis, Analysis of Energy Consumption, Load Evaluation, consumption pattern and billing history, back-up systems and also the administrative requirements, assessment of safety concerns, assessment of operating and occupancy schedules for Equipment, Power Quality and Environmental Parameters Analysis, Efficiency and Wastage Analysis and assessment of potential risk factors.

Energy Audit is a process of systematic identification, quantification, recording, reporting and analysis of energy usage properties of institute. It aims to analyze within and surrounding the place concerned, which will see interrelation with eco-friendly atmosphere. Energy audit is a valuable means for an Institution related to educational area to determine how and where they are connected with Energy conservation drive of nation. Understanding these conditions the institution can make plans for day to day working, future expansions as well as an eco-friendly view of life while making changes and planning for savings. It provides better understanding of impact of energy consumption on working conditions to staff and visitors. As the Energy availability is becoming an increasingly important issue for the nation, the role of higher education institute is more vital and prevalent in relation with the issue.

The rapid urbanization and economic development at local, regional and global level has led to Energy availability and quality crisis. On this background it becomes essential to adopt the system of Energy efficient and safe Campus for the institution which leads for sustainable development and at the same time persisting the quality of the same while travelling on the growth path. Moreover, it is social responsibility of a High energy consuming institution to ensure that they contribute towards the saving of Energy and thus making it available who are destitute in term of energy availability.



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1. Objective

The Energy audit of an institution has becoming the paramount important for self-assessment of the Institution which reflects in the role of the institution in mitigation to current problem of reducing Energy availability and quality. The institution has been putting efforts to keep reducing and standardizing energy usage since its inception. Therefore the purpose of present Energy audit is to identification, quantification, recording, reporting and analysis of components of Energy utilization and electrical safety properties of institute framework of energy conservation in compliance with the applicable regulations, policies and standards. The main objectives to carrying out the energy audit are:-

- To have overview of premises
- To record and document Utility data
- To record and document Load profile data
- To record and document basic Electrical Safety observations data
- To record and document Energy Conservations (if any)

2. Methodology

The purpose of Energy Audit of is to ensure that the practices followed in the campus are in accordance with the Energy Conservation Policy of the Country. The methodology includes: collection of data, physical inspection of the campus, observation and review of the documentation and data analysis.

The report is based on the documents obtained while on site, visual inspection and data collection carried out during the assessment period. All the measurements recorded on site are indicative loads and duties. All readings are collected for analysis and improvement planning. Cost estimates are indicative only as more detailed design and acceptance of suggestions will be required to improve the accuracy of these estimates.

The units are selected from SI (international standards) with meters, Celsius degrees, Etc.

3. Audit Statement

The building is adopting the "Energy Efficient Campus" system for Energy conservation and sustainability. There are main three pillars i.e. Energy saving by technology and Operation & Maintenance procedures, safe working on occupational health and performance and 100% inmates demonstrating energy efficiency literacy. The goal is to maintain safe working environment, reduce energy consumption, while creating an atmosphere where inmates can work and live healthy.



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2. Topography

1. Overview

SL No	Head	Details
1	Name of Applicant Institution	Sonopant Dandekar Shikshan Mandali
3	Address	Tal. Dist. Palghar 401404
4	Contact Number	02525252163
5	Registration Certificate Number	F/24 PALGHAR
6	Sector Type	Educational Institute
7	Senior Management Contact	Prof. Mahesh Deshmukh
8	Contact Number	7972547497
9	Status of Institution (Pvt./Public)	Private
10	Company Turnover (Rs. In Lakhs)	750
11	Number of Employees	235
12	Approximate Floor Area (ft ²)	75000
13	Year of Establishment	1970
14	Plot Area (ft ²)	800000
15	Constructed Area (ft ²)	75000
16	Greenery Area (ft ²)	700000
17	Roof Area (ft ²)	24000
18	No of Buildings	6
19	Building Type	RCC Construction
20	Age of Building	30years
21	Leakages/Cracks on wall/roof	Minor wall leakages in rooms
22	No. of workers (Footfall)	250
23	No. of Customers (Footfall)	3000-4000
24	Day Vs Night activity in %	100% Day
25	Shifts per day	1
26	Hours per shift	12
27	DG Set installed	Yes
28	Inverter Installed	Yes
29	Renewable Energy System installed	Yes
30	(Solar/Wind/Biomass/Biofuel/Etc.)	Solar 80Kwp

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Solar Rooftop EPC | New Electric Connections| Meters (New, Shifting, additional)
Load Management | Electrical Installation & Maintenance| Permissions, approvals, liasoning

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2. Location

SL No	Head	Details	Remark
1	Name of Institute	SDSM	
2	Category	College	Educational Institute
3	Address	Tahl. & Dist. Palghar Maharashtra	
4	State	Maharashtra	
5	Nearest Railway Station	Palghar	Outstation
		Palghar	Local
6	Nearest Bus Station	Palghar	Interstate
		Palghar	Intrastate
7	Nearest Airport	CSIA, Mumbai	
8	Longitude	19.42	
9	Latitude	72.45	

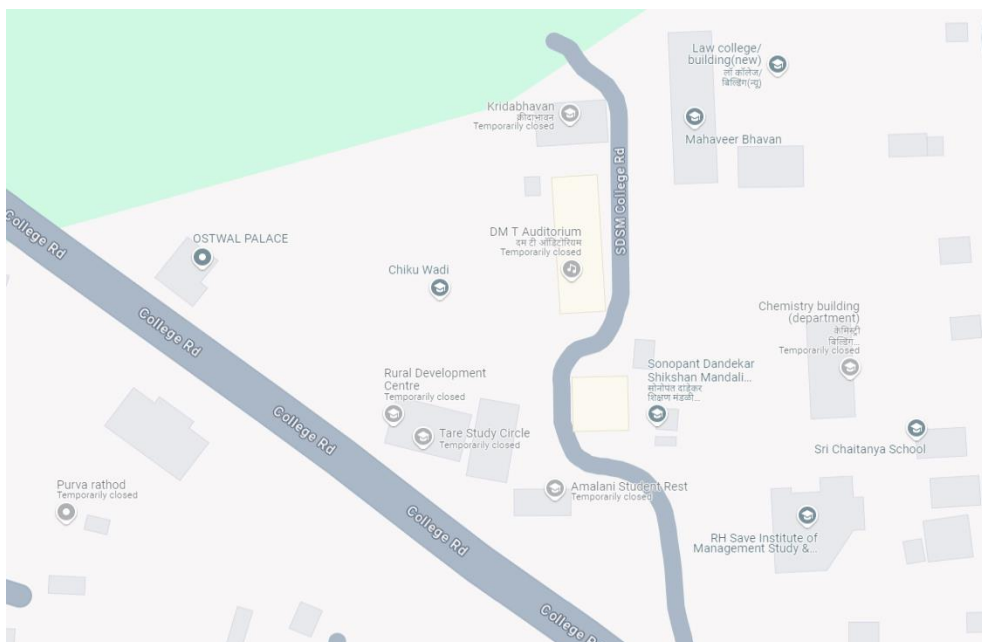
3. Layouts

Floor Map

1. Preserved in archives for each building.
2. For main building which is very old maps are not available, recommended to preserve sketches

Site Map

1. Preserved in archives.

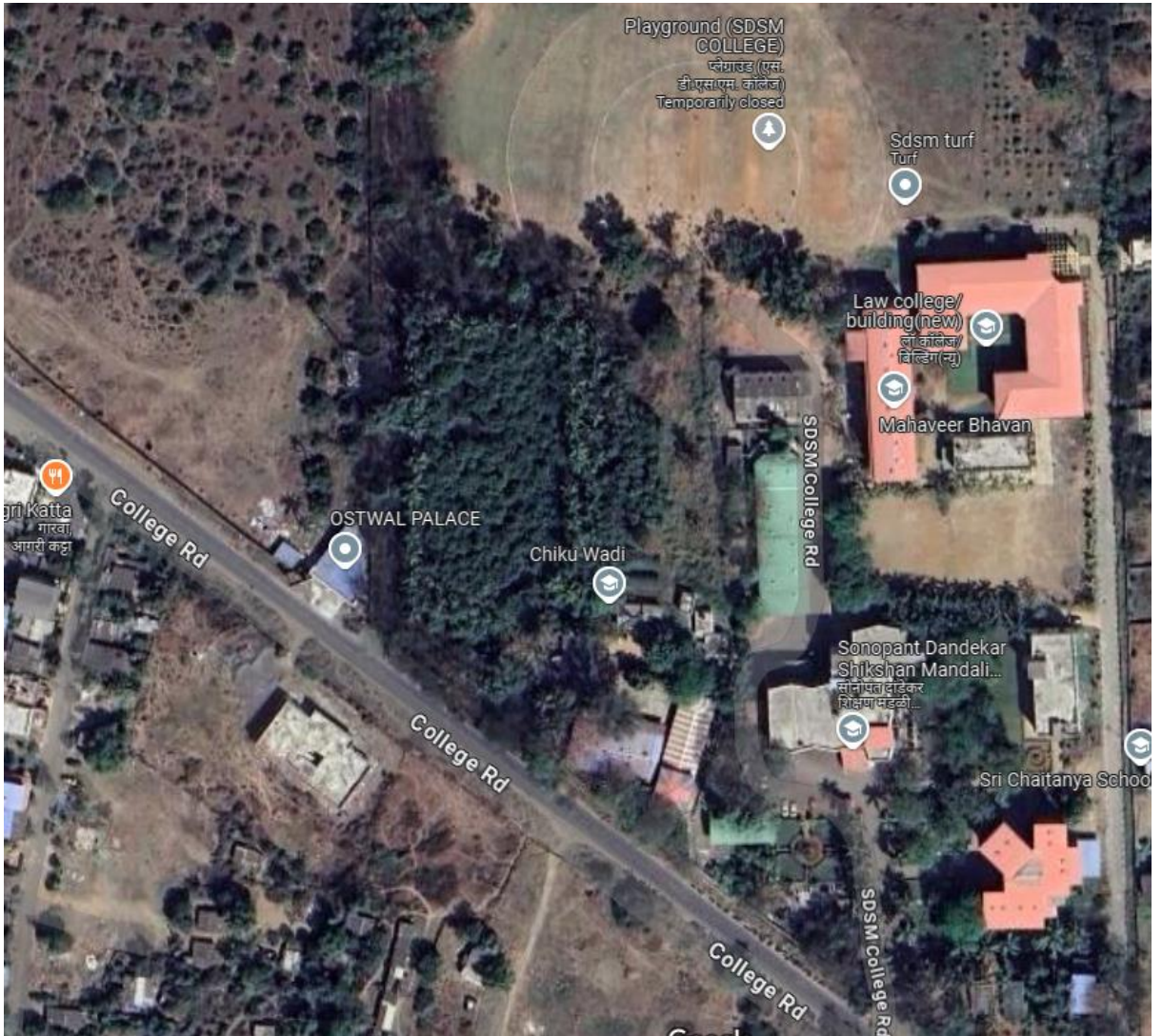




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Google Map



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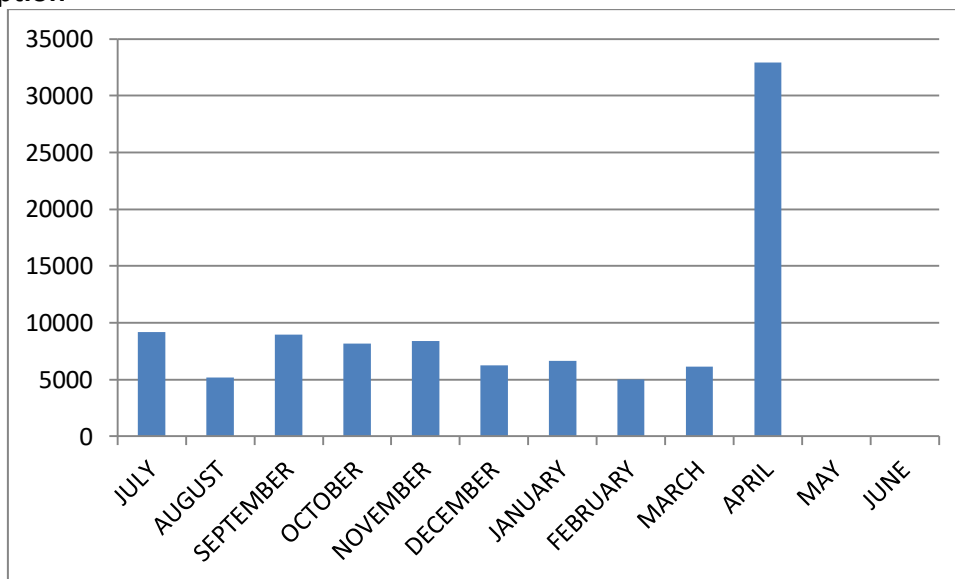
3. Electric System

SL No	Specification	Value
1	Customer Account Number	003650003739
2	Meter No	055-X1962014
3	Sanctioned Load (KW)	80
4	Contract Demand (KVA)	80
5	DISCOM	MSEDCL
6	PHASE	THREE
7	BILLING UNIT	541/PALGHAR/PALGHAR S/DN./BU4162
8	POWER FACTOR	0.992
9	PENALTY	EXCESS DEMAND

4. Billing Analysis

BILLING 2022-23			
MONTH	UNITS	AMOUNT	RATE
JULY	9182	121822	10.83
AUGUST	5161	70723	10.76
SEPTEMBER	8944	122567	10.92
OCTOBER	8180	101032	10.29
NOVEMBER	8408	102441	10.38
DECEMBER	6268	79575	10.27
JANUARY	6655	84825	10.15
FEBRUARY	5015	65607	10.05
MARCH	6125	83018	10.36
APRIL	32925	363569	10.38
MAY	0	13824	0.00
JUNE	0	13824	0.00

Consumption



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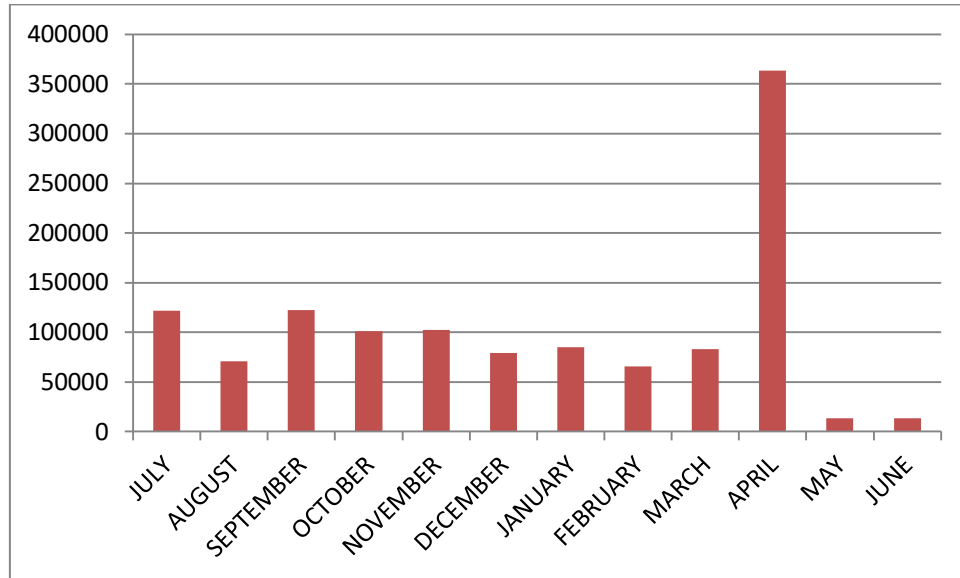
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Expenses



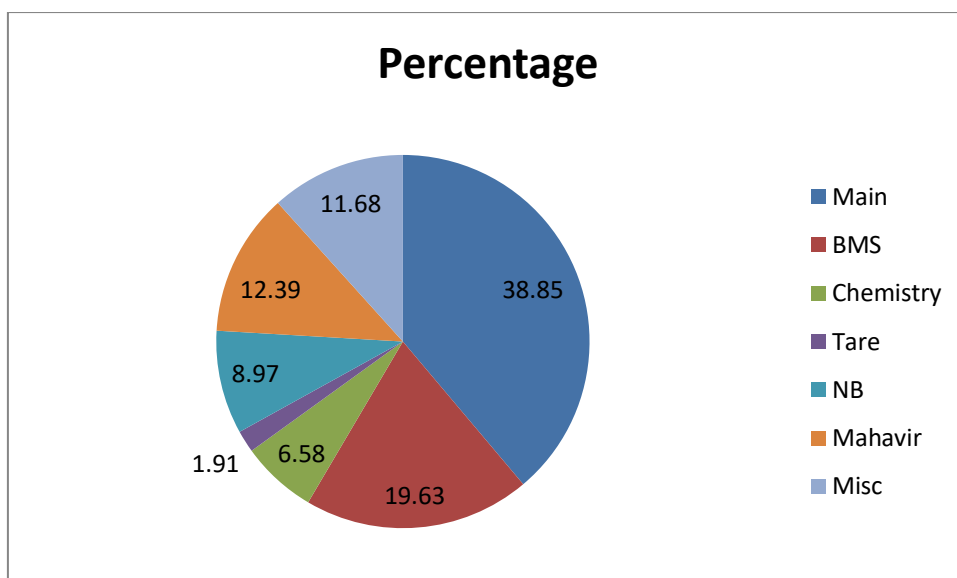


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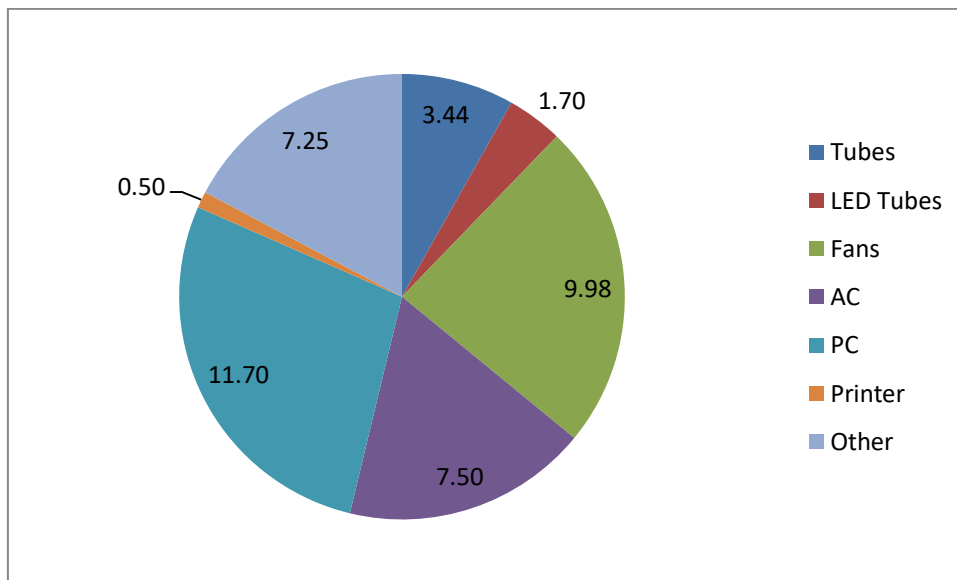
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5. Connected Load Analysis

SL NO	Building	Load	Percentage
1	Main Building	54.09	38.85
2	BMS	27.33	19.63
3	Chemistry	9.16	6.58
4	Tare Bhavan	2.66	1.91
5	New Building	12.49	8.97
6	Mahavir Bhavan	17.26	12.39
7	Miscellaneous	16.26	11.68
8	Total	139.24	



Name	Fans	Tubes	PC	Printer	AC	Other
Kw	40.43	21.24	37.35	3.30	16.00	21.11
Percentage	29.08	15.28	26.87	2.37	11.51	15.19



6. Consumption Analysis

PRIVIOUS AUDIT

PREVIOUS	Usage (Kwh)	Payment (Rs)	Duration
Total	123005	1326112	Annual
Min	5820	69966	January
Max	15066	156846	August
Average	10250.4	110509.3	Annual

CURRENT AUDIT

	Usage (Kwh)	Payment (Rs)	Duration
Total	96863	1222827	Annual
Min	5015	65607	FEBRUARY
Max	32925	363569	APRIL
Average	8072	101902	Annual

6.1.1. Average Consumption is Decreased

6.1.2. Maximum consumption month has been changed.

6.1.3. IOT based remote monitoring is recommended.



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7. Renewable System Analysis

Proposed 80Kwp SPV GCRT Plant is under implementation.

8. Conservation Analysis

1. Lights

- a. Almost all lights are converted to LED
- b. Saving is realized on the bill
- c. Few Traditional Tubes are kept in stock for emergency replacement in case of failure of any light.

2. Power

- a. It is found consumption of excess demand (101KVA) hence penalty is imposed; observe this for 3 months if it continues then install demand controller or extend the load.
- b. Use SVG system for power factor management

9. Electrical Safety

Overview

- Name: SDSM, Palghar
- Area: Palghar, District Palghar
- Name of the Power supply Company: MSEDCL
- Type of Power supply: LT
- Electrical Power Input: 11KV/415V
- Category: LT-VII B I
- Status of Present Electrical Installation: Good

Profile

- Total Load Requirement(KW): 140

Station	Connected Load	Diversity Factor	MD	RM
Campus	140	0.7	98	57 to 101

- Sanctioned Load(KW):

Station	Connected Load
Campus	80

- Electrical Wiring Diagram with last date of updating: No
- Total no. of Control panels/DB : 1 Power House and 5 Buildings
- Whether MCBs are ISI approved: Yes
- Whether MCBs are of appropriate rating: Yes
- Capacity of UPS System: No centralized UPS
- APFC Panel installed: No
- Whether all Electrical cables/ wirings are of appropriate rating, ISI approved & Fire resistant: YES

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Visual Inspection of Records

- Plot map/Sketch with Markings (Emergency exit, Fire extinguishers, Sprinklers, Electrical safety Devices/ Cut Offs) **Partial**
- Building/Floor Map (for each floor) **YES**
- Roof Terrace Map **YES**
- Electrical SLD **No**
- Details Electrical Control Panels **No**
- Details of Transformer installed if any **NA**
- Details of Generator(DG-Set) installed if any **62.5KVA**
- Details of UPS installed if any **No (Decentralized)**
- Details of Renewable systems installed if any **YES**
- Utility Bills (Electricity, Gas, Water, Diesel, Etc) for 12 months **YES**
- Registers of Records **No**
- Time Tables **Yes**
- Nameplate Data **No**
- Manuals **YES**
- Existing safety measures **Average**
- Verification of circulars, Records of Preventive measurements **NO**
- Verification of Behavioral SOP **NO**
- Verification of O & M SOP **NO**
- Checking Provision for electric shock response and treatment **NO**
- Checking Log of Electrical works/accidents **NO**
- Checking Provision of Danger Sign Boards **YES**
- Checking Workmen involved in electric work **NA**
- Checking Provision and Height of work **YES**
- Checking availability of First Aid **Yes**

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Visual Inspection of Installation

- Meter Cabin Condition: **Average**
- Availability of Fire extinguisher/ Sand Buckets: **Not Satisfactory**
- Water proofing/Seepage: **Average**
- Damages/Tampering: **Satisfactory**
- Adequacy in connections/Termination/Joints: **Satisfactory**
- Ease of accessibility: **Not Satisfactory (Under Staircase)**
- Danger Signs: **Not Satisfactory**
- Fire extinguishers: **Satisfactory**
- Rodent arrester: **No**
- CCTV: **Not Satisfactory**
- Meter cabins:
 - Leakage: **Satisfactory**
 - Damaged/tempered/cracks: **Not Satisfactory**
 - Name plate: **Satisfactory**
 - Water logging possibility: **Satisfactory**
- Physical inspection of Power source:
 - Adequacy as per standards: **Yes**
 - Rusting of panel: **NO**
 - Visible scaling: **NO**
 - Scaled/Unclean wires breakers: **NO**
 - Wet/Dampness: **No**
 - Service Provider Earthing: **Yes**
 - Consumer Earthing: **YES**



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Status of Presence of Hazard

SL No	Safety Hazard Yes/No Remarks	Yes/No	Remarks
1)	Existence of non ISI/standardized appliances	NO	
2)	Whether the existing wiring is more than 20 years old.(Wiring more than 20 years old must be recommended for replacement)	NO	
3)	Whether Fire detection and Alarm system is installed?	NO	
4)	Whether sufficient number of fire extinguishers is installed?	YES	
5)	Segregated UPS room with proper ventilation/exhaust is provided?	NA	
6)	Is their display of emergency telephone number of nearest fire station, hospital and key person?	NO	
7)	Whether frequent sparking at certain place(s) reported	NO	
8)	Whether switches found with burnt marks	NO	
9)	Existence of non-standardized tube lights/CFLs/Bulbs and TL starters and chokes	NO	
10)	Dampness in walls and ceiling	NO	
11)	Loose switches/plugs	NO	
12)	Naked wiring or connections	NO	
13)	All Electrical cables/wiring are in conduits and are protected by a fire proof insulation	NO	
14)	Seepage /Leakage of water in walls or on and around electrical installations	YES	
15)	Whether connection to each Motor is provided through an individual MCB of appropriate rating & of standard make and ISI approved.	YES	
16)	Whether there are frequent tripping due to overloads?	NO	



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Inspection

- General safety including supply adequacy, equipments : **Satisfactory**
- Status of Presence of Hazard : **Satisfactory**
- Lightning Arrestors : **Not Satisfactory**
- Power Source : **Satisfactory**
- Rating and Capacity of Cables : **Satisfactory**
- Rating and Capacity of Protection devices : **Satisfactory**
- Cable Terminations at Panel & DBs : **Satisfactory**
- Insulation Mats : **Not Satisfactory**
- Fire-fighting Provision: **Satisfactory**

Testing

- Earthing: **Not Satisfactory**
- Lightning Arrestor : **Not Satisfactory**
- Neutral Current : **Satisfactory**
- ELCB/RCB : **Not Available**
- Presence of Leakage Current : **Satisfactory**



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IE/CEA Regulations compatibility

- Regulation-3 : Registers of Designated Persons made: **NO**
- Regulation-12:
 - a. Visible sign of overload: **NO**
 - b. Unauthorized/temporary connection: **NO**
 - c. Supply Lines & Equipments installed properly: **Satisfactory**
 - d. General remark: **Satisfactory**
- Regulation-13: Condition of Service line, cable, wires, Etc.: **Satisfactory**
- Regulation-14: Suitable Cut-outs/MCBs Provided: **YES**
- Regulation-15:
 - a. Switches on live conductor: **YES**
 - b. Color code: **YES**
 - c. Direct Line of Neutral: **YES**
- Regulation-16:
 - a. Earth Terminal By Supplier: **Satisfactory**
 - b. General Condition of Earthing: **NOT Satisfactory**
- Regulation-17:
 - a. Inaccessible Bare wire/cable: **NO**
 - b. Readily accessible switches : **YES**
- Regulation-18: Danger Notices in Hindi & Local language: **NO**
- Regulation-19:
 - a. Availability of Floor mats: **NO**
 - b. Identification of Panel Front & Back: **NO**
- Regulation-21: Cables heavily insulated & mechanically protected for portable instruments: **YES**
- Regulation-22: Condition of Mechanical covering: **Satisfactory**
- Regulation-24: Permanent Voltage level indication for different levels: **NO**
- Regulation-26: Accidental Charging possibility beyond level: **NO**
- Regulation-27:
 - a. Fire Buckets: **NO**
 - b. First Aid Box: **YES**
 - c. First Aid Training: **YES**
- Regulation-28:
 - a. Electrical Shock Notices in Hindi & Local language: **NO**
 - b. Designated Person for resuscitation from Shock: **NO**
- Regulation-34: Insulation Resistance: **NA**
- Regulation-35:
 - a. Breaker at Point of Supply to Isolate the supply: **YES**

Energy, Electrical & safety Audits | Solar and Electric Consultation | Power Management by IOT
Solar Rooftop EPC | New Electric Connections| Meters (New, Shifting, additional)
Load Management | Electrical Installation & Maintenance| Permissions, approvals, liasoning

Plot No. 108 / D - 8, Akshay Co. op. Society, Gorai- 1, Borivali (W), Mumbai-400092.

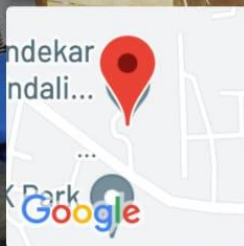
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- b. Every Circuit is Protected with suitable Breaker: **YES**
- c. Breaker at Point of Supply for motor: **YES**
- d. Precautions taken to ensure no live part exposed: **YES**
- Regulation-37:
 - a. 100cm Space in front of Panel: **NA**
 - b. 20cm to 75cm Space behind Panel: **NA**
 - c. Passage way from either end of 1.8 Meter height: **NA**
- Regulation-41:
 - a. Transformer Earthing: **YES**
 - b. Generator Earthing (2 Nos): **NA**
 - c. Metallic Frames Earthing: **YES**
 - d. Consumer Electrode Test: **YES**
 - e. Mechanical damage to Earth conductor: **YES**
 - f. Record of Earth resistance Maintained: **NO**
- Regulation-42: ELCB/RCCB Provision: **NA**

SAFETY AND SAVING CONCERNS



Palghar, Maharashtra, India

College Road, Tembhode, Mission Compound, Boisar, Palghar, Maharashtra

401404, India

Lat 19.711042°

Long 72.759581°

23/07/22 04:34 PM

GPS Map Camera

Energy, Electrical & safety Audits | Solar and Electric Consultation | Power Management by IOT
Solar Rooftop EPC | New Electric Connections| Meters (New, Shifting, additional)
Load Management | Electrical Installation & Maintenance| Permissions, approvals, liasoning

Plot No. 108 / D - 8, Akshay Co. op. Society, Gorai- 1, Borivali (W), Mumbai-400092.

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LED LIGHTS



Energy, Electrical & safety Audits | Solar and Electric Consultation | Power Management by IOT
Solar Rooftop EPC | New Electric Connections| Meters (New, Shifting, additional)
Load Management | Electrical Installation & Maintenance| Permissions, approvals, liasoning

Plot No. 108 / D - 8, Akshay Co. op. Society, Gorai- 1, Borivali (W), Mumbai-400092.

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CABLE BREAK



SAFE COVERING FOR INSTALLATION SAND BUCKETS REQUIRED



FIRE SAFETY AWARENESS AND EVACUATION PLAN





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10. Power Quality Study

SL No	Trend	Measure	Unit	Limits	SDSM
1	Voltage	R-N	Volts	+/- 6 %	231.8
2	Voltage	Y-N	Volts	+/- 6 %	235.1
3	Voltage	B-N	Volts	+/- 6 %	236.5
4	Voltage	R-Y	Volts	+/- 6 %	405.4
5	Voltage	Y-B	Volts	+/- 6 %	408.0
6	Voltage	B-R	Volts	+/- 6 %	404.8
7	Current	R	Amps		77.30
8	Current	Y	Amps		55.03
9	Current	B	Amps		47.96
10	Current	N	Amps		31.58
11	Power Factor	PF	%	0.990	0.990
12	Power	Active Power	KW		41.49
13	Power	Reactive Power	KVAr		5.9
14	Power	Apperant Power	KVA		41.92
15	Frequency	Frequency	HZs	+/- 5 %	49.98
16	Harmonic	R-N	%	5%	3.5
17	Harmonic	Y-N	%	5%	2.07
18	Harmonic	B-N	%	5%	1.60
19	Harmonic	R-Y	%	5%	1.87
20	Harmonic	Y-B	%	5%	1.43
21	Harmonic	B-R	%	5%	2.06
22	Harmonic	R	%	8%	12.80
23	Harmonic	Y	%	8%	6.90
24	Harmonic	B	%	8%	5.01
25	Harmonic	N	%	8%	53.01

For detail please see power quality analysis report.



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11. Suggestions:

1. Install IOT based Energy monitoring system.
2. Replace Traditional Fans with BLDC Fans.
3. Put "SWITCH OFF" boards on back side of Doors.
4. Keep AC temperature to 26⁰ C.
5. Clean Luminaries, Fans, ACs regularly to increase efficiency.
6. Prepare and observe SOPs for maintenance of equipments.
7. Prepare and preserve map of each building demarked with Emergency exit, Fire extinguishers, Sprinklers, Electrical safety Devices/ Cut Offs which is done at main building; make this activity for all the buildings and the campus.
8. Prepare log book for electrical accidents and executed works.
9. Provide personal safety equipment (safety gloves, shoes, helmets, Etc) for electrical workers.
10. Install sand buckets and maintain them near every supply points (6 Locations).
11. Replace inadequate cable joints(2 Nos at transformer and at fruits and vegetables training centre) with new cable or epoxy strait joint.
12. Put Identification nameplates on switchgears.
13. Install fire detection and alarm system.
14. Display of emergency telephone number of nearest fire station, hospital and key person.
15. Install new earthings two for each building.
16. Install RCCB/RCBO at every Distribution board circuit.
17. Install Danger sign and Notice board at every electrical source and DBs.
18. Give training to at least four people for electrical shock response and install Electrical Shock Notices in Hindi & Local language.
19. Prepare and Maintain report for solar system output.



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12.Disclaimer

The report is generated from data, information, answer to asked questions, standards and procedures defined by different and concerned authorities time to time, available site condition, weather condition, operational and availability conditions provided by beneficiary on the day of survey. If any changes on above said measures on any other parameters affecting these measures may lead to change, alter, in-corrections even falsifying calculations, results, recommendations and suggestions. The values, figures, amounts mentioned are indicative to the site situation and condition; it may not reflect each and every aspect of it. The report is generated restricted to given scope and available conditions and measures.

13.Conclusion

We hereby conclude report for "Energy Audit" of the institute has been done under scope of work for "Sonopant Dandekar Shikshan Mandli, Tahl. & Dist. Palghar Maharashtra 401404". Please study it thoroughly and implement recommendations and suggestions at earliest.



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Power Quality Analysis Report

Report start	3/30/2024 12:08:01 PM
Report end	3/30/2024 3:20:06 PM
Report duration	03:12:05 (h:min:s)
Instrument ID	PEL103 120912UBH

Database File Name: SDSM.dvb

Operator

Saur Engineers & Consultants Pvt Ltd
Anup A Samant
D8, Plot No. 108 Akshay Gorai-1
Borivali west
Mumbai, Maharashtra 400091
9168402909

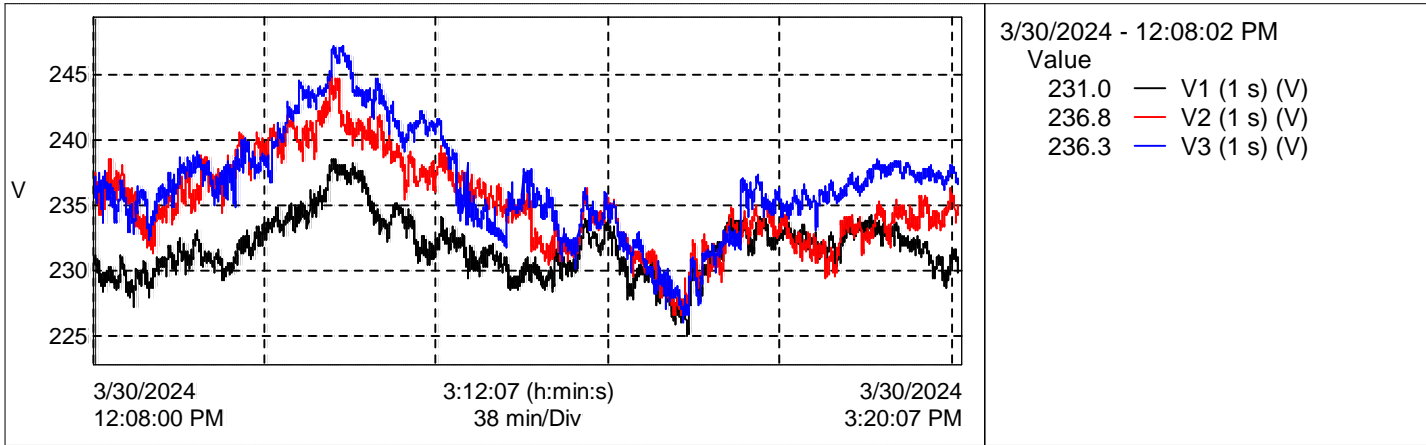
Test Site

SDSM
Prof. Mahesh Deshmukh
Sonopant Dandekar Shikshan Mandali
Palghar City, Tahasil and District Palghar
Palghar, Maharashtra 401404
02525252163

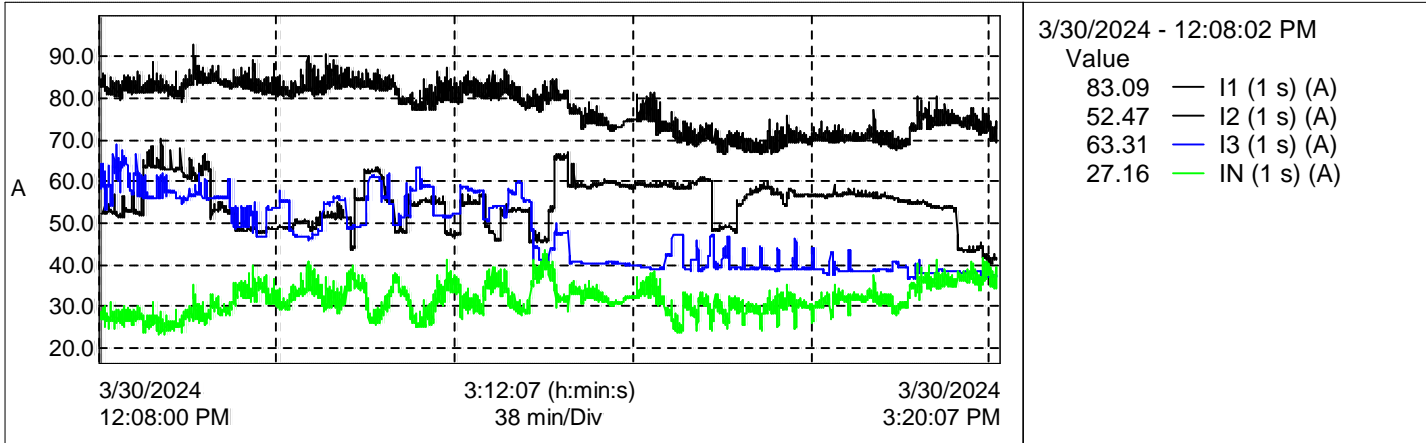
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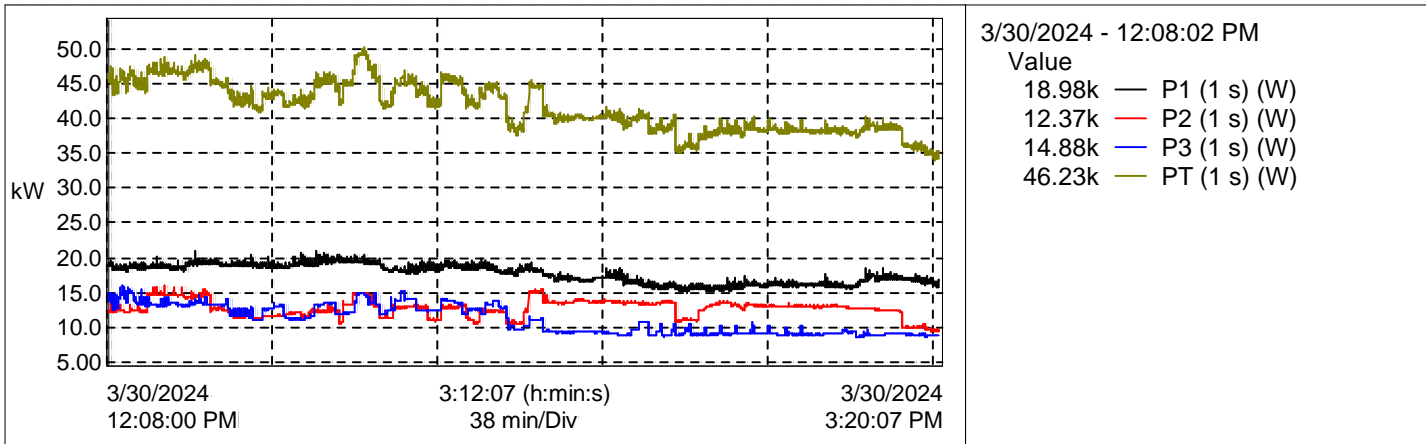
Name	AVG	MIN	MIN date	MIN time	MAX	MAX date	MAX time	Units
V1 (1 s)	231.8	224.9	3/30/2024	2:19:39 PM	238.6	3/30/2024	1:00:59 PM	V
V2 (1 s)	235.1	226.4	3/30/2024	2:18:44 PM	244.8	3/30/2024	1:00:31 PM	V
V3 (1 s)	236.5	226.0	3/30/2024	2:18:48 PM	247.2	3/30/2024	1:01:00 PM	V



Name	AVG	MIN	MIN date	MIN time	MAX	MAX date	MAX time	Units
I1 (1 s)	77.30	66.49	3/30/2024	2:31:39 PM	92.80	3/30/2024	12:28:08 PM	A
I2 (1 s)	55.03	40.42	3/30/2024	3:18:54 PM	70.06	3/30/2024	12:21:06 PM	A
I3 (1 s)	47.96	36.51	3/30/2024	3:01:15 PM	68.79	3/30/2024	12:11:32 PM	A
IN (1 s)	31.58	23.36	3/30/2024	12:21:47 PM	43.78	3/30/2024	1:43:19 PM	A

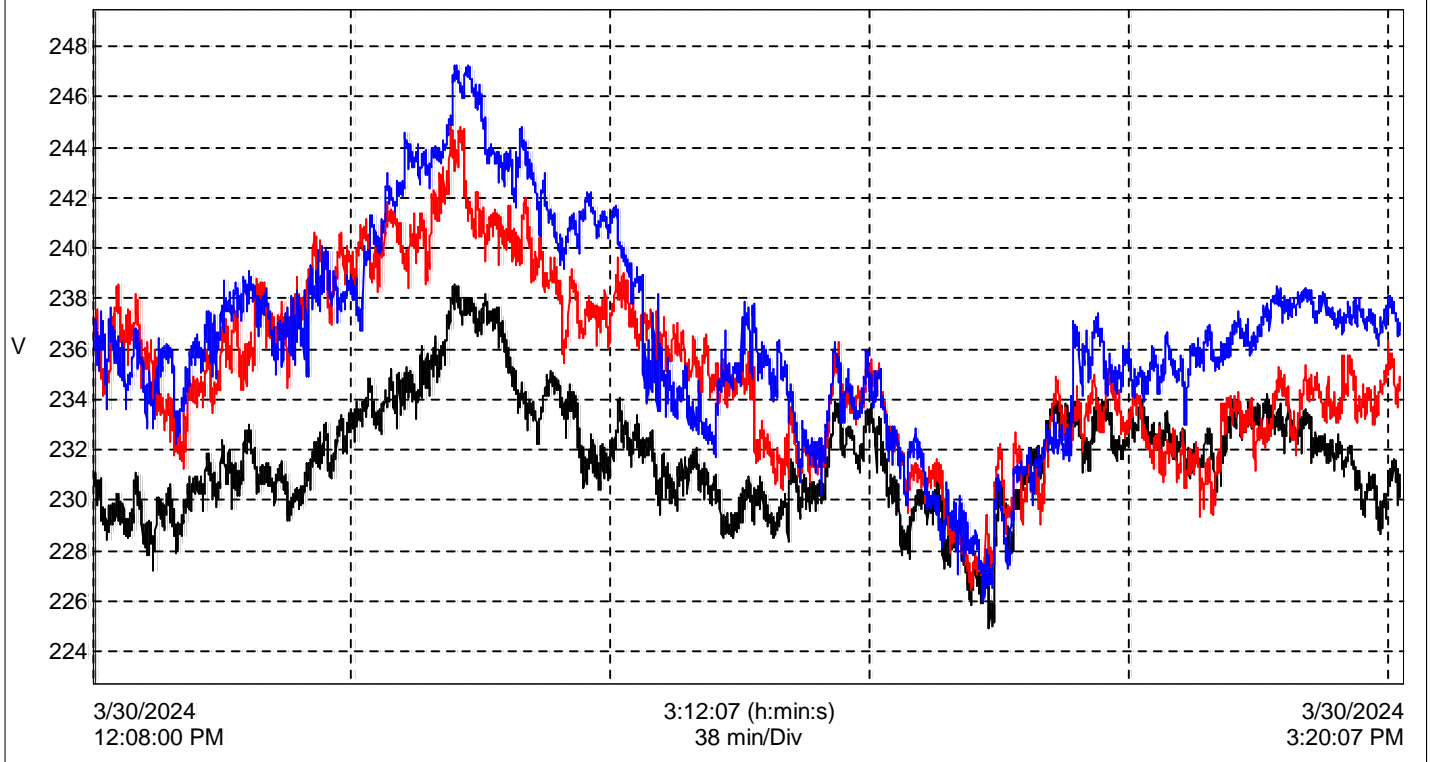


Name	AVG	MIN	MIN date	MIN time	MAX	MAX date	MAX time	Units
P1 (1 s)	17.63	15.08	3/30/2024	2:21:43 PM	21.03	3/30/2024	12:28:08 PM	kW
P2 (1 s)	12.75	9.356	3/30/2024	3:18:54 PM	16.08	3/30/2024	12:21:06 PM	kW
P3 (1 s)	11.11	8.631	3/30/2024	3:01:15 PM	16.04	3/30/2024	12:11:32 PM	kW
PT (1 s)	41.49	34.08	3/30/2024	3:18:54 PM	50.17	3/30/2024	1:07:20 PM	kW



Phase-to-Neutral Voltage RMS

Name	AVG	MIN	MIN date	MIN time	MAX	MAX date	MAX time	Units
V1 (1 s)	231.8	224.9	3/30/2024	2:19:39 PM	238.6	3/30/2024	1:00:59 PM	V
V2 (1 s)	235.1	226.4	3/30/2024	2:18:44 PM	244.8	3/30/2024	1:00:31 PM	V
V3 (1 s)	236.5	226.0	3/30/2024	2:18:48 PM	247.2	3/30/2024	1:01:00 PM	V



3/30/2024 - 12:08:02 PM

Value

- 231.0 — V1 (1 s) (V)
- 236.8 — V2 (1 s) (V)
- 236.3 — V3 (1 s) (V)

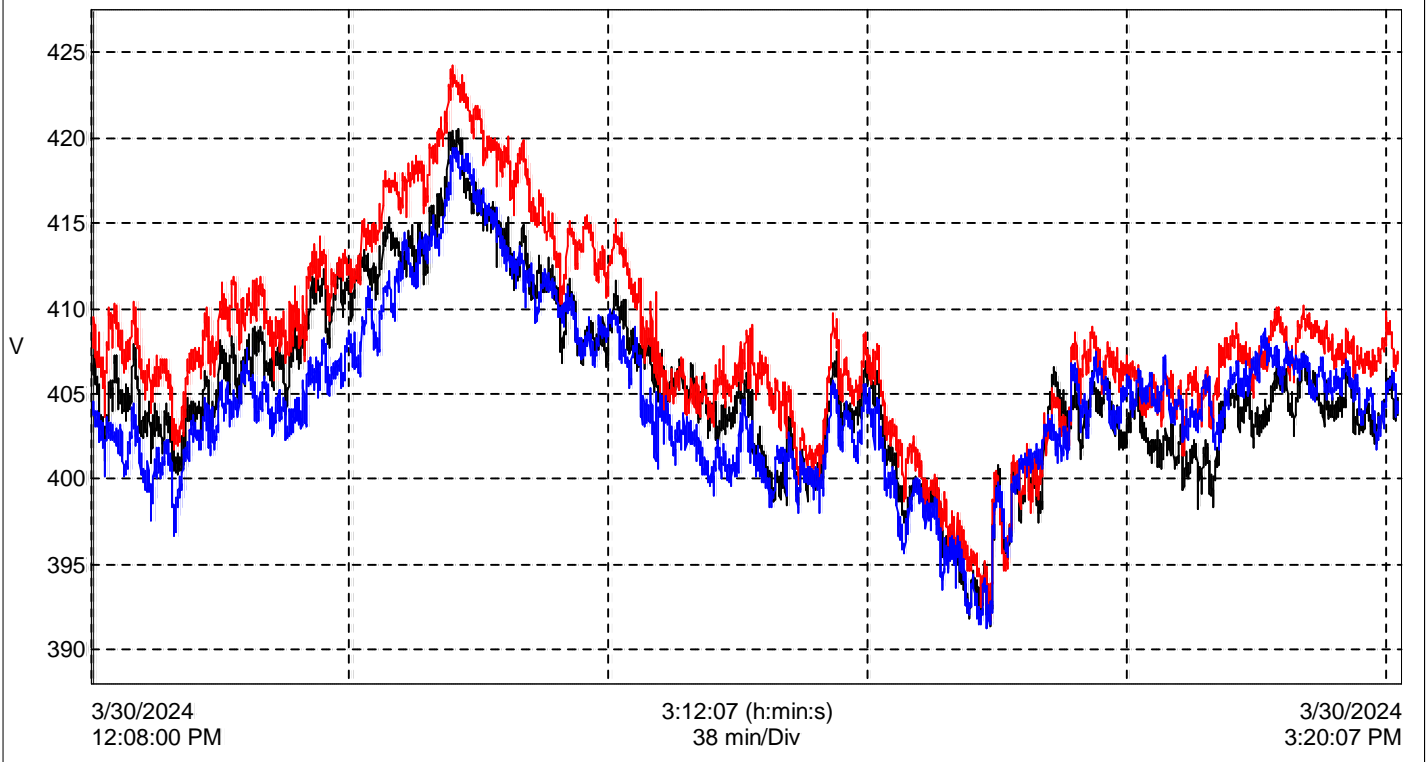
V1 (1 s) (V)			
Date	Time	Val	Units
3/30/2024	12:08:02 PM	231.0	V
3/30/2024	12:08:03 PM	231.1	V
3/30/2024	12:08:04 PM	230.8	V
3/30/2024	12:08:05 PM	230.8	V
3/30/2024	12:08:06 PM	230.8	V
3/30/2024	12:08:07 PM	230.6	V
3/30/2024	12:08:08 PM	230.7	V
3/30/2024	12:08:09 PM	230.6	V
3/30/2024	12:08:10 PM	230.7	V
3/30/2024	12:08:11 PM	230.6	V
3/30/2024	12:08:12 PM	230.7	V
3/30/2024	12:08:13 PM	230.7	V
3/30/2024	12:08:14 PM	230.7	V

Exceptions

Name	Date	Time	Duration	Duration Units	MIN	MAX	AVG	Units

Phase-to-Phase Voltage RMS

Name	AVG	MIN	MIN date	MIN time	MAX	MAX date	MAX time	Units
U12 (1 s)	405.4	391.4	3/30/2024	2:20:02 PM	420.6	3/30/2024	1:01:50 PM	V
U23 (1 s)	408.0	391.7	3/30/2024	2:20:02 PM	424.2	3/30/2024	1:00:57 PM	V
U31 (1 s)	404.8	391.3	3/30/2024	2:19:39 PM	419.4	3/30/2024	1:01:28 PM	V



3/30/2024 - 12:08:02 PM

Value

- 406.7 — U12 (1 s) (V)
- 408.2 — U23 (1 s) (V)
- 404.6 — U31 (1 s) (V)

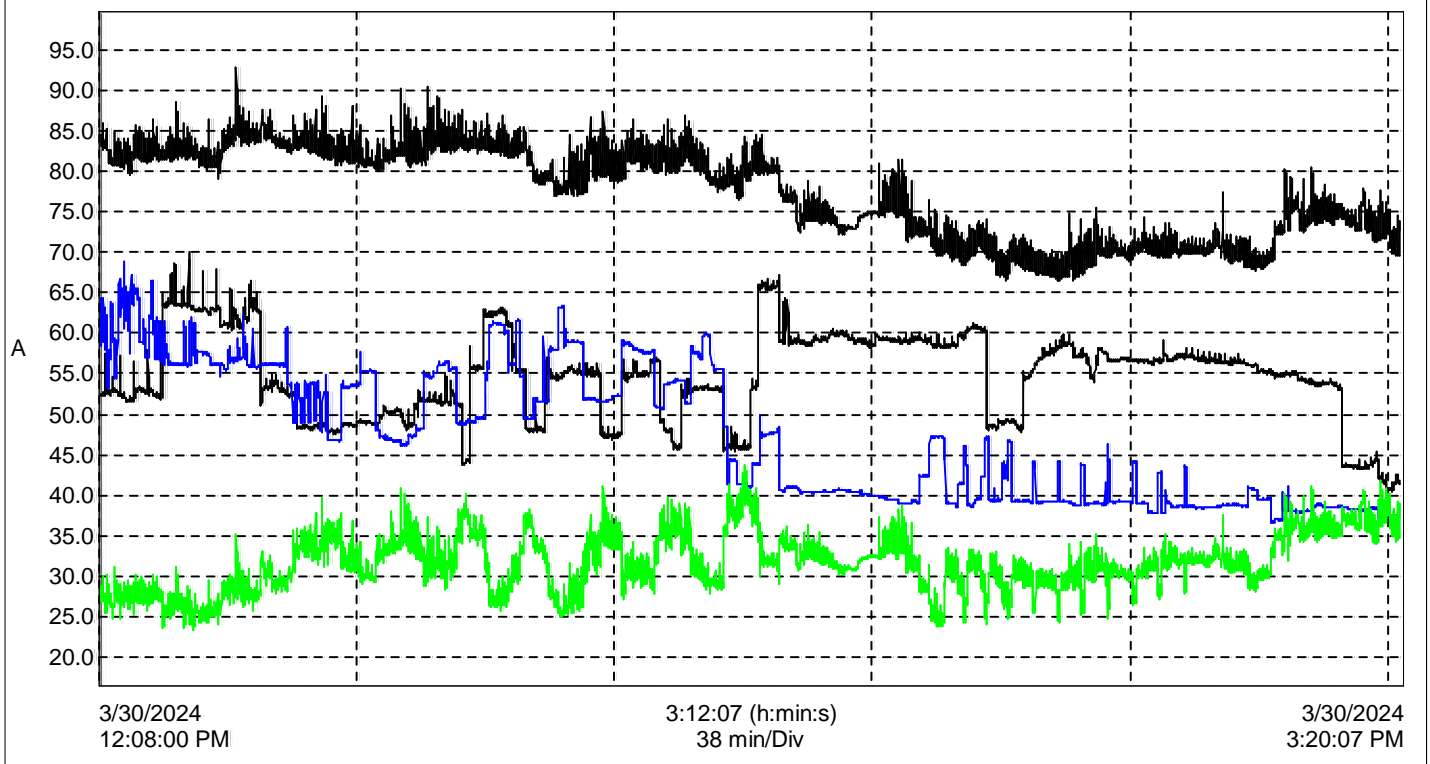
U12 (1 s) (V)			
Date	Time	Val	Units
3/30/2024	12:08:02 PM	406.7	V
3/30/2024	12:08:03 PM	406.4	V
3/30/2024	12:08:04 PM	406.3	V
3/30/2024	12:08:05 PM	406.3	V
3/30/2024	12:08:06 PM	406.6	V
3/30/2024	12:08:07 PM	406.4	V
3/30/2024	12:08:08 PM	406.2	V
3/30/2024	12:08:09 PM	406.2	V
3/30/2024	12:08:10 PM	406.2	V
3/30/2024	12:08:11 PM	406.2	V
3/30/2024	12:08:12 PM	406.4	V
3/30/2024	12:08:13 PM	406.5	V
3/30/2024	12:08:14 PM	406.8	V

Exceptions

Name	Date	Time	Duration	Duration Units	MIN	MAX	AVG	Units

Current RMS

Name	AVG	MIN	MIN date	MIN time	MAX	MAX date	MAX time	Units
I1 (1 s)	77.30	66.49	3/30/2024	2:31:39 PM	92.80	3/30/2024	12:28:08 PM	A
I2 (1 s)	55.03	40.42	3/30/2024	3:18:54 PM	70.06	3/30/2024	12:21:06 PM	A
I3 (1 s)	47.96	36.51	3/30/2024	3:01:15 PM	68.79	3/30/2024	12:11:32 PM	A
IN (1 s)	31.58	23.36	3/30/2024	12:21:47 PM	43.78	3/30/2024	1:43:19 PM	A



3/30/2024 - 12:08:02 PM
 Value
 83.09 — I1 (1 s) (A)
 52.47 — I2 (1 s) (A)
 63.31 — I3 (1 s) (A)

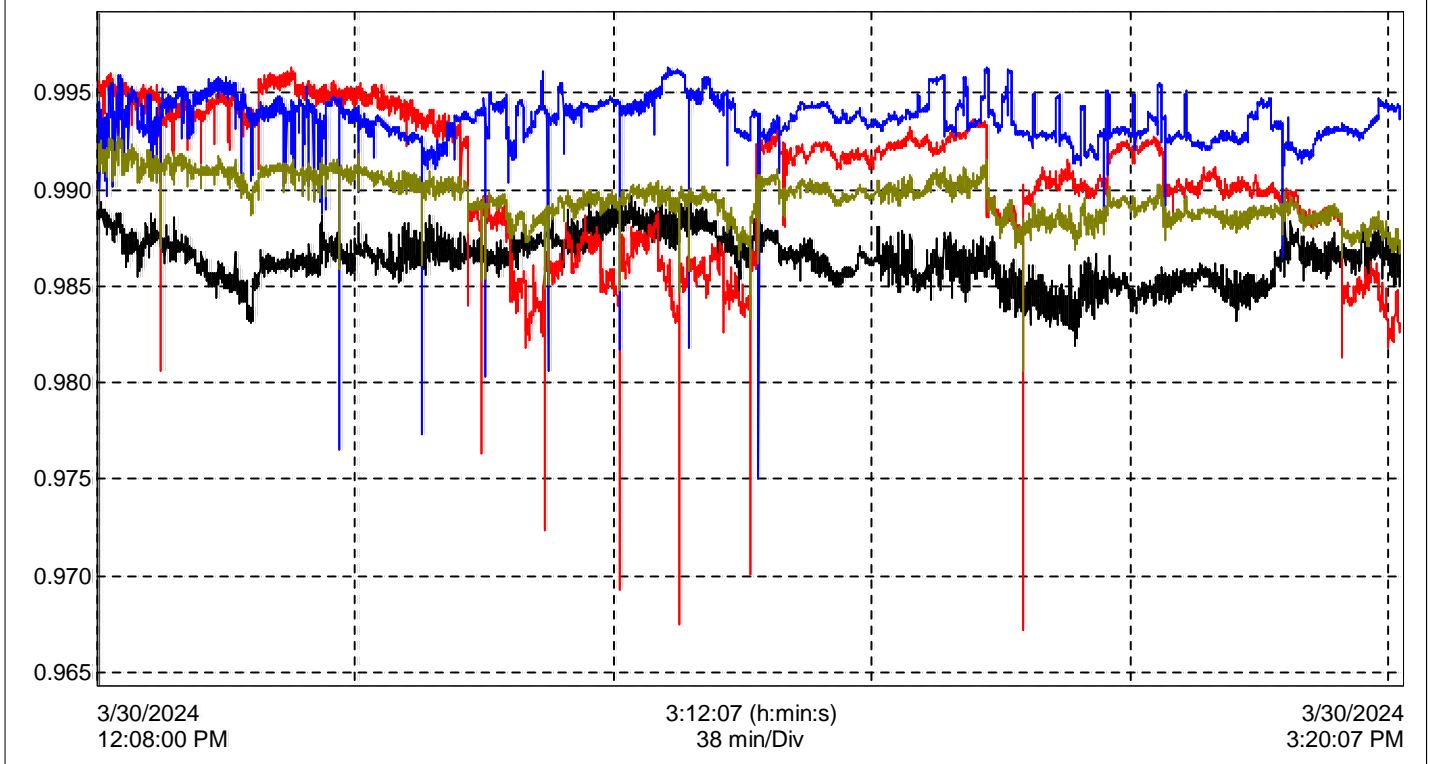
I1 (1 s) (A)			
Date	Time	Val	Units
3/30/2024	12:08:02 PM	83.09	A
3/30/2024	12:08:03 PM	83.23	A
3/30/2024	12:08:04 PM	83.28	A
3/30/2024	12:08:05 PM	84.13	A
3/30/2024	12:08:06 PM	84.12	A
3/30/2024	12:08:07 PM	84.33	A
3/30/2024	12:08:08 PM	83.90	A
3/30/2024	12:08:09 PM	83.43	A
3/30/2024	12:08:10 PM	83.64	A
3/30/2024	12:08:11 PM	83.40	A
3/30/2024	12:08:12 PM	83.24	A
3/30/2024	12:08:13 PM	83.42	A
3/30/2024	12:08:14 PM	83.29	A

Exceptions

Name	Date	Time	Duration	Duration Units	MIN	MAX	AVG	Units

Power Factor

Name	AVG	MIN	MIN date	MIN time	MAX	MAX date	MAX time	Units
PF1 (1 s)	0.986	0.982	3/30/2024	2:32:12 PM	0.990	3/30/2024	1:24:17 PM	
PF2 (1 s)	0.991	0.967	3/30/2024	2:24:19 PM	0.996	3/30/2024	12:36:30 PM	
PF3 (1 s)	0.994	0.975	3/30/2024	1:45:28 PM	0.996	3/30/2024	1:32:09 PM	
PFT (1 s)	0.990	0.981	3/30/2024	2:24:19 PM	0.993	3/30/2024	12:11:03 PM	



3/30/2024 - 12:08:02 PM

Value

- 0.989 — PF1 (1 s) ()
- 0.995 — PF2 (1 s) ()
- 0.995 — PF3 (1 s) ()

PF1 (1 s) ()

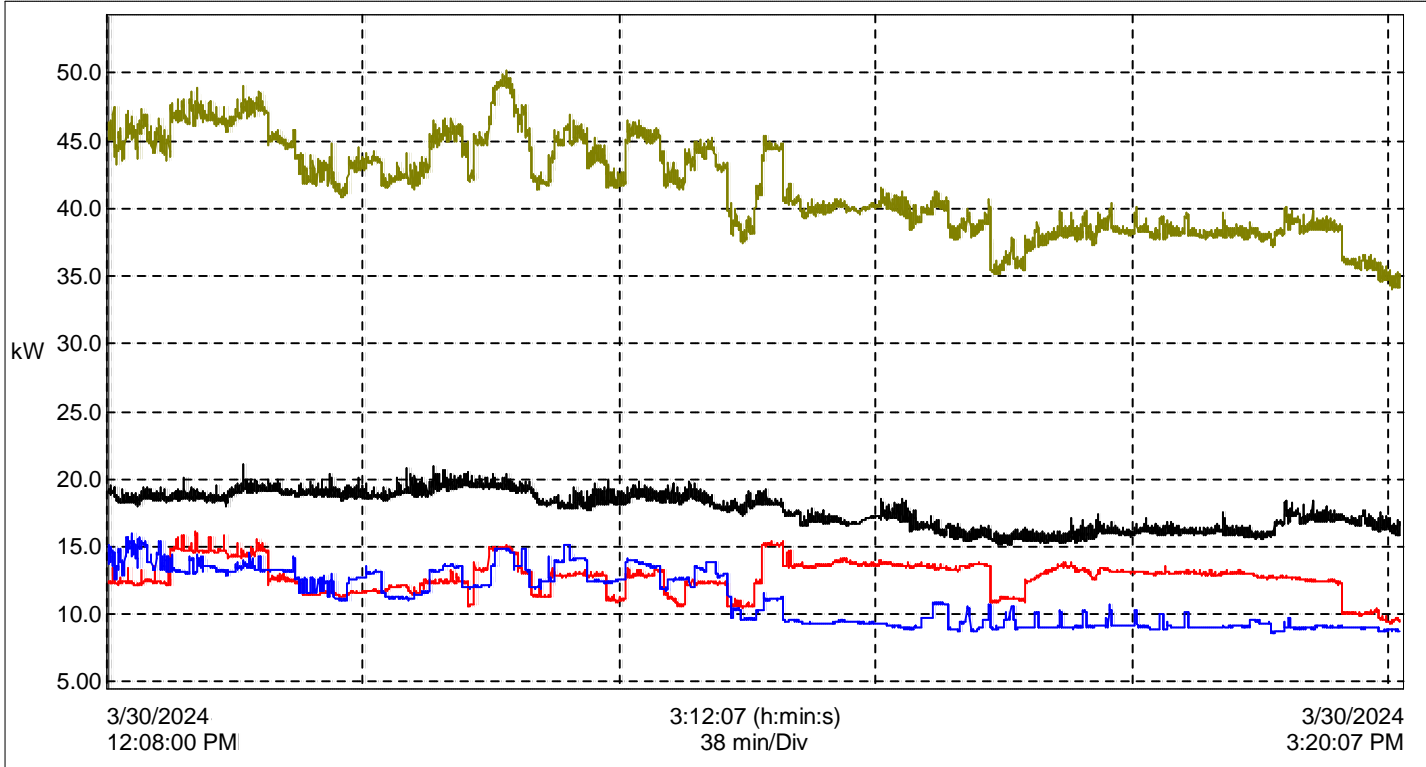
Date	Time	Val
3/30/2024	12:08:02 PM	988.8m
3/30/2024	12:08:03 PM	988.7m
3/30/2024	12:08:04 PM	988.7m
3/30/2024	12:08:05 PM	989.0m
3/30/2024	12:08:06 PM	988.8m
3/30/2024	12:08:07 PM	988.7m
3/30/2024	12:08:08 PM	988.7m
3/30/2024	12:08:09 PM	988.6m
3/30/2024	12:08:10 PM	988.5m
3/30/2024	12:08:11 PM	988.8m
3/30/2024	12:08:12 PM	988.9m
3/30/2024	12:08:13 PM	988.5m
3/30/2024	12:08:14 PM	988.7m

Exceptions

Name	Date	Time	Duration	Duration Units	MIN	MAX	AVG	Units

Active Power P (kW)

Name	AVG	MIN	MAX	Units
P1 (1 s)	17.63	15.08	21.03	kW
P2 (1 s)	12.75	9.356	16.08	kW
P3 (1 s)	11.11	8.631	16.04	kW
PT (1 s)	41.49	34.08	50.17	kW



3/30/2024 - 12:08:02 PM

Value

- 18.98k — P1 (1 s) (W)
- 12.37k — P2 (1 s) (W)
- 14.88k — P3 (1 s) (W)

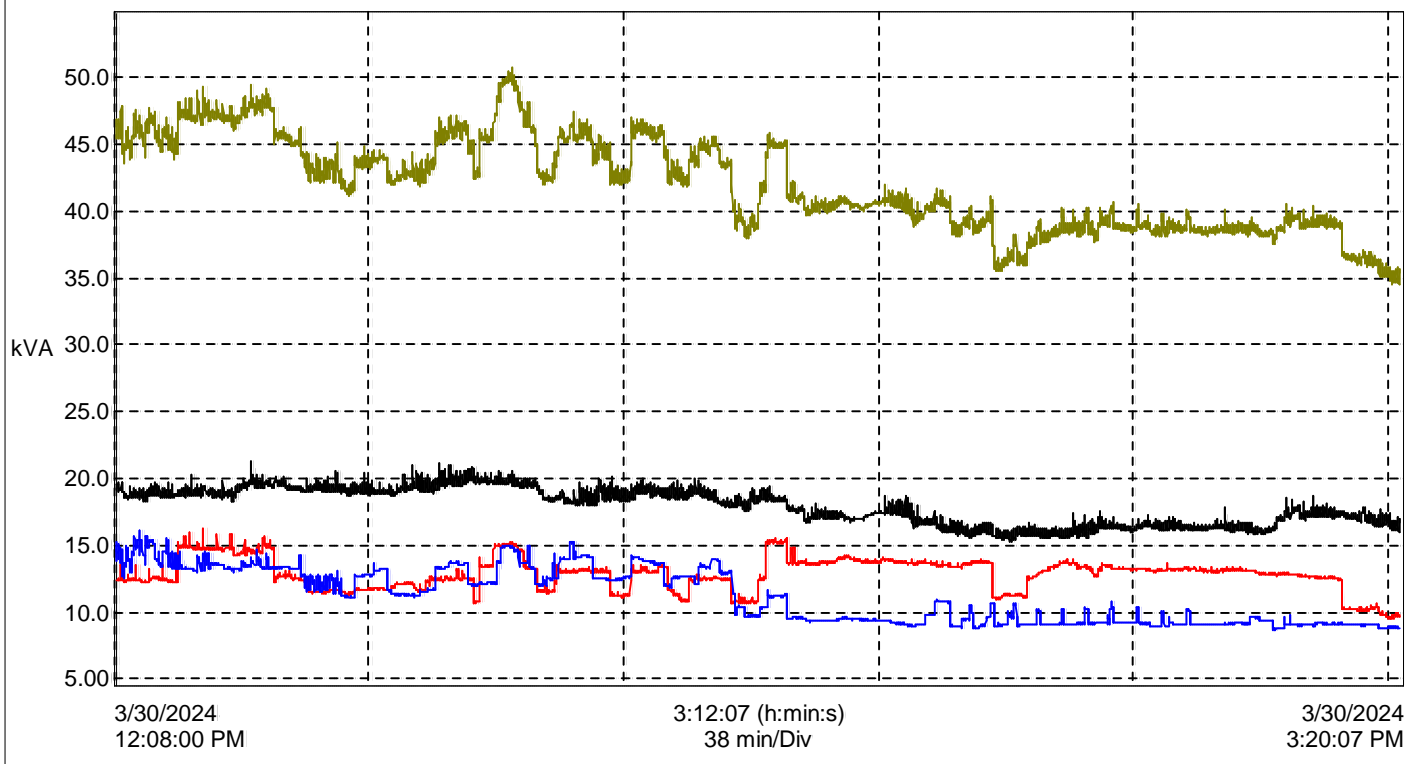
P1 (1 s) (W)			
Date	Time	Val	Units
3/30/2024	12:08:02 PM	18.98	kW
3/30/2024	12:08:03 PM	19.02	kW
3/30/2024	12:08:04 PM	19.01	kW
3/30/2024	12:08:05 PM	19.20	kW
3/30/2024	12:08:06 PM	19.19	kW
3/30/2024	12:08:07 PM	19.23	kW
3/30/2024	12:08:08 PM	19.14	kW
3/30/2024	12:08:09 PM	19.02	kW
3/30/2024	12:08:10 PM	19.07	kW
3/30/2024	12:08:11 PM	19.02	kW
3/30/2024	12:08:12 PM	18.99	kW
3/30/2024	12:08:13 PM	19.03	kW
3/30/2024	12:08:14 PM	19.00	kW

Exceptions

Name	Date	Time	Duration	Duration Units	MIN	MAX	AVG	Units

Apparent Power S (kVA)

Name	AVG	MIN	MAX	Units
S1 (1 s)	17.87	15.31	21.31	kVA
S2 (1 s)	12.87	9.526	16.20	kVA
S3 (1 s)	11.18	8.691	16.16	kVA
ST (1 s)	41.92	34.53	50.71	kVA



3/30/2024 - 12:08:02 PM

Value

- 19.20k — S1 (1 s) (VA)
- 12.43k — S2 (1 s) (VA)
- 14.96k — S3 (1 s) (VA)

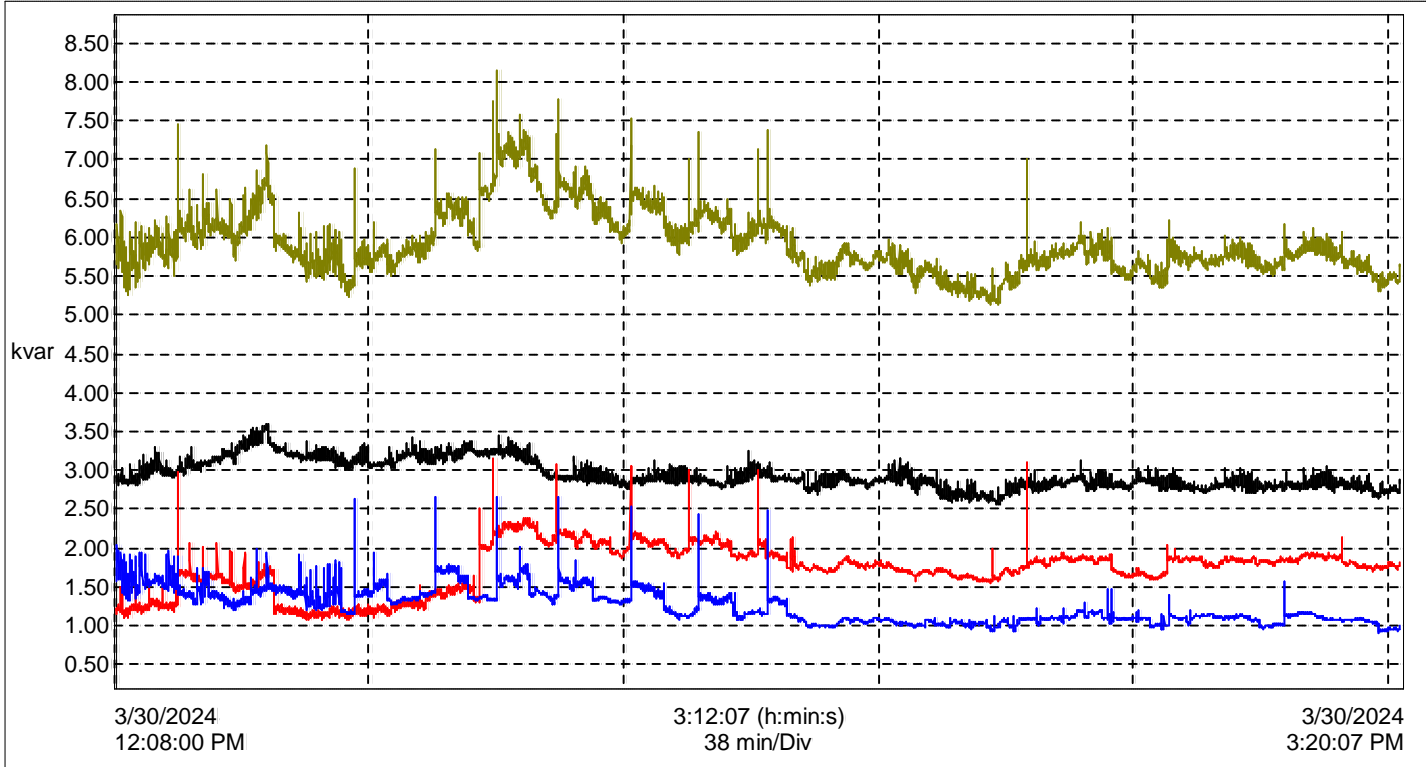
S1 (1 s) (VA)			
Date	Time	Val	Units
3/30/2024	12:08:02 PM	19.20	kVA
3/30/2024	12:08:03 PM	19.23	kVA
3/30/2024	12:08:04 PM	19.22	kVA
3/30/2024	12:08:05 PM	19.41	kVA
3/30/2024	12:08:06 PM	19.41	kVA
3/30/2024	12:08:07 PM	19.45	kVA
3/30/2024	12:08:08 PM	19.35	kVA
3/30/2024	12:08:09 PM	19.24	kVA
3/30/2024	12:08:10 PM	19.30	kVA
3/30/2024	12:08:11 PM	19.23	kVA
3/30/2024	12:08:12 PM	19.21	kVA
3/30/2024	12:08:13 PM	19.25	kVA
3/30/2024	12:08:14 PM	19.22	kVA

Exceptions

Name	Date	Time	Duration	Duration Units	MIN	MAX	AVG	Units

Reactive Power Q (kvar)

Name	AVG	MIN	MAX	Units
Q1 (1 s)	2.931	2.546	3.605	kvar
Q2 (1 s)	1.723	1.063	3.157	kvar
Q3 (1 s)	1.245	0.907	2.669	kvar
QT (1 s)	5.900	5.125	8.143	kvar



3/30/2024 - 12:08:02 PM

Value

- 2.866k — Q1 (1 s) (var)
- 1.215k — Q2 (1 s) (var)
- 1.568k — Q3 (1 s) (var)

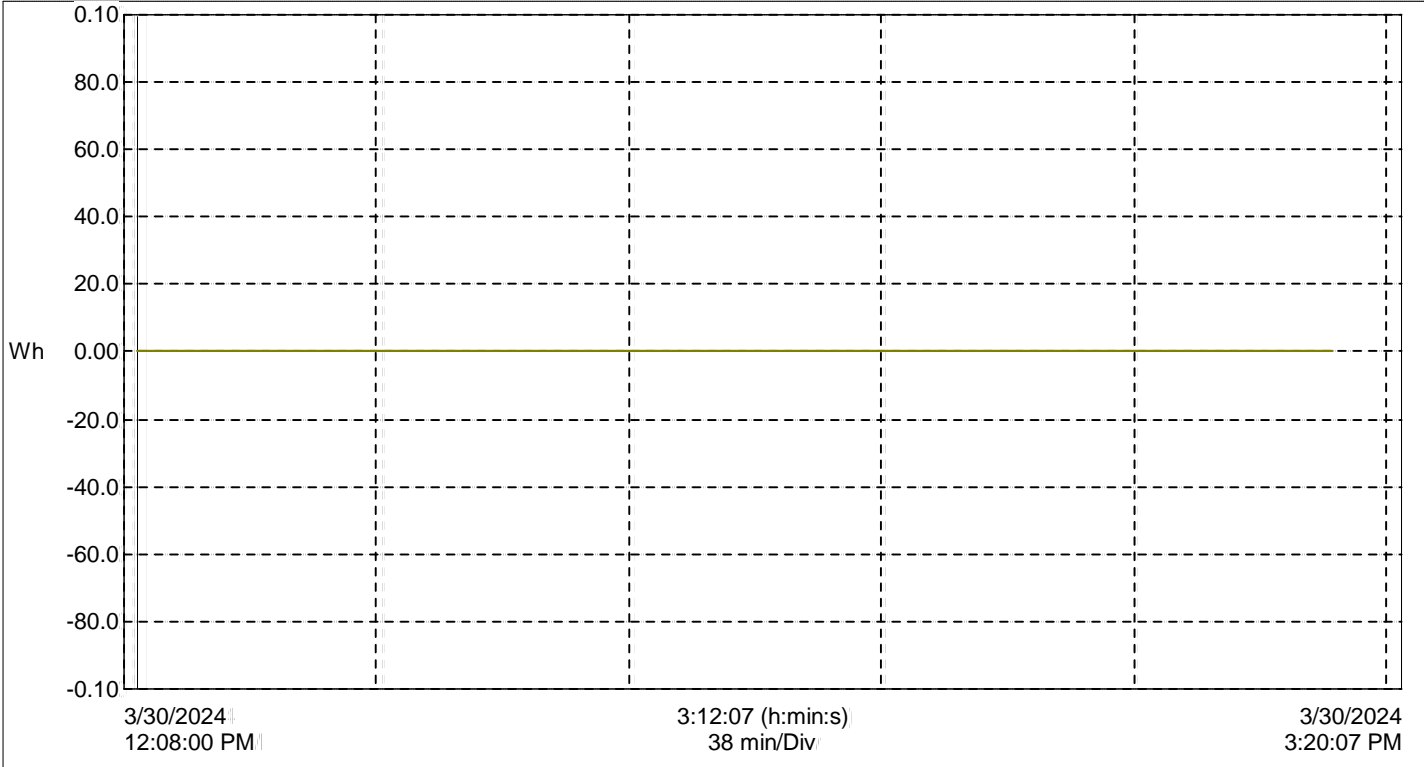
Q1 (1 s) (var)			
Date	Time	Val	Units
3/30/2024	12:08:02 PM	2.866	kvar
3/30/2024	12:08:03 PM	2.881	kvar
3/30/2024	12:08:04 PM	2.876	kvar
3/30/2024	12:08:05 PM	2.876	kvar
3/30/2024	12:08:06 PM	2.898	kvar
3/30/2024	12:08:07 PM	2.918	kvar
3/30/2024	12:08:08 PM	2.895	kvar
3/30/2024	12:08:09 PM	2.899	kvar
3/30/2024	12:08:10 PM	2.912	kvar
3/30/2024	12:08:11 PM	2.867	kvar
3/30/2024	12:08:12 PM	2.860	kvar
3/30/2024	12:08:13 PM	2.914	kvar
3/30/2024	12:08:14 PM	2.882	kvar

Exceptions

Name	Date	Time	Duration	Duration Units	MIN	MAX	AVG	Units

Active Energy Ep (kWh)

Name	MIN	Units
Ep (Wh) (10 min)	0.0	Wh
Ep+ (Wh) (10 min)	0.0	Wh
Ep- (Wh) (10 min)	0.0	Wh



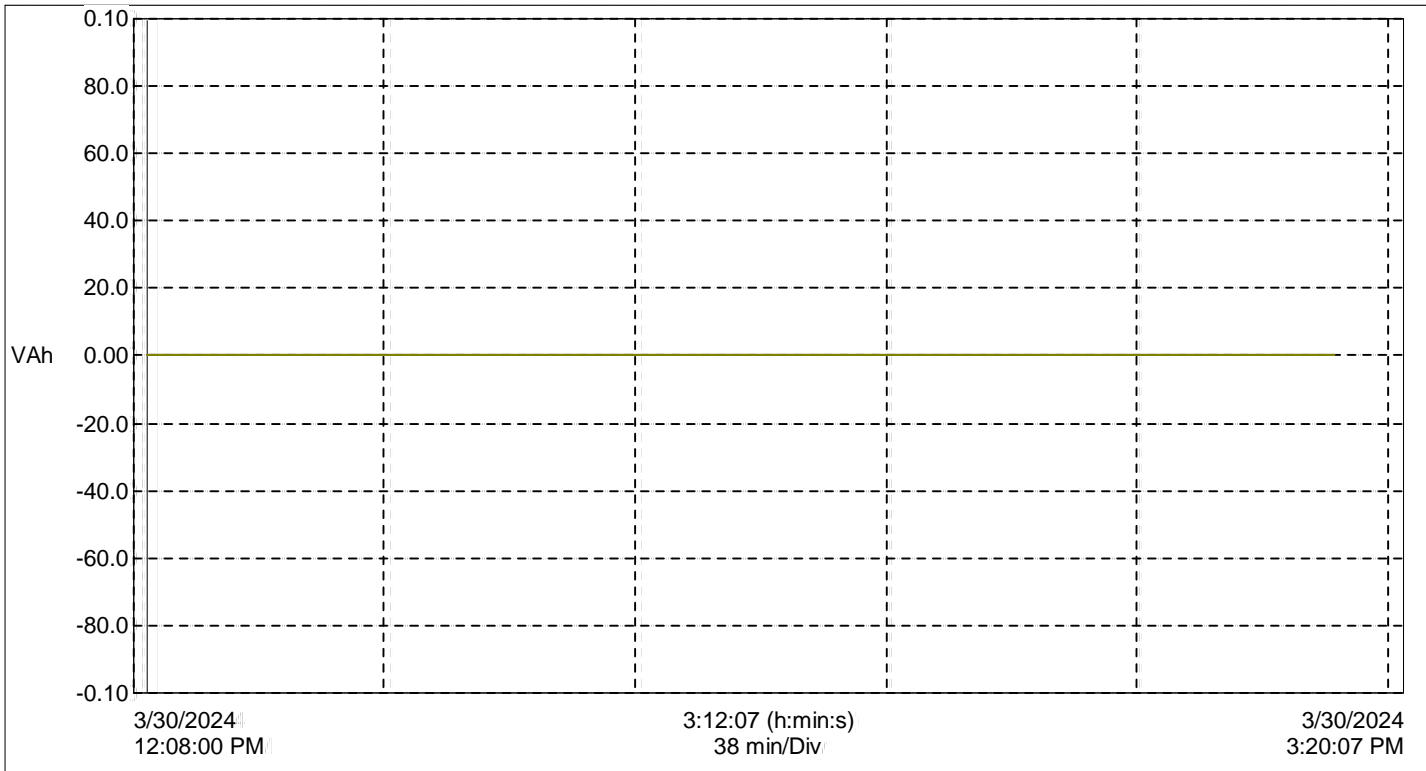
3/30/2024 - 12:10:01 PM

Value

- 0.0 — Ep (Wh) (10 min) (Wh)
- 0.0 — Ep+ (Wh) (10 min) (Wh)
- 0.0 — Ep- (Wh) (10 min) (Wh)

Ep (Wh) (10 min) (Wh)			
Date	Time	Val	Units
3/30/2024	12:10:01 PM	0.0	Wh
3/30/2024	12:20:01 PM	0.0	Wh
3/30/2024	12:30:01 PM	0.0	Wh
3/30/2024	12:40:01 PM	0.0	Wh
3/30/2024	12:50:01 PM	0.0	Wh
3/30/2024	1:00:01 PM	0.0	Wh
3/30/2024	1:10:01 PM	0.0	Wh
3/30/2024	1:20:01 PM	0.0	Wh
3/30/2024	1:30:01 PM	0.0	Wh
3/30/2024	1:40:01 PM	0.0	Wh
3/30/2024	1:50:01 PM	0.0	Wh
3/30/2024	2:00:01 PM	0.0	Wh
3/30/2024	2:10:01 PM	0.0	Wh
3/30/2024	2:20:01 PM	0.0	Wh
3/30/2024	2:30:01 PM	0.0	Wh
3/30/2024	2:40:01 PM	0.0	Wh
3/30/2024	2:50:01 PM	0.0	Wh
3/30/2024	3:00:01 PM	0.0	Wh
3/30/2024	3:10:01 PM	0.0	Wh

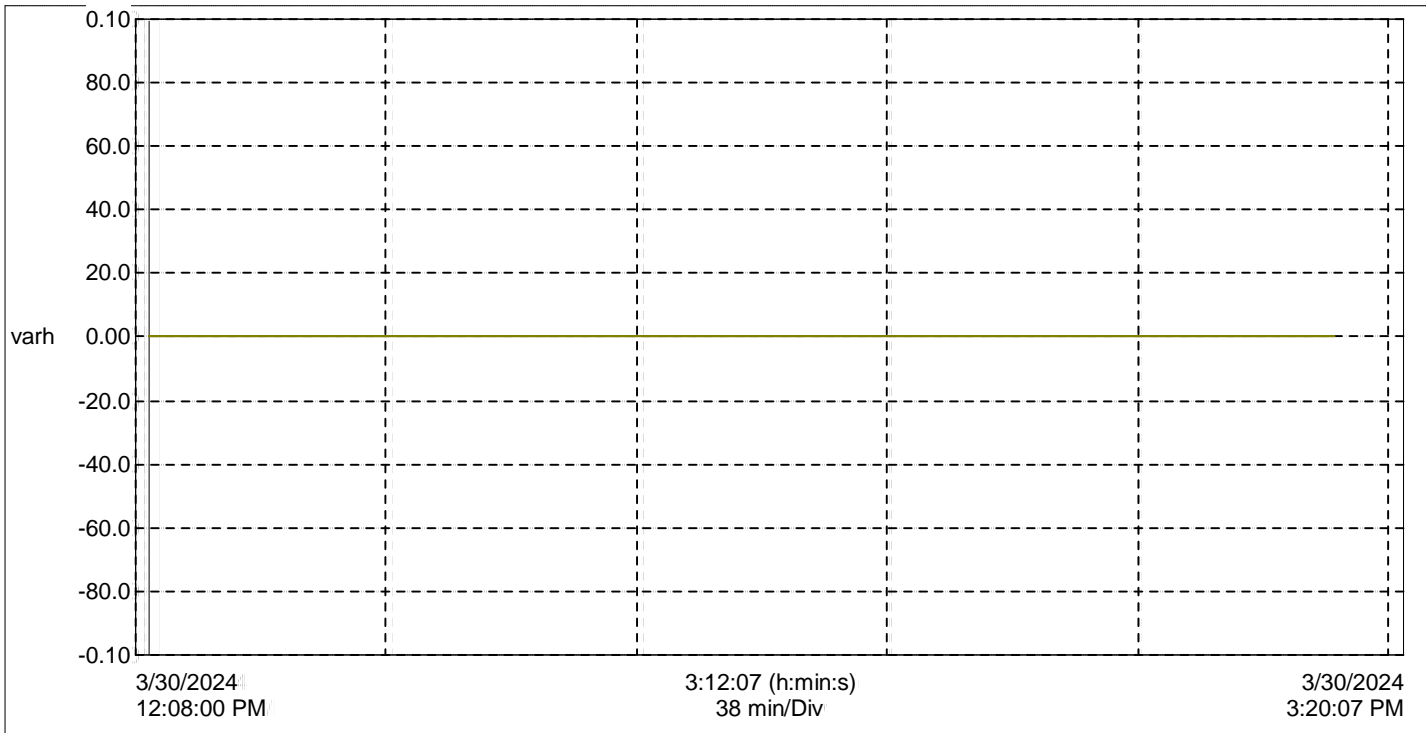
Apparent Energy Es (kVAh)		
Name	MAX	Units
Es (VAh) (10 min)	0.0	VAh
Es+ (VAh) (10 min)	0.0	VAh
Es- (VAh) (10 min)	0.0	VAh



3/30/2024 - 12:10:01 PM	
Value	
0.0	Es (VAh) (10 min) (VAh)
0.0	Es+ (VAh) (10 min) (VAh)
0.0	Es- (VAh) (10 min) (VAh)

Es (VAh) (10 min) (VAh)			
Date	Time	Val	Units
3/30/2024	12:10:01 PM	0.0	VAh
3/30/2024	12:20:01 PM	0.0	VAh
3/30/2024	12:30:01 PM	0.0	VAh
3/30/2024	12:40:01 PM	0.0	VAh
3/30/2024	12:50:01 PM	0.0	VAh
3/30/2024	1:00:01 PM	0.0	VAh
3/30/2024	1:10:01 PM	0.0	VAh
3/30/2024	1:20:01 PM	0.0	VAh
3/30/2024	1:30:01 PM	0.0	VAh
3/30/2024	1:40:01 PM	0.0	VAh
3/30/2024	1:50:01 PM	0.0	VAh
3/30/2024	2:00:01 PM	0.0	VAh
3/30/2024	2:10:01 PM	0.0	VAh
3/30/2024	2:20:01 PM	0.0	VAh
3/30/2024	2:30:01 PM	0.0	VAh
3/30/2024	2:40:01 PM	0.0	VAh
3/30/2024	2:50:01 PM	0.0	VAh
3/30/2024	3:00:01 PM	0.0	VAh
3/30/2024	3:10:01 PM	0.0	VAh

Reactive Energy Eq (kvarh)		
Name	MAX	Units
Eq/q1 (varh) (10 min)	0.0	varh
Eq/q2 (varh) (10 min)	0.0	varh
Eq/q3 (varh) (10 min)	0.0	varh
Eq/q4 (varh) (10 min)	0.0	varh

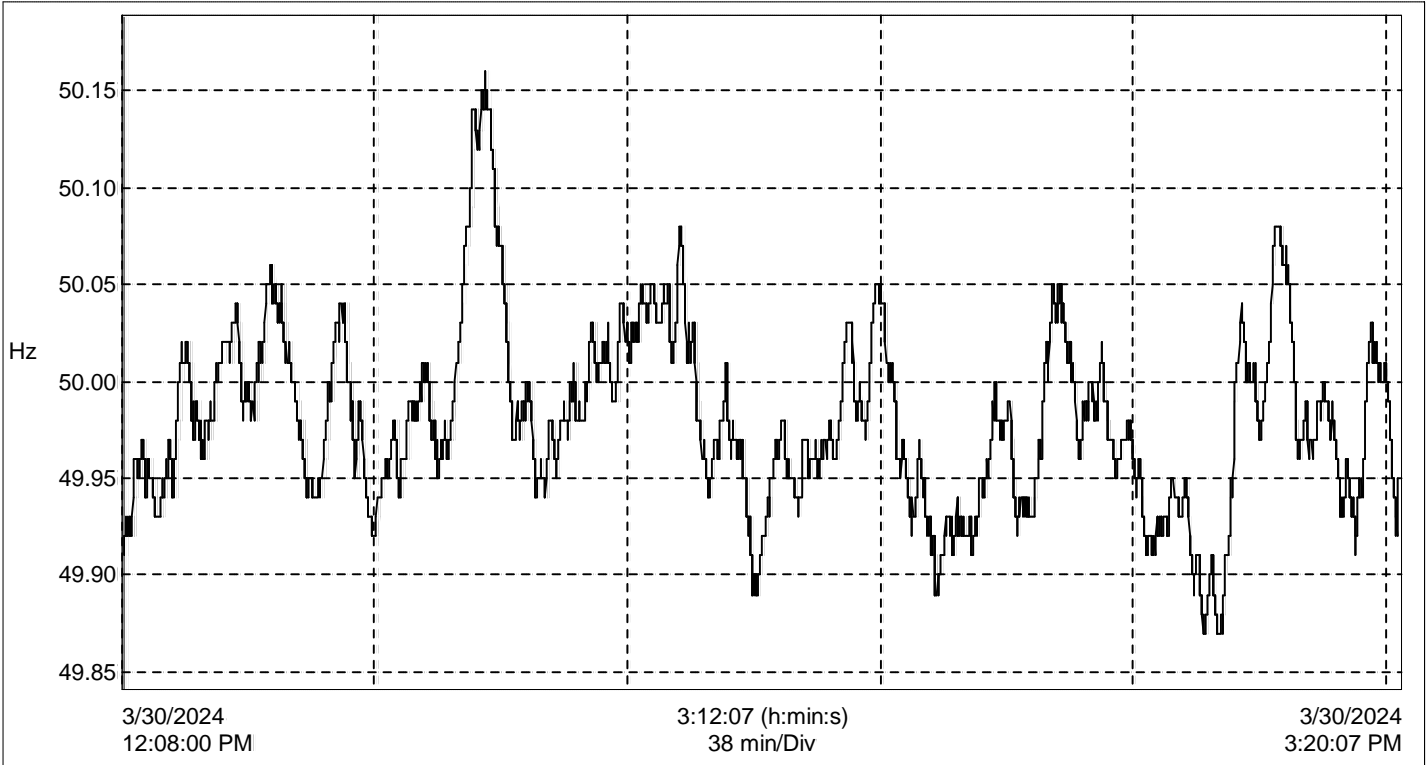


3/30/2024 - 12:10:01 PM	
Value	
0.0	Eq/q1 (varh) (10 min) (varh)
0.0	Eq/q2 (varh) (10 min) (varh)
0.0	Eq/q3 (varh) (10 min) (varh)
0.0	Eq/q4 (varh) (10 min) (varh)

Eq/q1 (varh) (10 min) (varh)			
Date	Time	Val	Units
3/30/2024	12:10:01 PM	0.0	varh
3/30/2024	12:20:01 PM	0.0	varh
3/30/2024	12:30:01 PM	0.0	varh
3/30/2024	12:40:01 PM	0.0	varh
3/30/2024	12:50:01 PM	0.0	varh
3/30/2024	1:00:01 PM	0.0	varh
3/30/2024	1:10:01 PM	0.0	varh
3/30/2024	1:20:01 PM	0.0	varh
3/30/2024	1:30:01 PM	0.0	varh
3/30/2024	1:40:01 PM	0.0	varh
3/30/2024	1:50:01 PM	0.0	varh
3/30/2024	2:00:01 PM	0.0	varh
3/30/2024	2:10:01 PM	0.0	varh
3/30/2024	2:20:01 PM	0.0	varh
3/30/2024	2:30:01 PM	0.0	varh
3/30/2024	2:40:01 PM	0.0	varh
3/30/2024	2:50:01 PM	0.0	varh
3/30/2024	3:00:01 PM	0.0	varh
3/30/2024	3:10:01 PM	0.0	varh

F (Hz)

Name	AVG	MIN	MIN date	MIN time	MAX	MAX date	MAX time	Units
F (Hz) (1 s)	49.98	49.87	3/30/2024	2:50:37 PM	50.16	3/30/2024	1:02:40 PM	Hz



3/30/2024 - 12:08:02 PM
Value
49.91 — F (Hz) (1 s) (Hz)

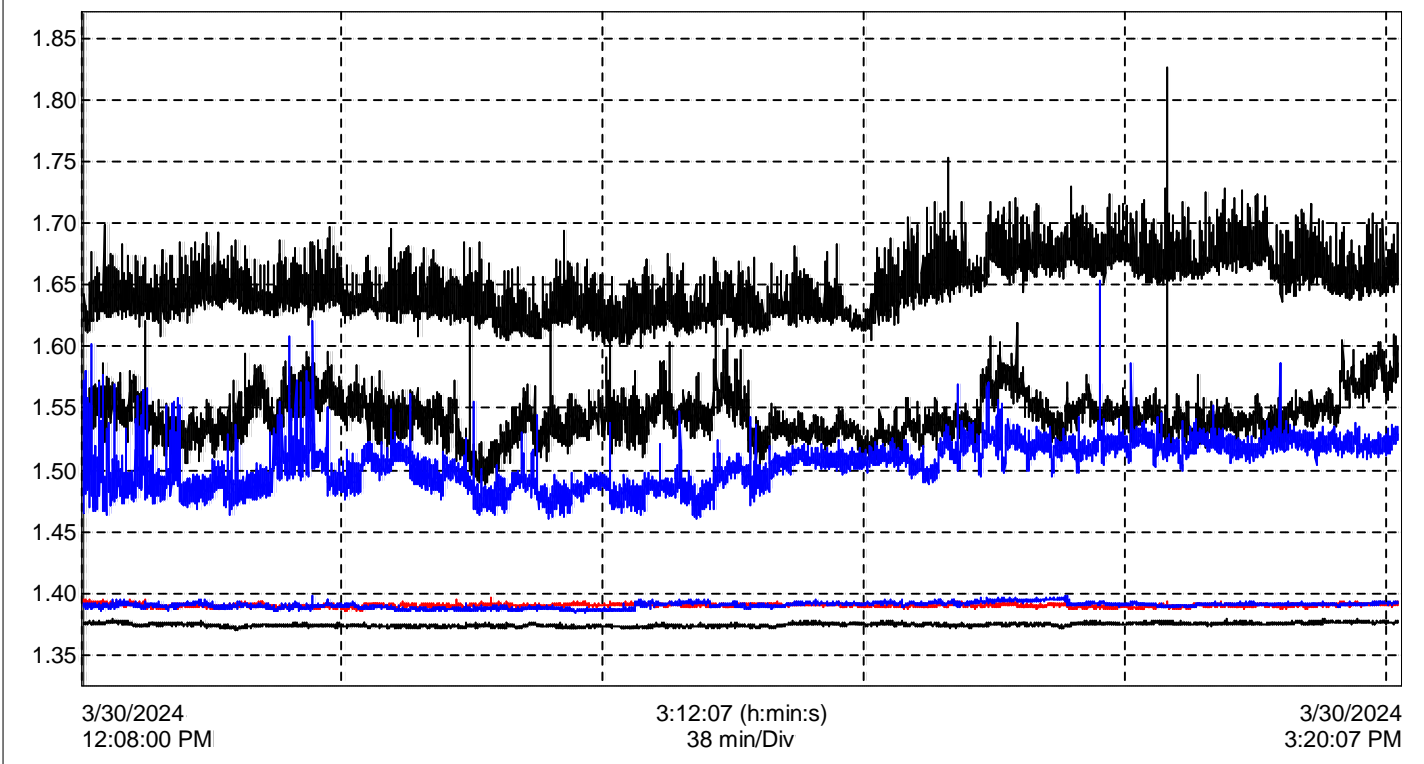
F (Hz) (1 s) (Hz)		
Date	Time	Val
3/30/2024	12:08:02 PM	49.91
3/30/2024	12:08:03 PM	49.91
3/30/2024	12:08:04 PM	49.91
3/30/2024	12:08:05 PM	49.92
3/30/2024	12:08:06 PM	49.92
3/30/2024	12:08:07 PM	49.92
3/30/2024	12:08:08 PM	49.92
3/30/2024	12:08:09 PM	49.92
3/30/2024	12:08:10 PM	49.92
3/30/2024	12:08:11 PM	49.92
3/30/2024	12:08:12 PM	49.92
3/30/2024	12:08:13 PM	49.92
3/30/2024	12:08:14 PM	49.92

Exceptions

Name	Date	Time	Duration	Duration Units	MIN	MAX	AVG	Units

CF

Name	AVG	MIN	MAX	Units
I1-CF (1 s)	1.646	1.599	1.754	
I2-CF (1 s)	1.544	1.486	1.826	
I3-CF (1 s)	1.504	1.461	1.653	
V1-CF (1 s)	1.374	1.370	1.379	



3/30/2024 - 12:08:02 PM
 Value
 1.375 — V1-CF (1 s) ()
 1.392 — V2-CF (1 s) ()
 1.390 — V3-CF (1 s) ()

I1-CF (1 s) ()

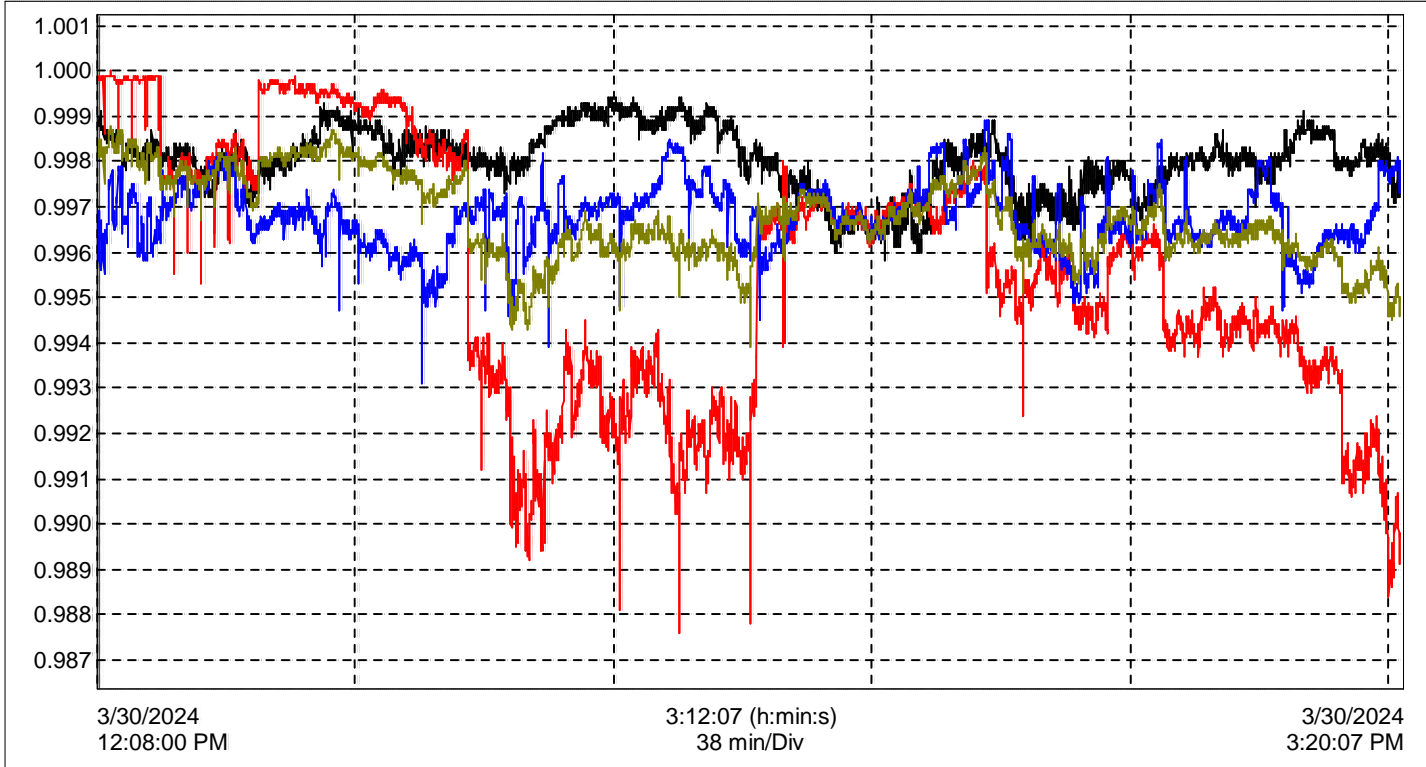
Date	Time	Val
3/30/2024	12:08:02 PM	1.624
3/30/2024	12:08:03 PM	1.627
3/30/2024	12:08:04 PM	1.636
3/30/2024	12:08:05 PM	1.633
3/30/2024	12:08:06 PM	1.627
3/30/2024	12:08:07 PM	1.637
3/30/2024	12:08:08 PM	1.623
3/30/2024	12:08:09 PM	1.622
3/30/2024	12:08:10 PM	1.623
3/30/2024	12:08:11 PM	1.623
3/30/2024	12:08:12 PM	1.620
3/30/2024	12:08:13 PM	1.627
3/30/2024	12:08:14 PM	1.629

Exceptions

Name	Date	Time	Duration	Duration Units	MIN	MAX	AVG Units

Cos ϕ (DPF)

Name	AVG	MIN	MAX	Units
Cos ϕ 1 (1 s)	0.998	0.996	0.999	
Cos ϕ 2 (1 s)	0.996	0.988	1.000	
Cos ϕ 3 (1 s)	0.997	0.993	0.999	
Cos ϕ T (1 s)	0.997	0.994	0.999	



3/30/2024 - 12:08:02 PM

Value

- 0.999 — Cos ϕ 1 (1 s) ()
- 1.000 — Cos ϕ 2 (1 s) ()
- 0.997 — Cos ϕ 3 (1 s) ()

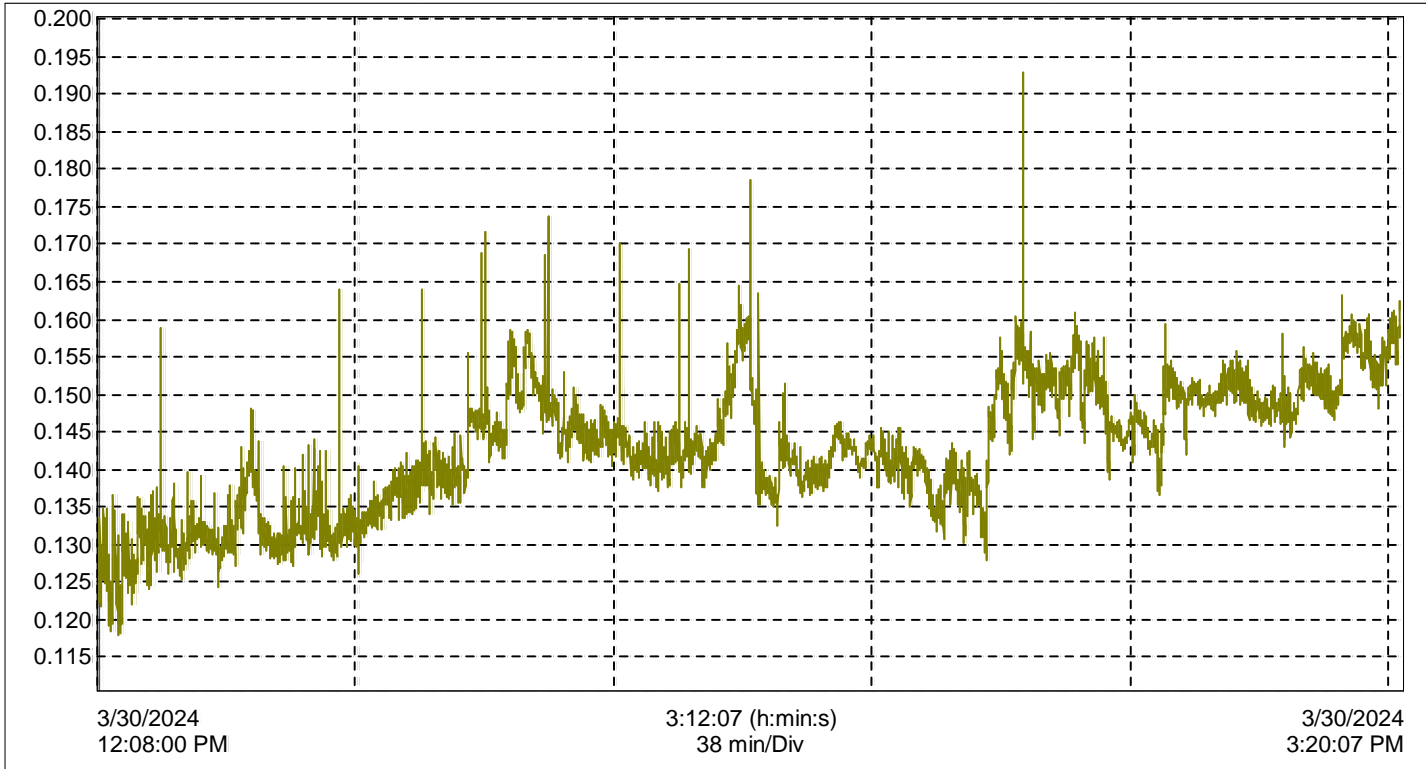
Cos ϕ 1 (1 s) ()

Date	Time	Val
3/30/2024	12:08:02 PM	998.9m
3/30/2024	12:08:03 PM	998.8m
3/30/2024	12:08:04 PM	998.8m
3/30/2024	12:08:05 PM	998.8m
3/30/2024	12:08:06 PM	998.9m
3/30/2024	12:08:07 PM	999.0m
3/30/2024	12:08:08 PM	998.9m
3/30/2024	12:08:09 PM	998.9m
3/30/2024	12:08:10 PM	999.0m
3/30/2024	12:08:11 PM	999.0m
3/30/2024	12:08:12 PM	999.0m
3/30/2024	12:08:13 PM	999.0m
3/30/2024	12:08:14 PM	998.9m

Exceptions

Name	Date	Time	Duration	Duration Units	MIN	MAX	AVG

Tan Φ				
Name	AVG	MIN	MAX	Units
Tan Φ (1 s)	0.143	0.118	0.193	



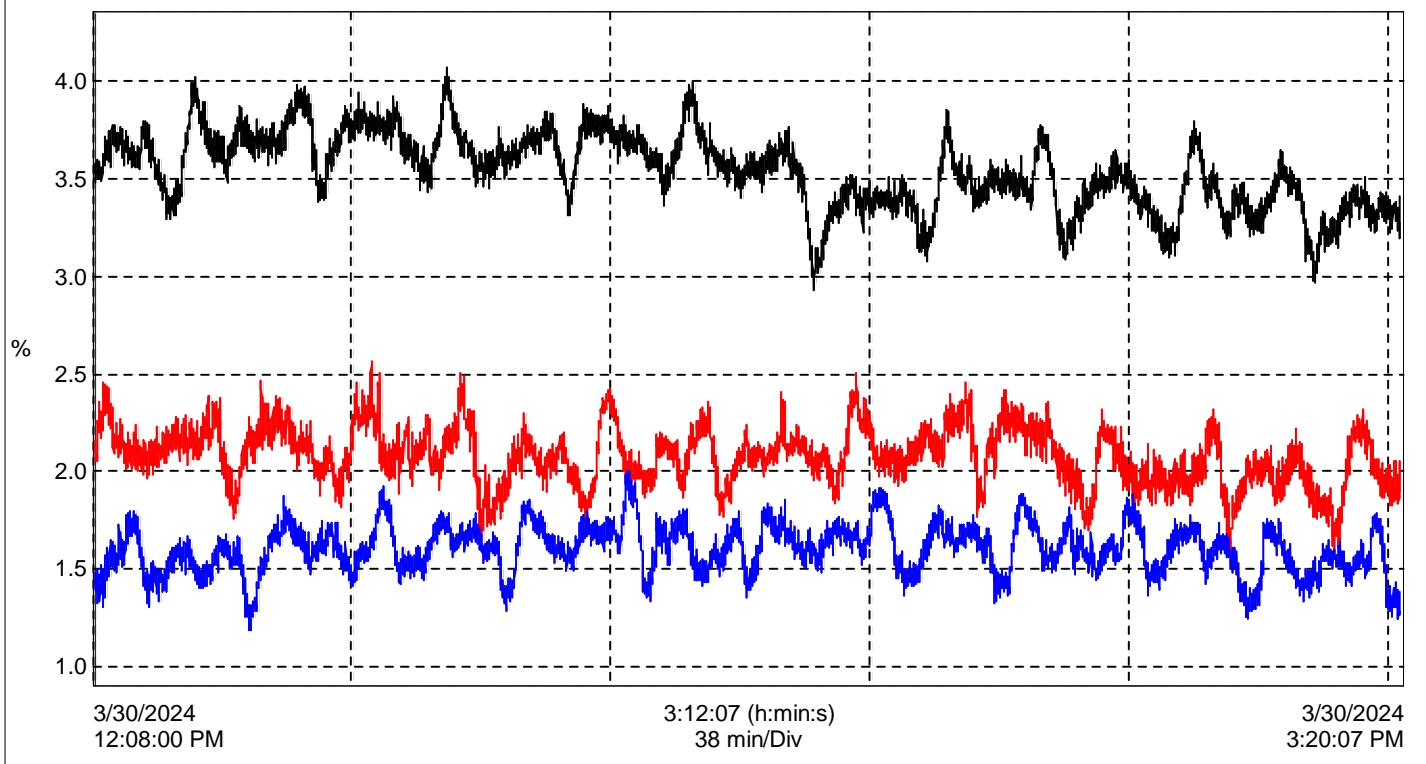
3/30/2024 - 12:08:02 PM
Value
0.122 — Tan Φ (1 s) ()

Tan Φ (1 s) ()		
Date	Time	Val
3/30/2024	12:08:02 PM	122.2m
3/30/2024	12:08:03 PM	130.4m
3/30/2024	12:08:04 PM	126.1m
3/30/2024	12:08:05 PM	127.0m
3/30/2024	12:08:06 PM	125.7m
3/30/2024	12:08:07 PM	127.6m
3/30/2024	12:08:08 PM	126.5m
3/30/2024	12:08:09 PM	126.9m
3/30/2024	12:08:10 PM	128.0m
3/30/2024	12:08:11 PM	125.9m
3/30/2024	12:08:12 PM	127.4m
3/30/2024	12:08:13 PM	127.3m
3/30/2024	12:08:14 PM	127.7m

Exceptions								
Name	Date	Time	Duration	Duration Units	MIN	MAX	AVG	Units

Phase-to-Neutral Total Harmonic Distortion

Name	AVG	MIN	MIN date	MIN time	MAX	MAX date	MAX time	Units
V1-THD (1 s)	3.541	2.930	3/30/2024	1:53:48 PM	4.070	3/30/2024	12:59:44 PM	%
V2-THD (1 s)	2.079	1.580	3/30/2024	2:55:11 PM	2.570	3/30/2024	12:48:51 PM	%
V3-THD (1 s)	1.603	1.190	3/30/2024	12:30:45 PM	2.000	3/30/2024	1:26:20 PM	%



3/30/2024 - 12:08:02 PM
 Value
 3.480 — V1-THD (1 s) (%)
 2.060 — V2-THD (1 s) (%)
 1.390 — V3-THD (1 s) (%)

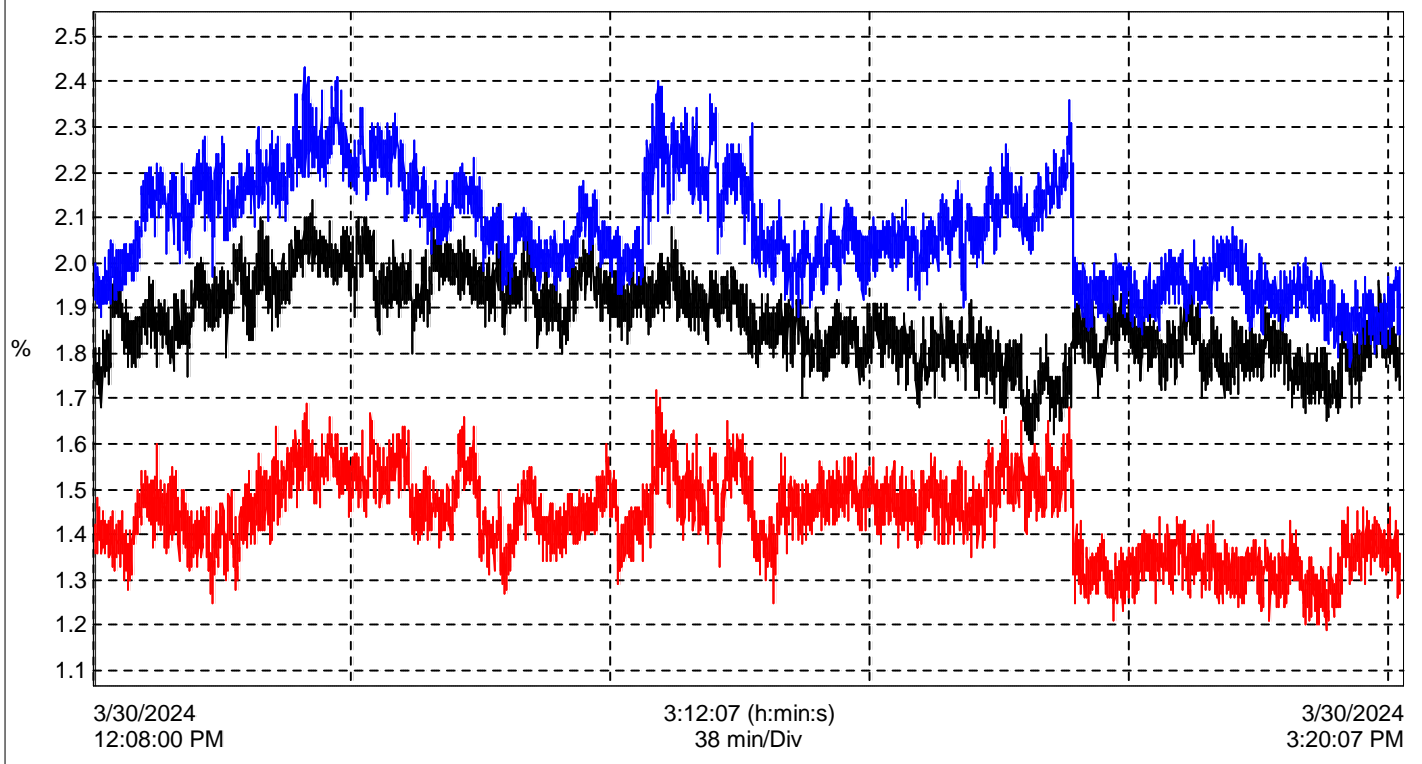
V1-THD (1 s) (%)			
Date	Time	Val	Units
3/30/2024	12:08:02 PM	3.480	%
3/30/2024	12:08:03 PM	3.500	%
3/30/2024	12:08:04 PM	3.480	%
3/30/2024	12:08:05 PM	3.510	%
3/30/2024	12:08:06 PM	3.580	%
3/30/2024	12:08:07 PM	3.540	%
3/30/2024	12:08:08 PM	3.520	%
3/30/2024	12:08:09 PM	3.540	%
3/30/2024	12:08:10 PM	3.520	%
3/30/2024	12:08:11 PM	3.520	%
3/30/2024	12:08:12 PM	3.530	%
3/30/2024	12:08:13 PM	3.550	%
3/30/2024	12:08:14 PM	3.520	%

Exceptions

Name	Date	Time	Duration	Duration Units	MIN	MAX	AVG	Units

Phase-to-Phase Total Harmonic Distortion

Name	AVG	MIN	MIN date	MIN time	MAX	MAX date	MAX time	Units
U12-THD (1 s)	1.872	1.600	3/30/2024	2:25:46 PM	2.140	3/30/2024	12:40:04 PM	%
U23-THD (1 s)	1.437	1.190	3/30/2024	3:09:06 PM	1.720	3/30/2024	1:30:45 PM	%
U31-THD (1 s)	2.068	1.770	3/30/2024	3:12:46 PM	2.430	3/30/2024	12:38:48 PM	%



3/30/2024 - 12:08:02 PM
 Value
 1.760 — U12-THD (1 s) (%)
 1.360 — U23-THD (1 s) (%)
 1.950 — U31-THD (1 s) (%)

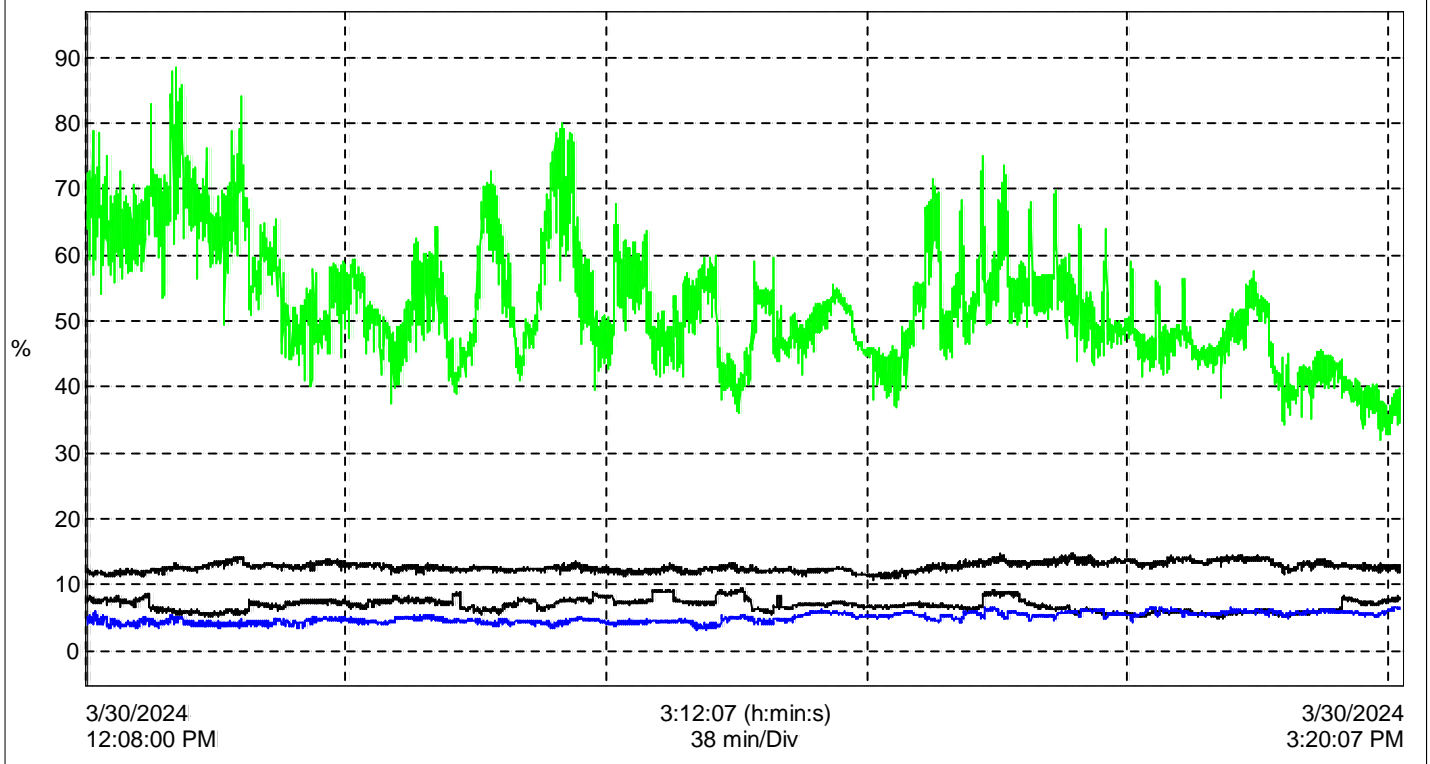
U12-THD (1 s) (%)			
Date	Time	Val	Units
3/30/2024	12:08:02 PM	1.760	%
3/30/2024	12:08:03 PM	1.740	%
3/30/2024	12:08:04 PM	1.760	%
3/30/2024	12:08:05 PM	1.800	%
3/30/2024	12:08:06 PM	1.810	%
3/30/2024	12:08:07 PM	1.770	%
3/30/2024	12:08:08 PM	1.760	%
3/30/2024	12:08:09 PM	1.760	%
3/30/2024	12:08:10 PM	1.780	%
3/30/2024	12:08:11 PM	1.760	%
3/30/2024	12:08:12 PM	1.760	%
3/30/2024	12:08:13 PM	1.750	%
3/30/2024	12:08:14 PM	1.750	%

Exceptions

Name	Date	Time	Duration	Duration Units	MIN	MAX	AVG	Units

Current Total Harmonic Distortion

Name	AVG	MIN	MIN date	MIN time	MAX	MAX date	MAX time	Units
I1-THD (1 s)	12.80	10.80	3/30/2024	2:03:00 PM	14.79	3/30/2024	2:32:06 PM	%
I2-THD (1 s)	6.905	4.780	3/30/2024	2:54:15 PM	9.500	3/30/2024	1:43:38 PM	%
I3-THD (1 s)	5.010	3.210	3/30/2024	1:38:31 PM	6.750	3/30/2024	3:20:06 PM	%
IN-THD (1 s)	53.01	31.94	3/30/2024	3:17:12 PM	88.38	3/30/2024	12:21:09 PM	%



3/30/2024 - 12:08:02 PM
 Value
 12.07 — I1-THD (1 s) (%)
 7.730 — I2-THD (1 s) (%)
 3.890 — I3-THD (1 s) (%)

I1-THD (1 s) (%)			
Date	Time	Val	Units
3/30/2024	12:08:02 PM	12.07	%
3/30/2024	12:08:03 PM	11.97	%
3/30/2024	12:08:04 PM	11.99	%
3/30/2024	12:08:05 PM	11.88	%
3/30/2024	12:08:06 PM	12.04	%
3/30/2024	12:08:07 PM	12.18	%
3/30/2024	12:08:08 PM	12.11	%
3/30/2024	12:08:09 PM	12.28	%
3/30/2024	12:08:10 PM	12.24	%
3/30/2024	12:08:11 PM	12.12	%
3/30/2024	12:08:12 PM	12.06	%
3/30/2024	12:08:13 PM	12.34	%
3/30/2024	12:08:14 PM	12.18	%

Exceptions

Name	Date	Time	Duration	Duration Units	MIN	MAX	AVG	Units

Total energies and costs

Name	Value	Display cost
Ep Total (Wh)	132.8 kWh	
Ep+ Total (Wh)	132.8 kWh	
Ep- Total (Wh)	0 kWh	
Eq Total (varh)	18.88 kvarh	
Eq/q1 Total (varh)	18.88 kvarh	
Eq/q2 Total (varh)	0 kvarh	
Eq/q3 Total (varh)	0 kvarh	
Eq/q4 Total (varh)	0 kvarh	
Es Total (VAh)	134.2 kVAh	
Es+ Total (VAh)	134.2 kVAh	
Es- Total (VAh)	0 kVAh	

Configuration

Database File Name	SDSM.dvb
Session name	SDSM
Recording start	3/30/2024 12:08:01 PM
Recording end	3/30/2024 3:20:06 PM
Recording duration	03:12:05 (h:min:s)
1 s trend	Yes
1 s harmonics	Yes
PEL model	PEL103
PEL serial number	120912UBH
PEL name	SAUR
PEL location	
Firmware DSP version	1.28
Firmware microprocessor version	1.20
Hardware version	D.D
Aggregation period	1 min
Electrical hook-up	3-phase 4-wire Y
Nominal frequency	Auto
Primary nominal voltage	---
Secondary nominal voltage	---
Current sensor I1	MA193/A193/A196
Current sensor I2	MA193/A193/A196
Current sensor I3	MA193/A193/A196
Line flexible sensor range	400 A
Line flexible sensor wraps	1

Glossary of terms

---	- Indicates a value that cannot be calculated
V Φ -N	- Indicates the phase to neutral voltages
V Φ - Φ	- Indicates the phase to phase voltages
F	- Frequency
V	- Voltage
U	- Phase-to-phase Voltage
I	- Current
P	- Active Power
Q	- Reactive Power
S	- Apparent Power
PF	- Power Factor
Tan Φ	- Ratio between Reactive and Active Power
Ep	- Active Energy
Eq	- Reactive Energy
Es	- Apparent Energy
THD	- Total Harmonic Distortion