



TG Control Co., Ltd.

EQ Matic

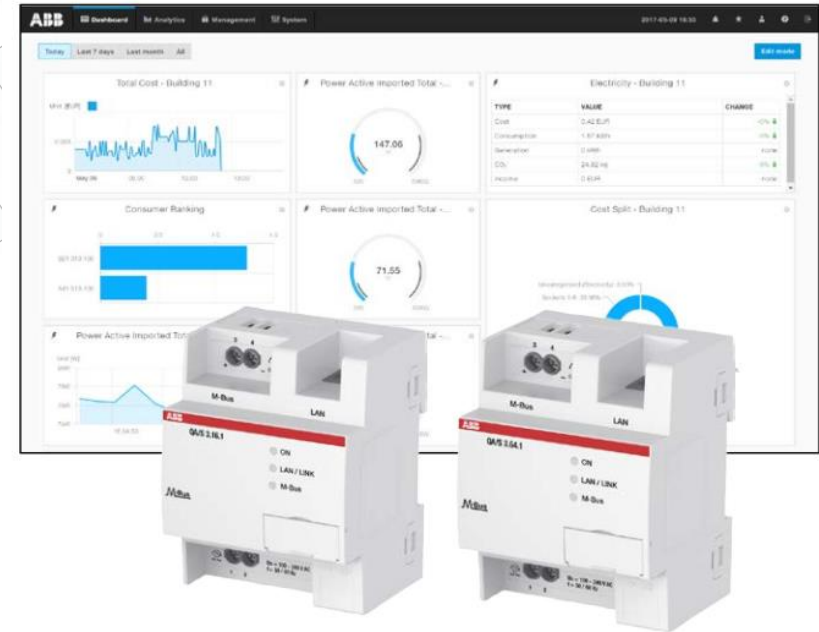
EQMatic Energy Analyzer are compact, web-based standalone devices for energy management applications.

EQMatic collects data from.

- M-Bus meters
 - Modbus RTU meters
- (Support up to 16 or 64 device)

EQMatic log and store consumption data for electricity, gas, water or heat meters.

EQMatic received ISO 50001 Certificate.

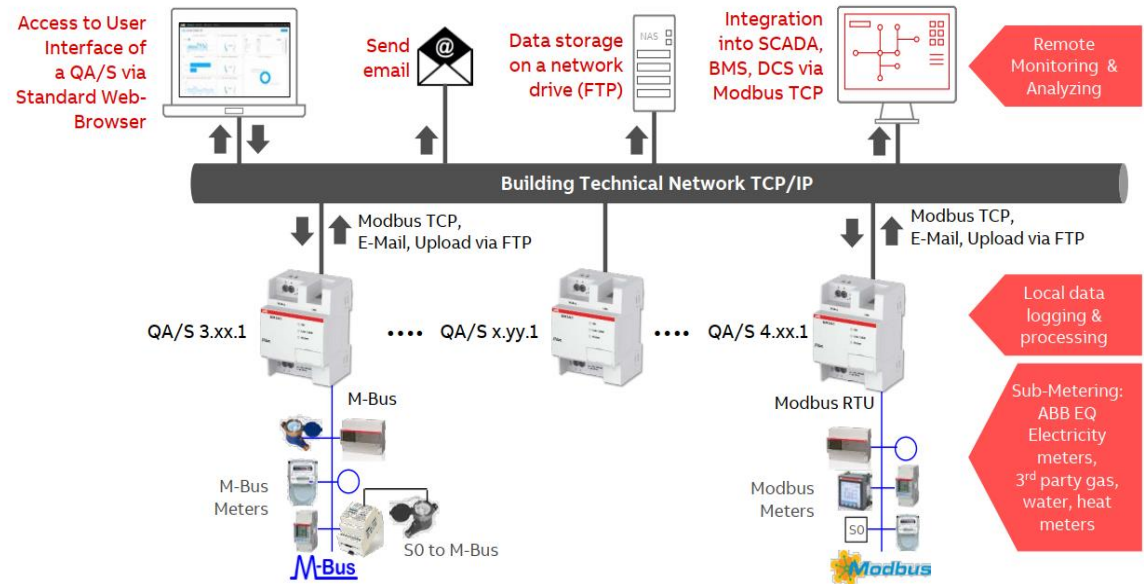


The collected data can be

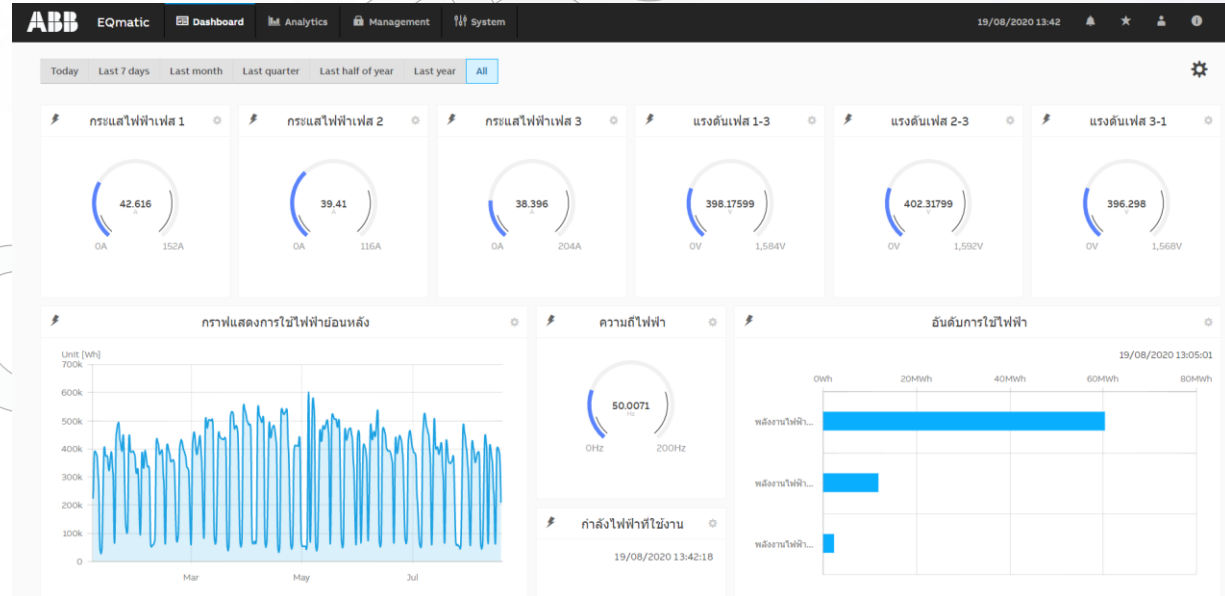
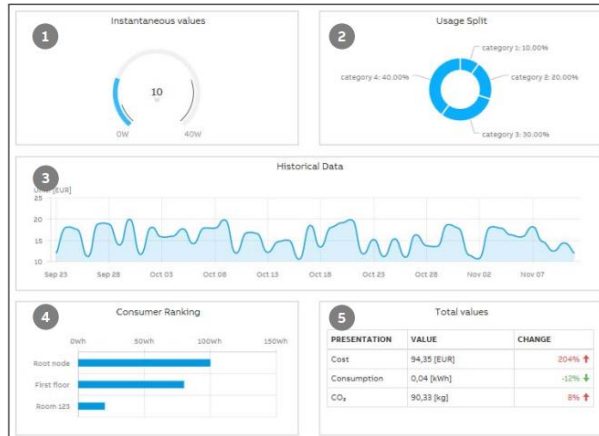
- Save locally in the device database
- Sent as report via E-Mail
- Uploaded via FTP
- Shared with other system via Modbus TCP/IP

Storage of metering data from up to 64 meters for at least 3 years.

Retrieval/storage of meter data every 5 minutes.

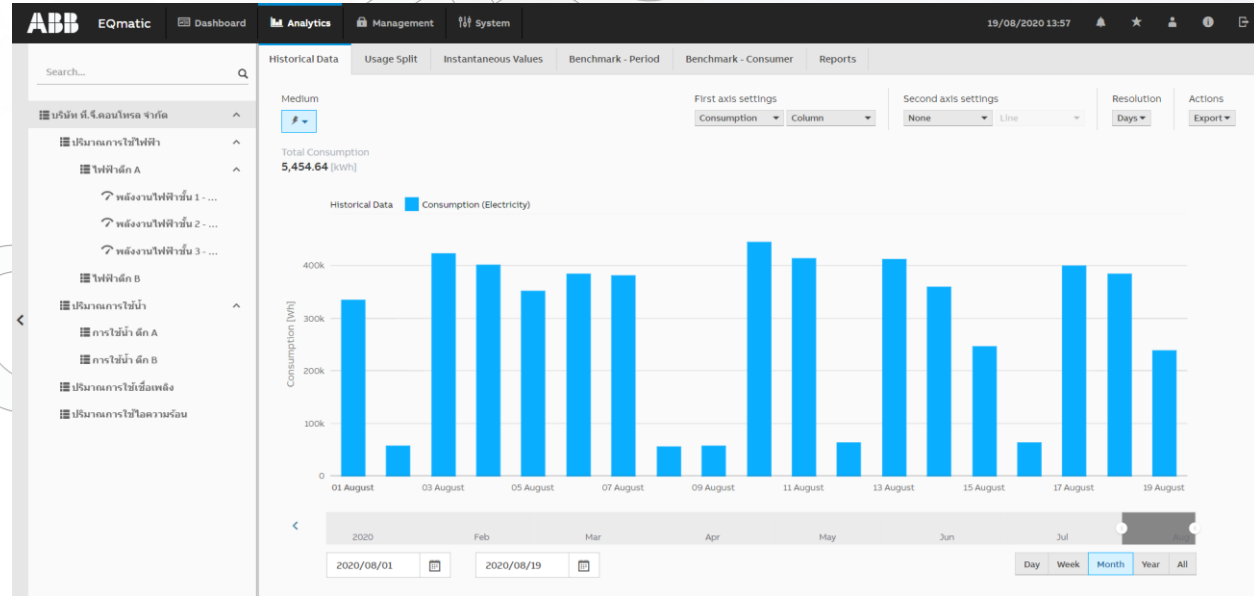


In the dashboard you can
configure user-defined views
using widgets up to 24 widgets



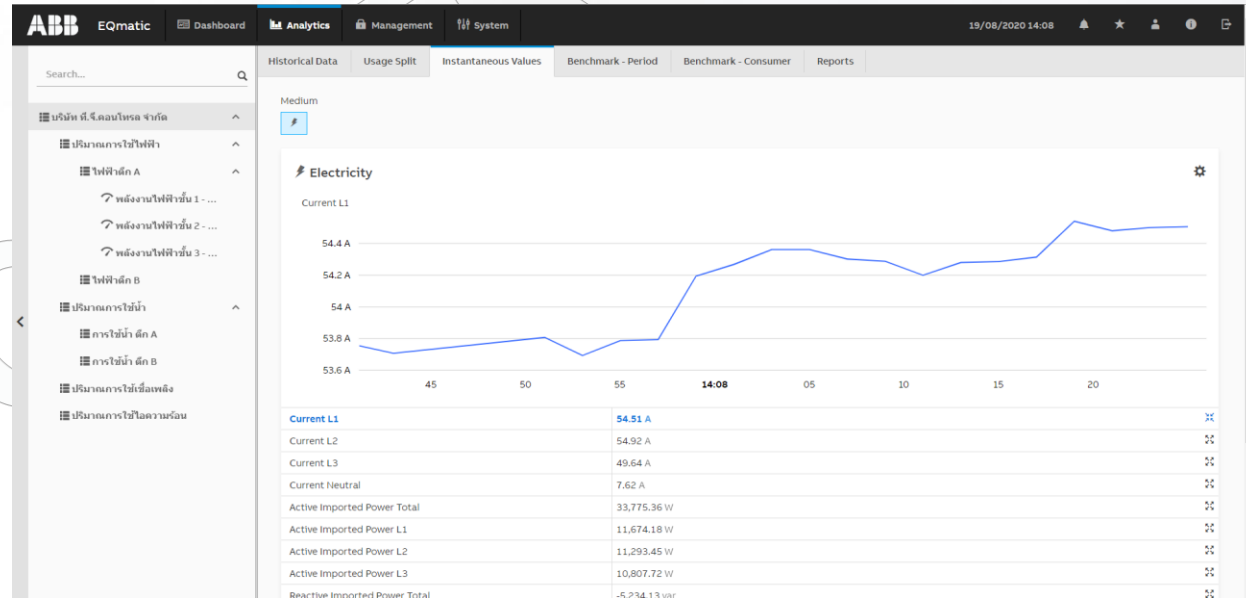
Historical Date

- The device saves data every 5 minutes
- At the maximum system capacity, historical data can be stored for at least 3 years



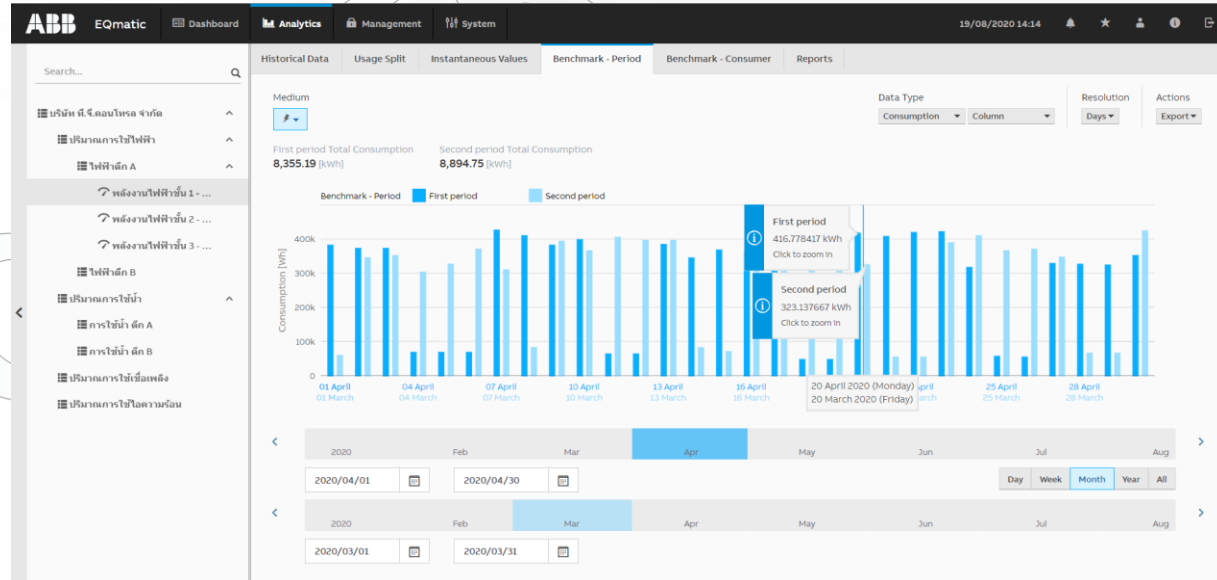
Instantaneous Values

- This function display the instantaneous value for a single data point in real time



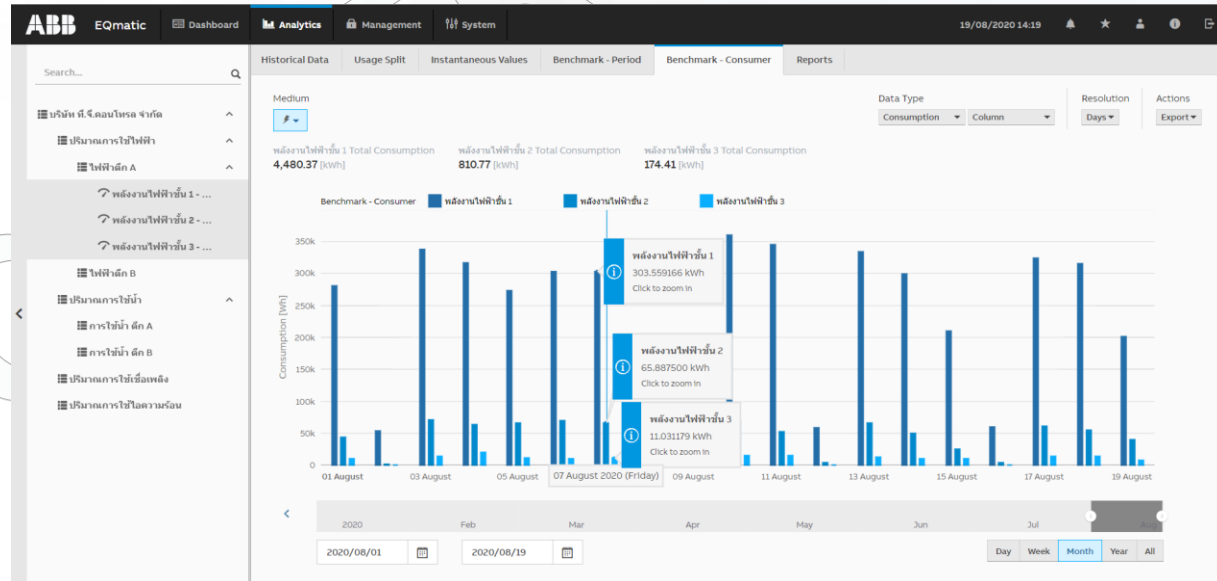
Benchmark – Period

- To compare a consumer or node over two time intervals



Benchmark – Consumer

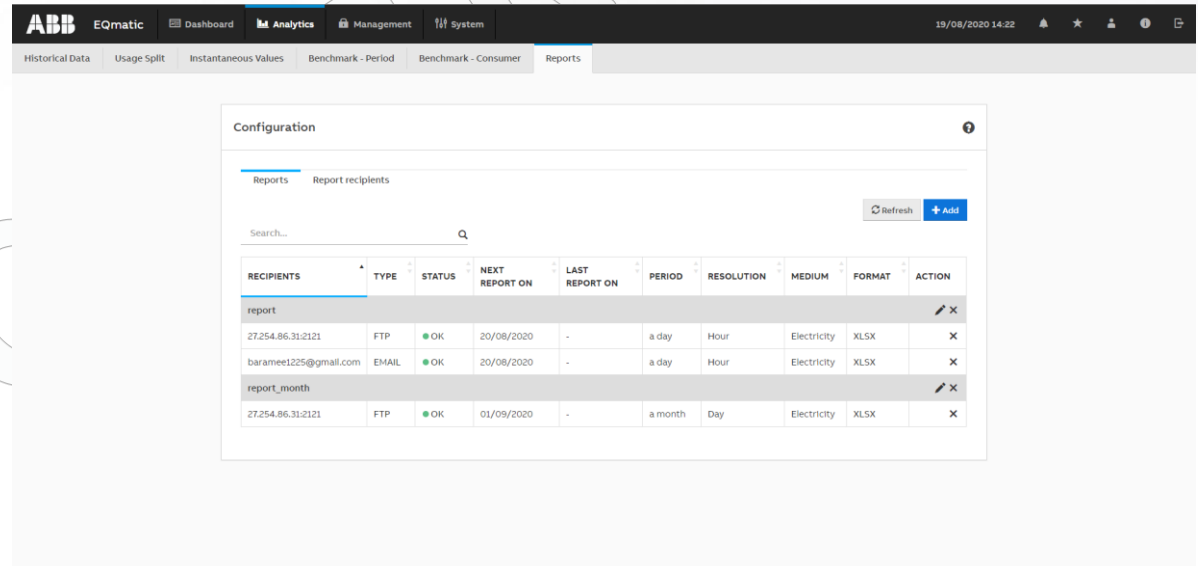
- Used to compare up to 3 consumers or nodes over an time interval



Report

- This function allows to send analyses and evaluations to various recipients automatically

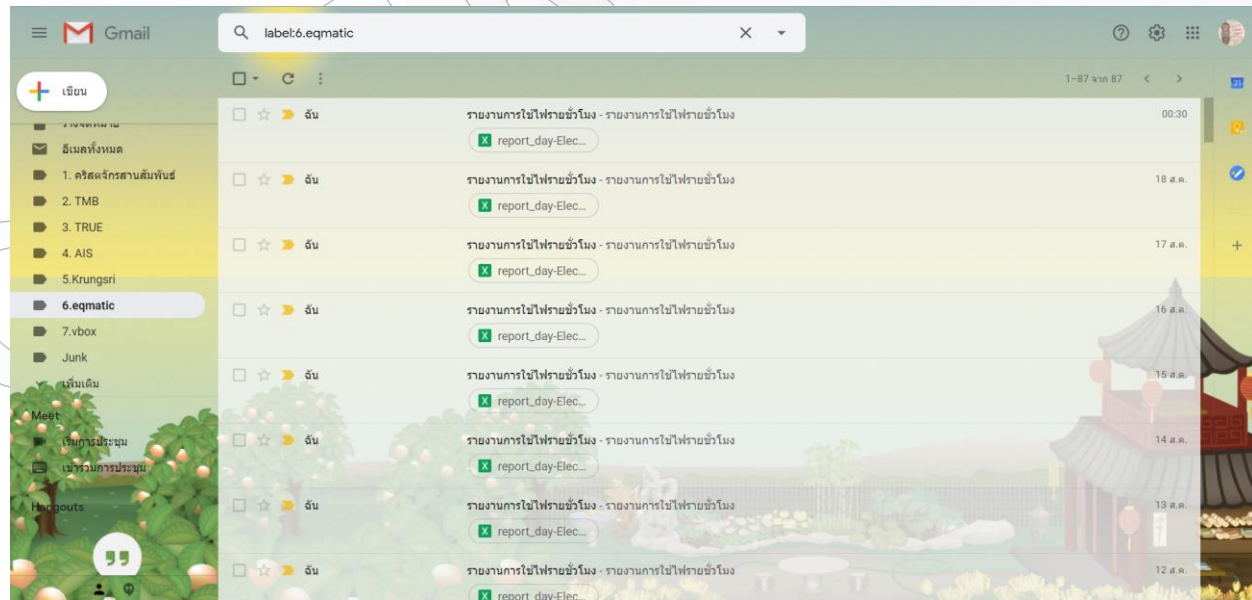
- The data can be sent data either by e-mail or to an FTP server



The screenshot shows the ABB EQmatic web interface. The top navigation bar includes 'ABB', 'EQmatic', 'Dashboard', 'Analytics', 'Management', and 'System'. The 'Analytics' tab is active, and the 'Reports' sub-tab is selected. The main content area is titled 'Configuration' and contains a 'Report recipients' section. This section has a search bar and a table with columns: RECIPIENTS, TYPE, STATUS, NEXT REPORT ON, LAST REPORT ON, PERIOD, RESOLUTION, MEDIUM, FORMAT, and ACTION. The table lists two report types: 'report' and 'report_month', each with two recipients. The 'report' type has recipients 27.254.86.31:2121 (FTP) and baramee1225@gmail.com (EMAIL). The 'report_month' type has recipient 27.254.86.31:2121 (FTP). All recipients show a status of 'OK'.

RECIPIENTS	TYPE	STATUS	NEXT REPORT ON	LAST REPORT ON	PERIOD	RESOLUTION	MEDIUM	FORMAT	ACTION
report									
27.254.86.31:2121	FTP	OK	20/08/2020	-	a day	Hour	Electricity	XLSX	X
baramee1225@gmail.com	EMAIL	OK	20/08/2020	-	a day	Hour	Electricity	XLSX	X
report_month									
27.254.86.31:2121	FTP	OK	01/09/2020	-	a month	Day	Electricity	XLSX	X

Report
Sent data either by e-mail



Report

Sent data either by e-mail

report_day-Electricity-2020-08-18.xlsx

	A	B	C	D	E	F	G	H	I
1	Timestamp	บริษัท บี.กรีนเอนิโรร จำกัด Co.	บริษัท บี.กรีนเอนิโรร จำกัด Co.	พลังงานไฟฟ้าชั้น 1 Cost (THB)	พลังงานไฟฟ้าชั้น 1 Consumept	พลังงานไฟฟ้าชั้น 2 Cost (THB)	พลังงานไฟฟ้าชั้น 2 Consumept	พลังงานไฟฟ้าชั้น 3 Cost (THB)	พลังงานไฟฟ้าชั้น 3 Consumept
2	2020-08-18 00:00	13.39458	2.67892	11.51958	2.30392	1.875	0.375	0	0
3	2020-08-18 01:00	12.97167	2.59433	12.03417	2.40683	0.9375	0.1875	0	0
4	2020-08-18 02:00	11.67333	2.33467	11.67333	2.33467	0	0	0	0
5	2020-08-18 03:00	11.715	2.343	11.715	2.343	0	0	0	0
6	2020-08-18 04:00	12.195	2.439	12.195	2.439	0	0	0	0
7	2020-08-18 05:00	11.86083	2.37217	11.86083	2.37217	0	0	0	0
8	2020-08-18 06:00	14.95083	2.99017	13.07583	2.61517	1.875	0.375	0	0
9	2020-08-18 07:00	88.03442	17.60688	75.825	15.165	8.90625	1.78125	3.30317	0.66063
10	2020-08-18 08:00	187.13575	37.42715	138.30958	27.66192	39.65625	7.93125	9.16992	1.83398
11	2020-08-18 09:00	175.13656	35.02731	137.83125	27.56625	32.15625	6.43125	5.14906	1.02981
12	2020-08-18 10:00	153.81755	30.76351	125.4025	25.0805	20.71875	4.14375	7.6963	1.53926
13	2020-08-18 11:00	145.73605	29.14721	118.67708	23.73542	19.59375	3.91875	7.46521	1.49304
14	2020-08-18 12:00	174.39909	34.87982	138.91542	27.78308	27.28125	5.45625	8.20243	1.64049
15	2020-08-18 13:00	156.34243	31.26849	125.2825	25.0565	25.125	5.025	5.93494	1.18699
16	2020-08-18 14:00	151.43291	30.28658	122.32542	24.46508	23.90625	4.78125	5.20124	1.04025
17	2020-08-18 15:00	153.22393	30.64479	128.40208	25.68042	19.40625	3.88125	5.4156	1.08312
18	2020-08-18 16:00	149.85639	29.97128	123.93583	24.78717	20.90625	4.18125	5.01431	1.00286
19	2020-08-18 17:00	129.1311	25.82622	101.11875	20.22375	23.34375	4.66875	4.66861	0.93372
20	2020-08-18 18:00	68.20513	13.64103	62.24792	12.44958	3.75	0.75	2.20721	0.44144
21	2020-08-18 19:00	39.36292	7.87258	38.42542	7.68508	0.9375	0.1875	0	0
22	2020-08-18 20:00	16.9275	3.3855	16.9275	3.3855	0	0	0	0
23	2020-08-18 21:00	16.2975	3.2595	15.36	3.072	0.9375	0.1875	0	0
24	2020-08-18 22:00	12.27375	2.45475	12.27375	2.45475	0	0	0	0
25	2020-08-18 23:00	12.55333	2.51067	11.61583	2.32317	0.9375	0.1875	0	0
26	Totals	1918.62755	383.72553	1576.94957	315.38993	272.25	54.45	69.428	13.88559

Report

Sent data either by FTP

Server

Name	Size	Type	Date modified	Date created	Date accessed
report_day-Electricity-2020-03-31.xlsx	5 KB	Microsoft Excel Worksheet	4/16/2020 10:33 PM	4/16/2020 10:33 PM	4/16/2020 10:33 PM
report_day-Electricity-2020-04-01.xlsx	5 KB	Microsoft Excel Worksheet	4/16/2020 10:34 PM	4/16/2020 10:34 PM	4/16/2020 10:34 PM
report_day-Electricity-2020-04-02.xlsx	5 KB	Microsoft Excel Worksheet	4/16/2020 10:34 PM	4/16/2020 10:34 PM	4/16/2020 10:34 PM
report_day-Electricity-2020-04-03.xlsx	5 KB	Microsoft Excel Worksheet	4/16/2020 10:34 PM	4/16/2020 10:34 PM	4/16/2020 10:34 PM
report_day-Electricity-2020-04-04.xlsx	5 KB	Microsoft Excel Worksheet	4/16/2020 10:35 PM	4/16/2020 10:35 PM	4/16/2020 10:35 PM
report_day-Electricity-2020-04-05.xlsx	5 KB	Microsoft Excel Worksheet	4/16/2020 10:35 PM	4/16/2020 10:35 PM	4/16/2020 10:35 PM
report_day-Electricity-2020-04-06.xlsx	5 KB	Microsoft Excel Worksheet	4/16/2020 10:35 PM	4/16/2020 10:35 PM	4/16/2020 10:35 PM
report_day-Electricity-2020-04-07.xlsx	5 KB	Microsoft Excel Worksheet	4/16/2020 10:37 PM	4/16/2020 10:37 PM	4/16/2020 10:37 PM
report_day-Electricity-2020-04-08.xlsx	5 KB	Microsoft Excel Worksheet	4/16/2020 10:39 PM	4/16/2020 10:39 PM	4/16/2020 10:39 PM
report_day-Electricity-2020-04-09.xlsx	5 KB	Microsoft Excel Worksheet	4/16/2020 10:39 PM	4/16/2020 10:39 PM	4/16/2020 10:39 PM
report_day-Electricity-2020-04-10.xlsx	5 KB	Microsoft Excel Worksheet	4/16/2020 10:39 PM	4/16/2020 10:39 PM	4/16/2020 10:39 PM
report_day-Electricity-2020-04-11.xlsx	5 KB	Microsoft Excel Worksheet	4/16/2020 10:39 PM	4/16/2020 10:39 PM	4/16/2020 10:39 PM
report_day-Electricity-2020-04-12.xlsx	5 KB	Microsoft Excel Worksheet	4/16/2020 10:40 PM	4/16/2020 10:40 PM	4/16/2020 10:40 PM
report_day-Electricity-2020-04-13.xlsx	5 KB	Microsoft Excel Worksheet	4/16/2020 10:40 PM	4/16/2020 10:40 PM	4/16/2020 10:40 PM
report_day-Electricity-2020-04-14.xlsx	5 KB	Microsoft Excel Worksheet	4/16/2020 10:40 PM	4/16/2020 10:40 PM	4/16/2020 10:40 PM
report_day-Electricity-2020-04-15.xlsx	5 KB	Microsoft Excel Worksheet	4/16/2020 10:40 PM	4/16/2020 10:40 PM	4/16/2020 10:40 PM
report_day-Electricity-2020-04-16.xlsx	5 KB	Microsoft Excel Worksheet	4/17/2020 7:33 AM	4/17/2020 7:33 AM	4/17/2020 7:33 AM
report_day-Electricity-2020-04-17.xlsx	5 KB	Microsoft Excel Worksheet	4/18/2020 7:33 AM	4/18/2020 7:33 AM	4/18/2020 7:33 AM
report_day-Electricity-2020-04-18.xlsx	5 KB	Microsoft Excel Worksheet	4/19/2020 7:33 AM	4/19/2020 7:33 AM	4/19/2020 7:33 AM
report_day-Electricity-2020-04-19.xlsx	5 KB	Microsoft Excel Worksheet	4/20/2020 7:33 AM	4/20/2020 7:33 AM	4/20/2020 7:33 AM
report_day-Electricity-2020-04-20.xlsx	5 KB	Microsoft Excel Worksheet	4/21/2020 7:34 AM	4/21/2020 7:34 AM	4/21/2020 7:34 AM
report_day-Electricity-2020-04-21.xlsx	5 KB	Microsoft Excel Worksheet	4/22/2020 7:34 AM	4/22/2020 7:34 AM	4/22/2020 7:34 AM
report_day-Electricity-2020-04-22.xlsx	5 KB	Microsoft Excel Worksheet	4/23/2020 7:34 AM	4/23/2020 7:34 AM	4/23/2020 7:34 AM
report_day-Electricity-2020-04-23.xlsx	5 KB	Microsoft Excel Worksheet	4/24/2020 7:34 AM	4/24/2020 7:34 AM	4/24/2020 7:34 AM
report_day-Electricity-2020-04-24.xlsx	5 KB	Microsoft Excel Worksheet	4/25/2020 7:34 AM	4/25/2020 7:34 AM	4/25/2020 7:34 AM
report_day-Electricity-2020-04-25.xlsx	5 KB	Microsoft Excel Worksheet	4/26/2020 7:34 AM	4/26/2020 7:34 AM	4/26/2020 7:34 AM
report_day-Electricity-2020-04-26.xlsx	5 KB	Microsoft Excel Worksheet	4/27/2020 7:34 AM	4/27/2020 7:34 AM	4/27/2020 7:34 AM
report_day-Electricity-2020-04-27.xlsx	5 KB	Microsoft Excel Worksheet	4/28/2020 7:34 AM	4/28/2020 7:34 AM	4/28/2020 7:34 AM

141 items

Data sharing

Shared with other system via Modbus TCP(IP)

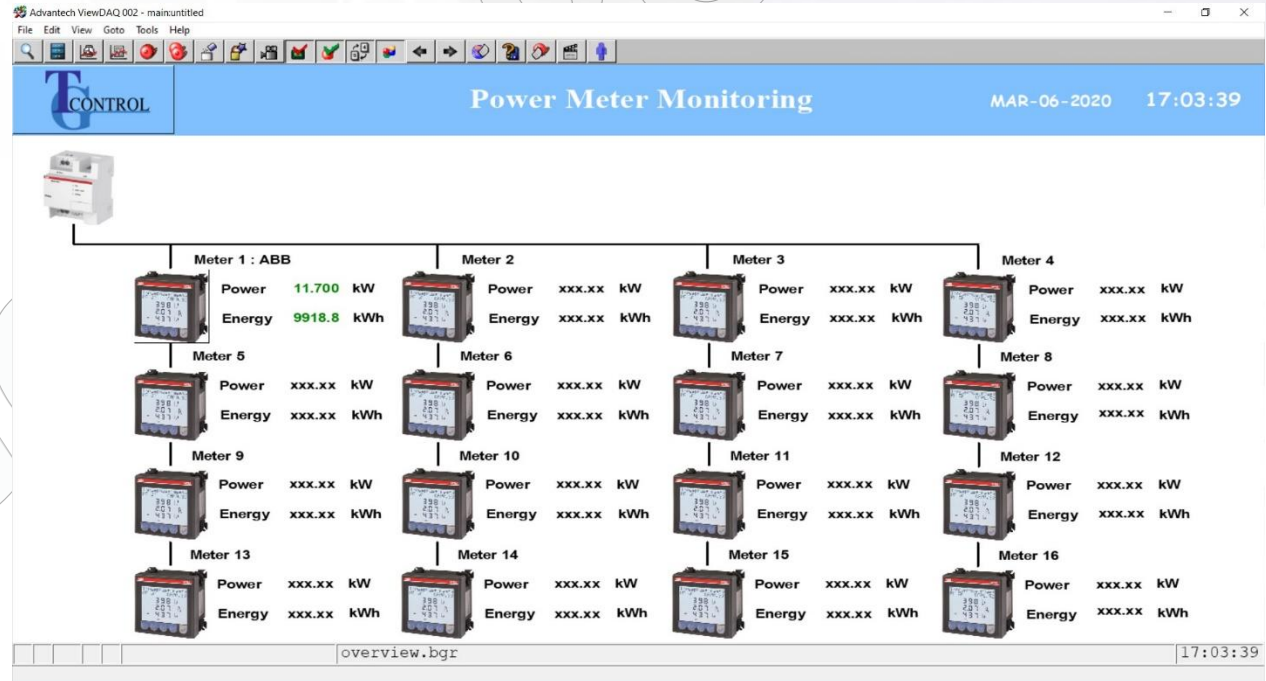
The screenshot shows the ABB EQmatic web interface for configuring data sharing. The top navigation bar includes 'Meter Management', 'Metering Structure', 'User Management', 'Tariffs and units', 'Consumer Groups', and 'Data sharing'. The 'Data sharing' tab is active, showing a 'Modbus TCP' configuration section. A 'Mapping configuration' dropdown is set to 'Default', and a toggle for 'Enable static register mapping' is turned on. Below this is a table of configured Modbus TCP slaves.

TCP REGISTER ADDRESS	SIZE	CODING	UNIT	RESOLUTION	NAME
0x200h (512d)	2	Signed 32-bit (INT32)	A	1	Current L1
0x202h (514d)	2	Signed 32-bit (INT32)	A	1	Current L2
0x204h (516d)	2	Signed 32-bit (INT32)	A	1	Current L3
0x206h (518d)	2	Unsigned 32-bit (UINT32)	A	1	Current Neutral
0x208h (520d)	1	Unsigned 16-bit (UINT16)	V	1	Voltage L1-2
0x209h (521d)	1	Unsigned 16-bit (UINT16)	V	1	Voltage L2-3

Data sharing

Shared with other system
via Modbus TCP/IP)

Application Example



Data sharing

Shared with other system
via Modbus TCP/IP)

Application Example



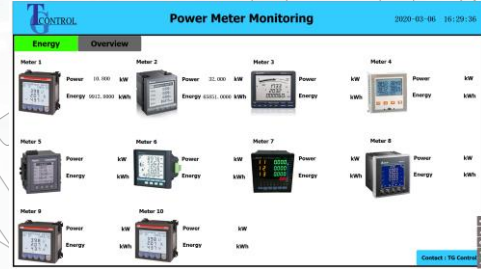


Wi-Fi/Ethernet/4G

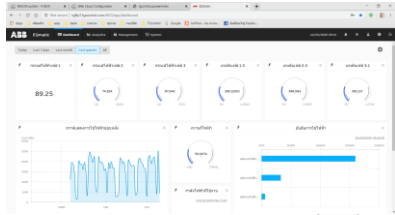
Gateway



LAN (Modbus TCP)



Scada On Cloud



EQMatic

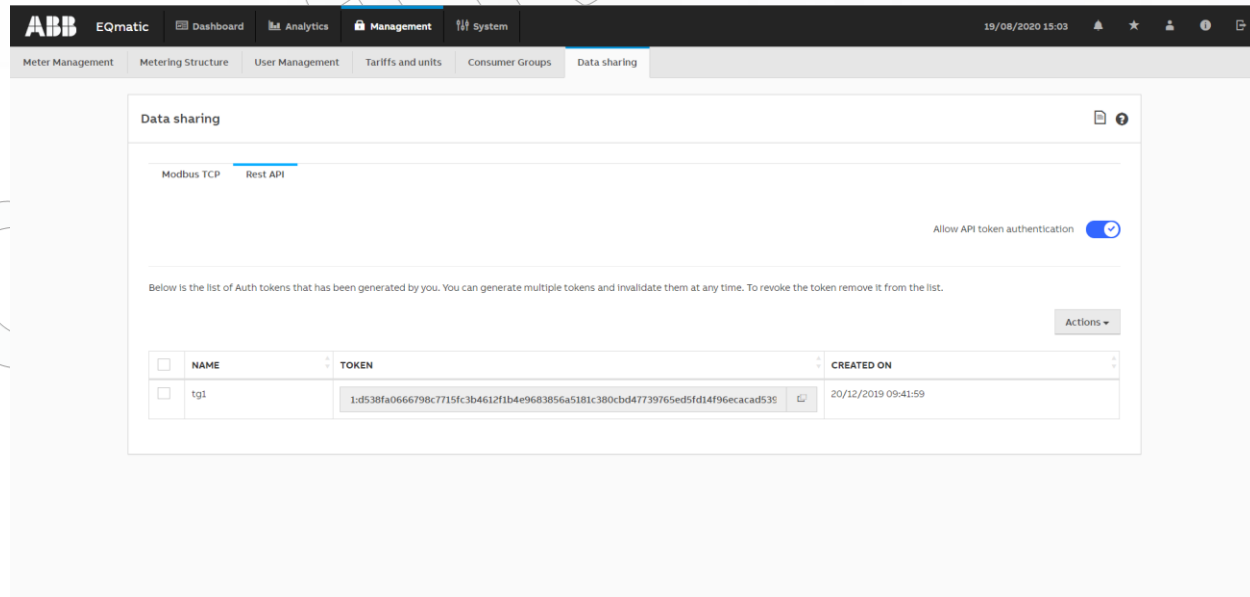
RS 485



16 or 64 Device

Data sharing

Shared with other system via Rest API



The screenshot displays the ABB EQmatic web interface. The top navigation bar includes 'ABB EQmatic', 'Dashboard', 'Analytics', 'Management' (selected), and 'System'. The right side of the bar shows the date '19/08/2020 15:03' and user icons. Below the navigation bar, a sub-menu contains 'Meter Management', 'Metering Structure', 'User Management', 'Tariffs and units', 'Consumer Groups', and 'Data sharing' (selected).

The 'Data sharing' section has two tabs: 'Modbus TCP' and 'Rest API' (selected). On the right, there is a toggle for 'Allow API token authentication' which is turned on.

Below the tabs, a text block states: 'Below is the list of Auth tokens that has been generated by you. You can generate multiple tokens and invalidate them at any time. To revoke the token remove it from the list.'

An 'Actions' dropdown menu is located to the right of the text. Below it is a table with the following data:

<input type="checkbox"/>	NAME	TOKEN	CREATED ON
<input type="checkbox"/>	tg1	1:d538fa0666798c7715fc3b4612f1b4e9683856a5181c380cbd47739765ed5fd14f96ecacac535	20/12/2019 09:41:59

EQmatic

RS 485

EQmatic

IP xxx.xxx.xxx.xxx

EQmatic Dashboard

Window Application

Database

16 or 64 Device



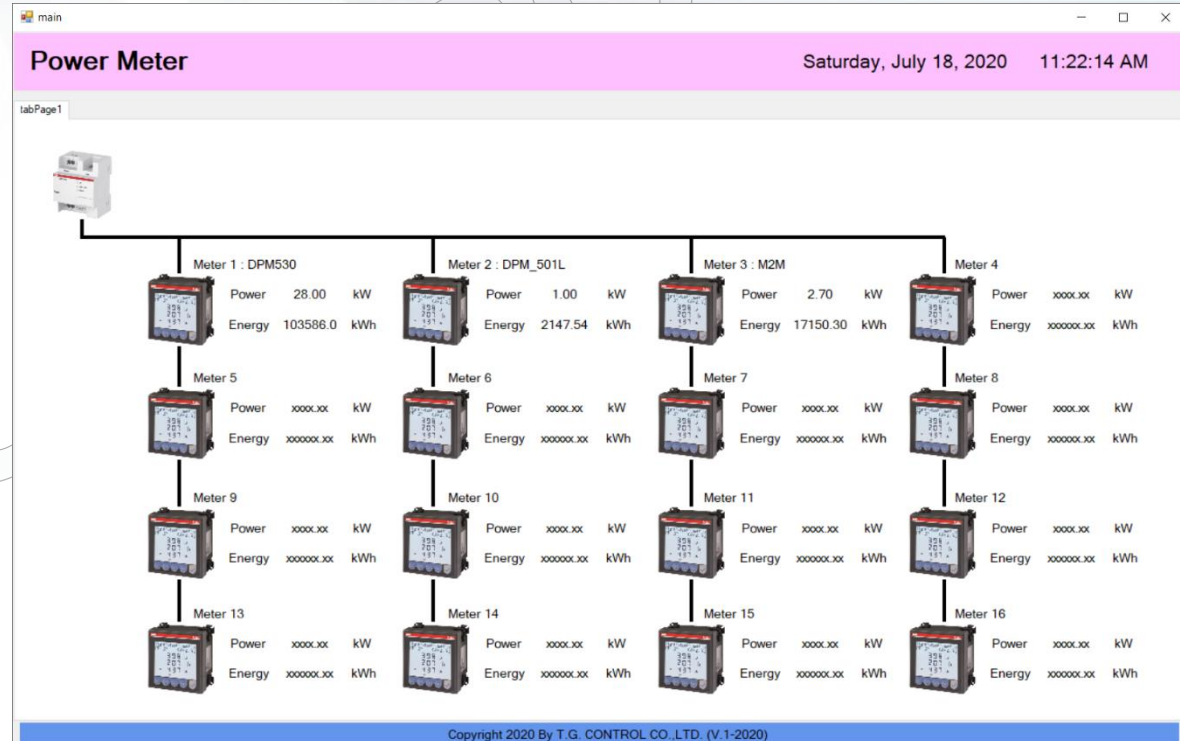
The screenshot shows a database application window with a table of data. The table has columns for Time, V_{LLA}, V_{LLB}, V_{LLC}, Power A, Power B, Power C, Frequency, and Amps A. The data is organized into a grid with multiple rows and columns.

Time	V _{LLA}	V _{LLB}	V _{LLC}	Power A	Power B	Power C	Frequency	Amps A
2020-03-10 10:00:00	225.0	228.0	231.0	9.91	4.7	2.7	50.0	2.6
2020-03-10 10:00:01	225.0	228.0	231.0	9.91	4.7	2.7	50.0	2.6
2020-03-10 10:00:02	225.0	228.0	231.0	9.91	4.7	2.7	50.0	2.6
2020-03-10 10:00:03	225.0	228.0	231.0	9.91	4.7	2.7	50.0	2.6
2020-03-10 10:00:04	225.0	228.0	231.0	9.91	4.7	2.7	50.0	2.6

Data sharing

Shared with other system
via Rest API

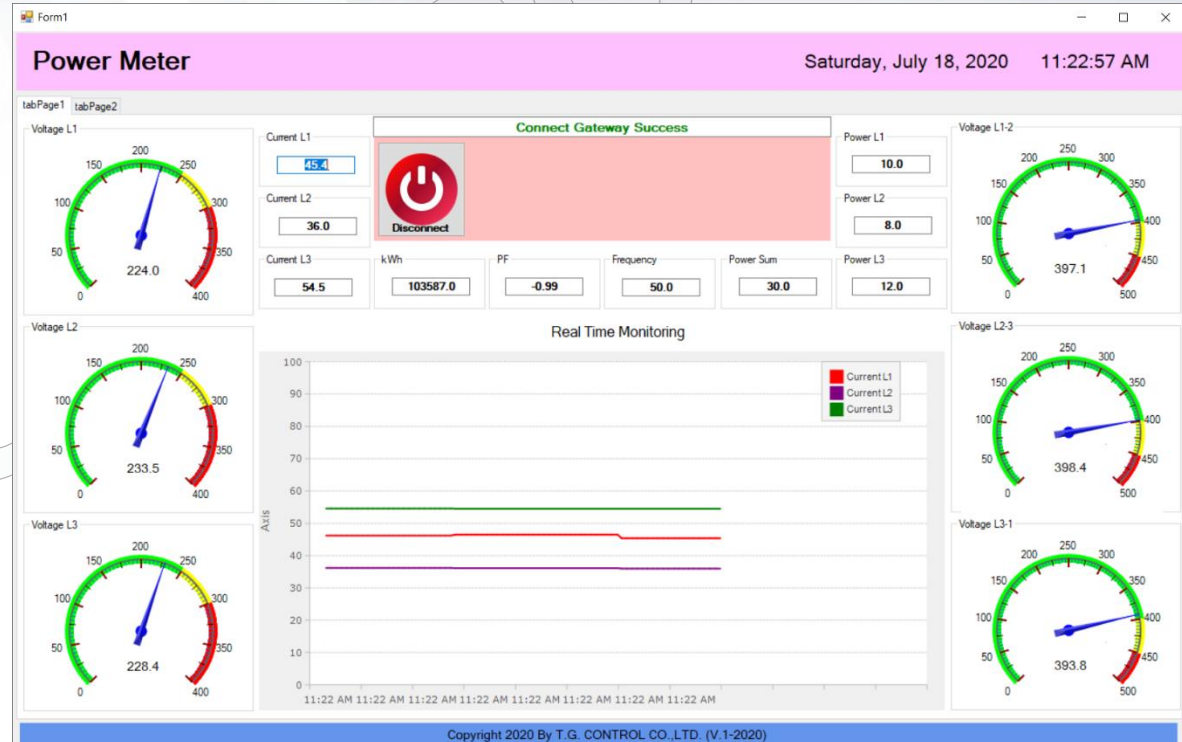
Application Example



Data sharing

Shared with other system
via Rest API

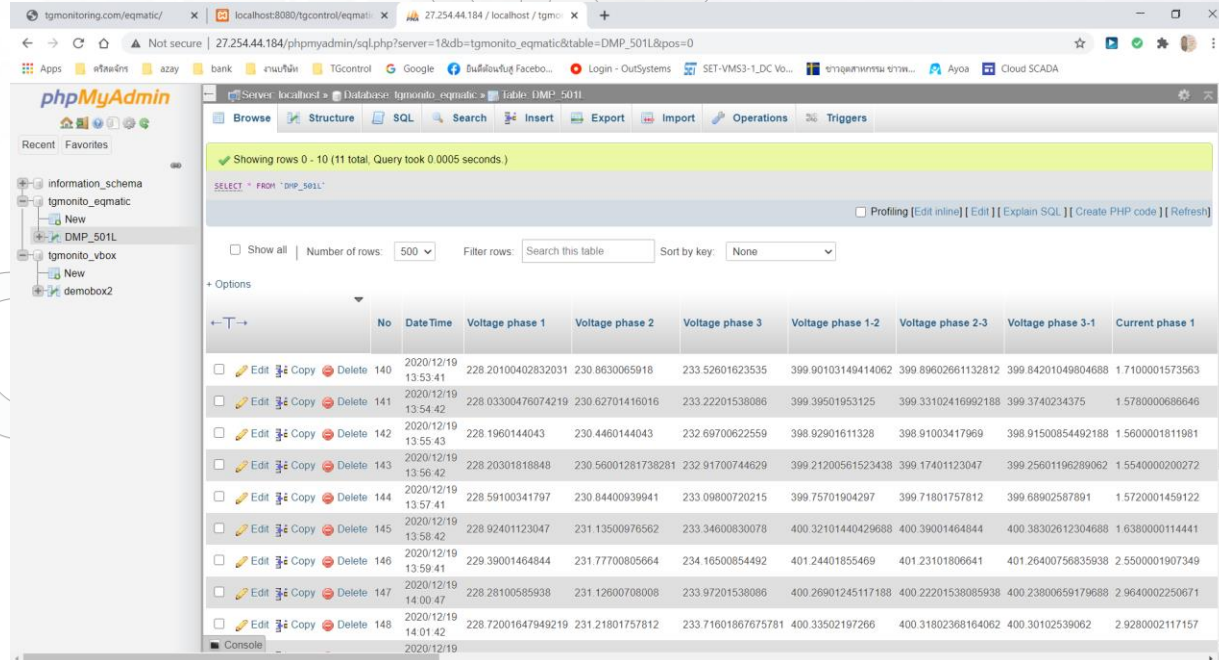
Application Example



Data sharing

Shared with other system
via Rest API

Application Example

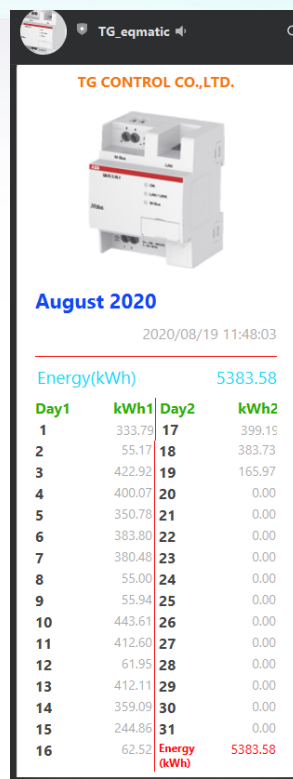
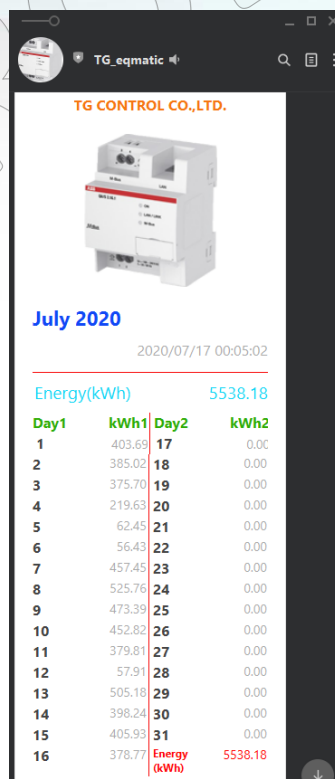
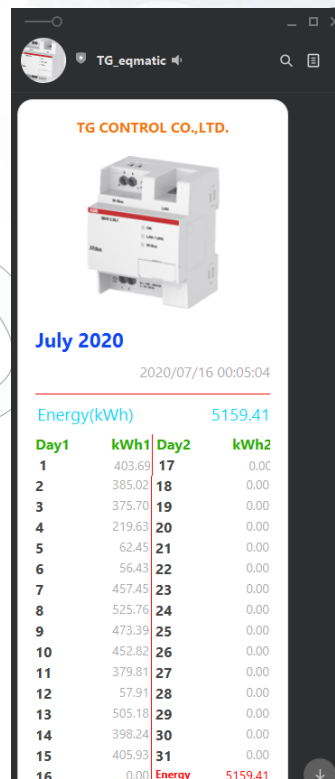


No	DateTime	Voltage phase 1	Voltage phase 2	Voltage phase 3	Voltage phase 1-2	Voltage phase 2-3	Voltage phase 3-1	Current phase 1
140	2020/12/19 13:53:41	228 20100402832031	230 8630065918	233 52601623535	399 90103149414062	399 89602661132812	399 84201049604688	1 7100001573563
141	2020/12/19 13:54:42	228 03300476074219	230 62701416016	233 22201538086	399 39501953125	399 33102416992188	399 3740234375	1 5780000686646
142	2020/12/19 13:55:43	228 1960144043	230 4460144043	232 69700622559	398 92901611328	398 91003417969	398 91500854492188	1 5600001811981
143	2020/12/19 13:56:42	228 20301818848	230 56001281738281	232 91700744629	399 21200561523438	399 17401123047	399 25601196289062	1 5540000200272
144	2020/12/19 13:57:41	228 59100341797	230 84400939941	233 09800720215	399 75701904297	399 71801757812	399 68902587891	1 5720001459122
145	2020/12/19 13:58:42	228 92401123047	231 13500976562	233 34600830078	400 32101440429688	400 39001464844	400 38302612304688	1 6380000114441
146	2020/12/19 13:59:41	229 39001464844	231 77700805664	234 16500854492	401 24401855469	401 23101806641	401 26400756835938	2 5500001907349
147	2020/12/19 14:00:47	228 28100585938	231 12600708008	233 97201538086	400 26901245117188	400 22201538085938	400 23800659179688	2 9640002250671
148	2020/12/19 14:01:42	228 72001647949219	231 21801757812	233 71601867675781	400 33502197266	400 31802368164062	400 30102539062	2 9280002117157

Data sharing

Shared with other system
via Rest API

Application Example



Data sharing

Shared with other system
via Rest API

Application Example

