



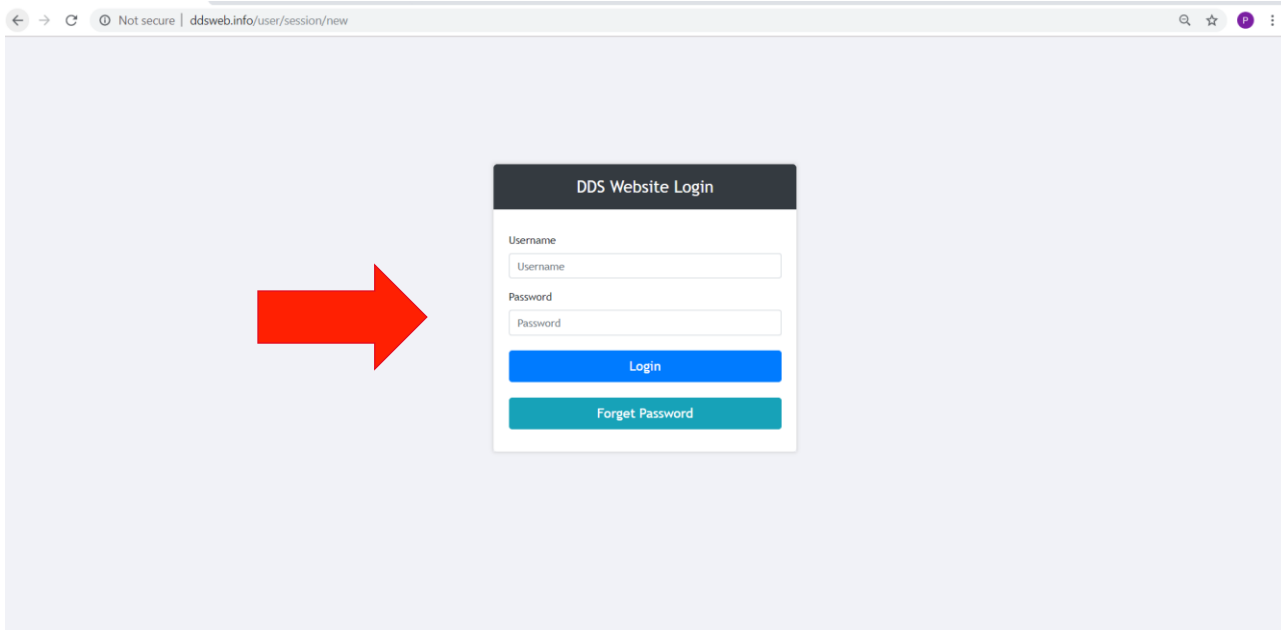
DAS2.0 Webpage User Manual

Jun. 30th, 2025

kiwa ExTEL

DAS2.0 Exclusive Webpage Login

- URL: <http://pva.extelenergy.com>
- Please enter your username and password



The screenshot shows a web browser window with the address bar displaying "Not secure | ddsweb.info/user/session/new". The main content area is a light gray background. A red arrow points from the left towards a login form titled "DDS Website Login". The form contains two input fields: "Username" and "Password", both with placeholder text. Below the fields are two buttons: a blue "Login" button and a teal "Forget Password" button.

DAS2.0 Main Page_1

- The main page (Portal page) displays the following key information:

1. Site location
2. Installed capacity
3. Current soiling loss (%)
4. Last cleaning date
5. Power generation loss due to soiling, etc.

The screenshot displays the DAS2.0 Main Page (Portal page) with the following elements:

- Header:** ExTEL ENERGY logo, navigation tabs (Portal, soiling, Irradiance), and user information (User: [redacted], Site: LCY_DAS_1(大林料定), Logout).
- Sites Section:** A dropdown menu for "Taiwan" and a list of sites. The site "LCY_DAS_1(大林料定)" is highlighted with a green dot and a red arrow pointing to a blue box labeled "DAS 2.0 case name / location".
- Table:** A table showing site details for "LCY_DAS_1(大林料定)". The table has columns for Site Name, Soiling (Uncertainty: ±1%), Capacity, Last cleaning/raining date, and Profit Loss(NT\$). The data row shows: Site Name: LCY_DAS_1(大林料定), Soiling (Uncertainty: ±1%): 1.2 %, Capacity: 1561.6 kW, Last cleaning/raining date: 2021/02/03, Profit Loss(NT\$): 299.
- Map:** A map of Taiwan showing the location of "LCY_DAS_1(大林料定)" in the central region. A red line indicates the location. A blue box labeled "Where to install DAS" is overlaid on the map.

Annotations on the screenshot include numbered circles 1 through 5 corresponding to the list items in the previous block:

- 1: Site location (points to the map)
- 2: Installed capacity (points to the Capacity column)
- 3: Current soiling loss (%) (points to the Soiling column)
- 4: Last cleaning date (points to the Last cleaning/raining date column)
- 5: Power generation loss due to soiling, etc. (points to the Profit Loss column)

DAS2.0 Main Page_2

- Users can quickly grasp the degree of contamination of the case site on the home page and determine whether to proceed with cleaning based on the last cleaning date, case site size, and power generation loss, as well as the priority of cleaning.

The screenshot displays the DAS2.0 Main Page interface. On the left, a sidebar shows the 'Sites' section with a dropdown menu set to 'Taiwan' and a list of sites, including 'LCY_DAS_1(大林科定)'. The main content area features a table with the following data:

Site Name	Soiling (Uncertainty: $\pm 1\%$)	Capacity	Last cleaning/raining date	Profit Loss(NT\$)
LCY_DAS_1(大林科定)	1.2 %	1561.6 kW	2021/02/03	299

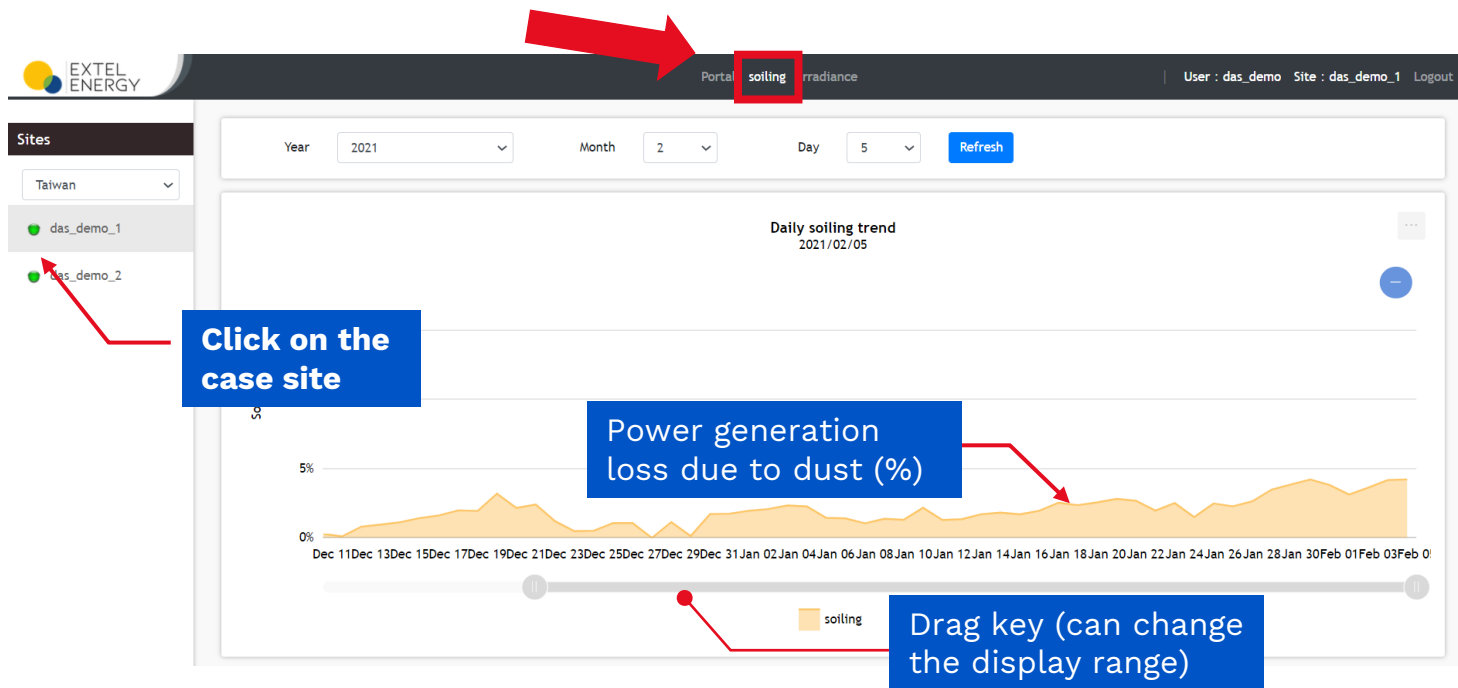
Below the table are navigation buttons: 'Previous', '1', and 'Next'. To the right of the table is a map of Taiwan showing the location of 'LCY_DAS_1(大林科定)' in Taichung City. The map includes a search bar and a 'Google' logo at the bottom.

Red lines connect specific data points in the table to callout boxes:

- A line from the 'Soiling' value (1.2 %) points to a box labeled 'Power generation loss due to dust (%)'.
- A line from the 'Capacity' value (1561.6 kW) points to a box labeled 'Case site device capacity'.
- A line from the 'Last cleaning/raining date' value (2021/02/03) points to a box labeled 'Date of last cleaning or raining'.
- A line from the 'Profit Loss' value (299) points to a box labeled 'Accumulated Profit Loss due to dust (NTD)'.

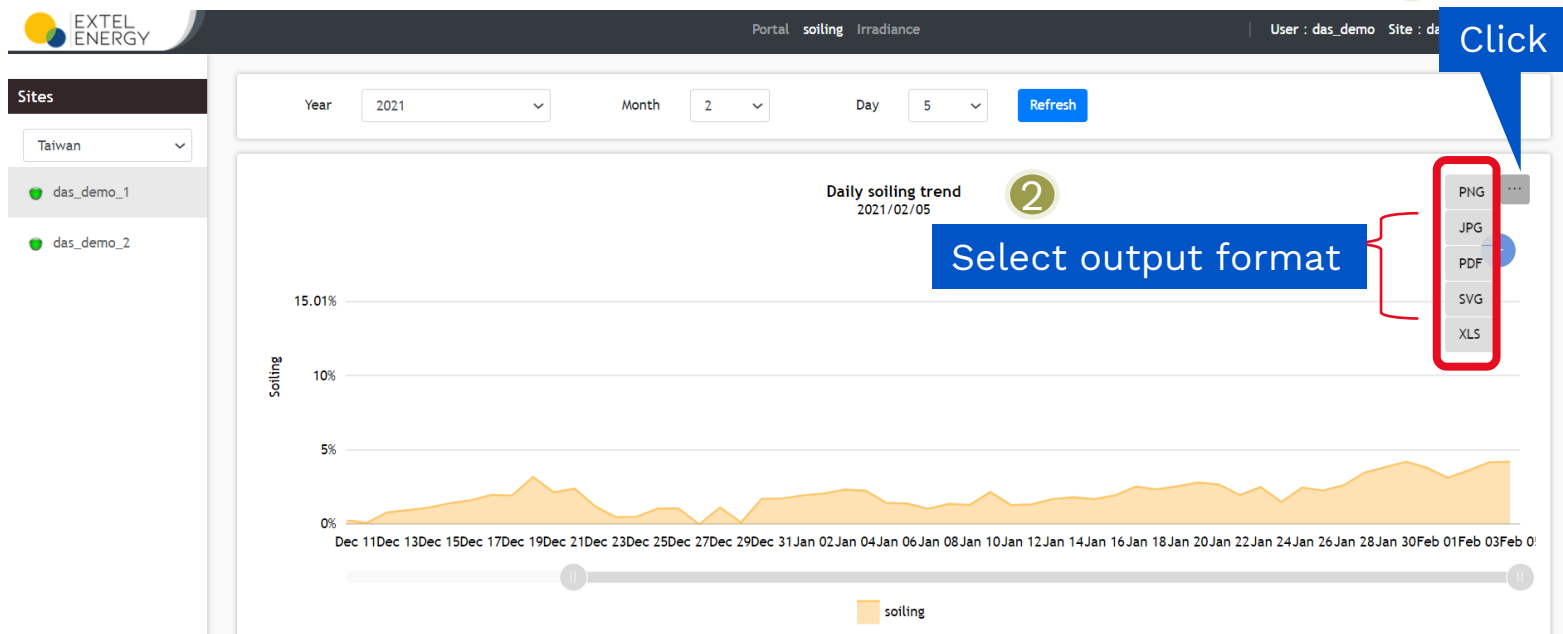
Soiling Loss Trend Chart_1

- The dust trend chart shows the daily power generation loss (%) caused by dust at each site, e.g. If the loss is 0%, it means that the module surface is clean. On the contrary, the higher the number, the surface is seriously dirty, resulting in greater power generation loss.



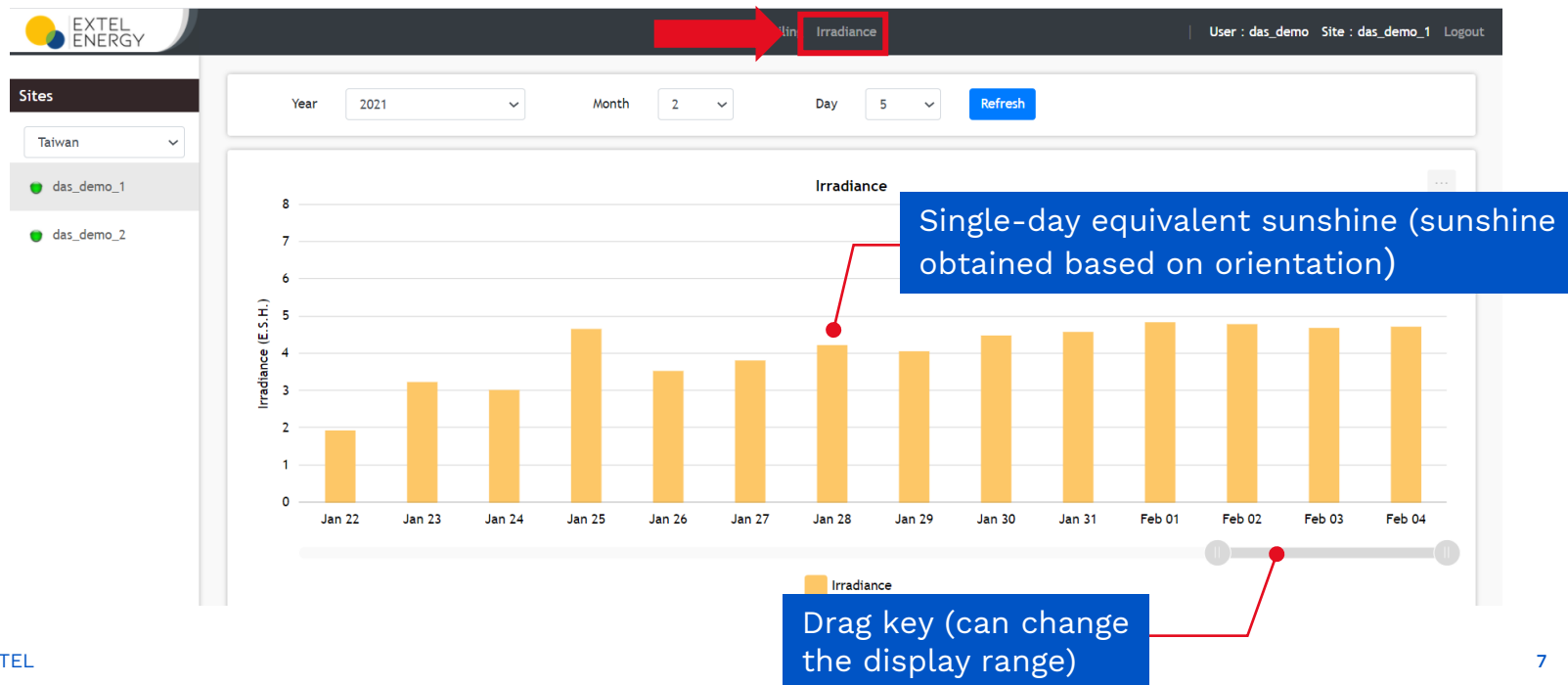
Soiling Loss Trend Chart_2

- If users need further data analysis, they can download daily soiling data from the trend chart page (see below).



Equivalent Irradiance Bar Chart_1

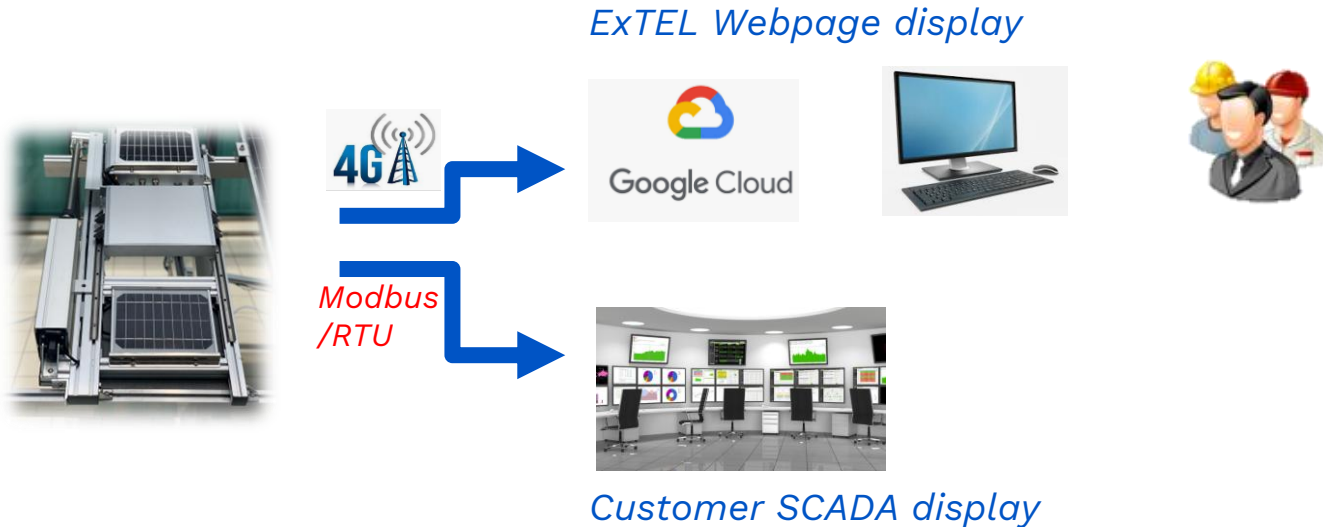
- According to the DAS2.0 system measurements, the daily irradiance data is directly displayed on the Irradiance tab.
- The ESH value is the equivalent irradiance hours per day (06:00-18:00).



Appendix

Data Transmission Method – 4G Webpage (KIWA EXTEL) / SCADA (Customer)

- DAS 2.0 provides two data interfacing options:
 1. DAS 2.0 Webpage display (4G webpage provided by Extel Energy)
 2. Modbus/RTU direct communication with on-site SCADA (customer data collector)



DAS Modbus Communication Protocol (Optional)

Read Holding Registers (0x03)

Addr	Variable description	Units	Size	Read / Write
0x00	Date_1	YYYY	2_byte	Read Only
0x01	Date_2	MMDD	2_byte	Read Only
0x02	Soiling Gap	*0.01+%	2_byte	Read Only

Send : 01H+03H+0000H+0003H+05CBH(CRC)

Response : 01H+03H+06H+07ECH+0A0FH+0CAFH+C7B2H(CRC)

Example

Send : 01 03 00 00 00 03 05 CB

Response : 01 03 06 07 EC 0A 0F 0C AF C7 B2

YYYY => 0x07EC = 2020 MMDD=>MM+DD=> 0x0A0F=1015

Date=2020/10/15

Soiling Gap=> 0x0CAF=3247*0.01% =32.47%

DAS Modbus Communication Protocol

ID Setting

Preset Single Register (0x06)

Send : 01H+06H+001FH+AAH+ (id code)H+(CRC)

Response : (id code)+06H+001FH+AAH+(id code)+(CRC)

Example :

Send : 01 06 00 1F AA 03 86 AD

Response : 03 06 00 1F AA 03 87 4F

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creating
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driving
progress

Thank
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listening