



Pyro Shield

Easy & clear identification
of malfunctioning pyranometers

Underperformance or calibration
issues

A daily detailed report for each park

Brief & comprehensive overview of
problems

Product Brief

Problem statement

Garbage Irradiance data => Worthless KPIs. Faulty readings, data loss, diverging behavior, irradiance at night: these represent common irradiance data problems that result in unreliable calculation of KPIs, thus causing invalid performance analysis and misleading reporting.

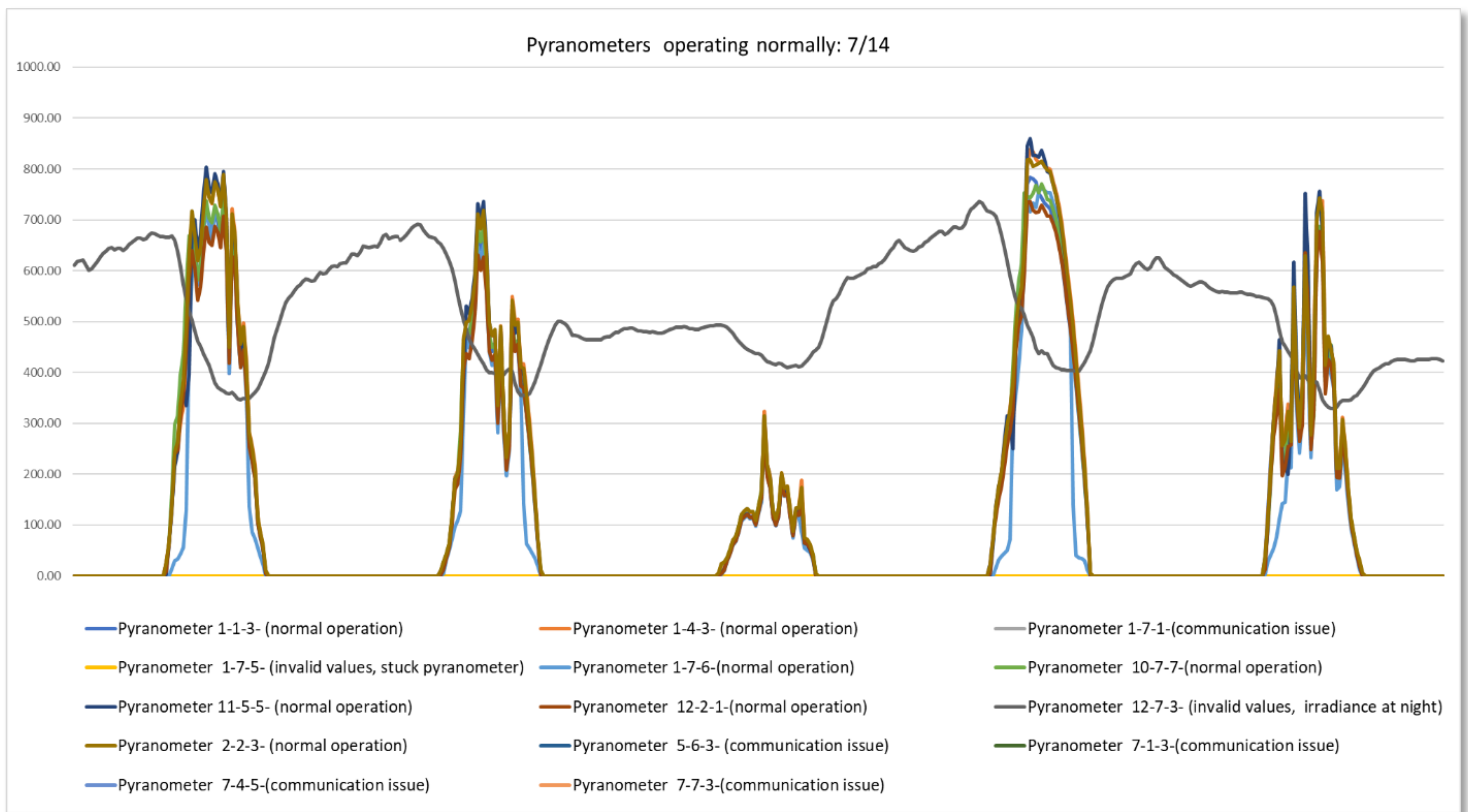


Figure 1 – Plot with malfunctioning pyranometer plots

Pyro Shield

Pyro Shield is an intelligent analytics tool for evaluation of solar plants pyranometers' proper operation and measurement accuracy. The new analytic enables plant operators to identify communication issues, malfunctioning instruments, underperformance due to delayed maintenance or need for re-calibration.

Pyro Shield comes to meet the increasing operator needs for solar plant data quality, accurate performance analysis and asset health evaluation, built on top of the standard integrated pyranometers monitoring offered by Inaccess.

Solution overview

Pyro Shield analyzes measurements by performing a set of checks for data availability, validity and consistency, as well as intra-plant pyranometers correlation. It classifies the pyranometer alarm states and periodically notifies the user on their health status through a scheduled report.

Table 1 - Basic features of the Pyro Shield along with their benefits for the user.

FEATURE	BENEFIT
Detect communication issues	Differentiation between no data acquisition and partly/fully missing data
Detect Irradiance at night	Clear identification of a malfunctioning pyranometer
Detect invalid daytime data (outliers)	Identification of a malfunctioning pyranometer: cloud edge effect and total cloud cover situations incorporated
Detect inconsistent data (stuck)	Easy identification of a malfunctioning pyranometer
Detect low relative performance	Identify underperformance or calibration issues
Scheduled report for each plant	A daily detailed report is generated for each park
Report overview for multiple plants	Provides a brief and comprehensive overview of the plant problems

Pyro Shield is provided through Inaccess cloud-based new generation Analytics platform, integrated with Inaccess Centralized Monitoring System.

	A	B	C	D	E	F	G	H
1	Plant	No Data Acquisition	Missing data: all	Missing data: partly	Invalid data: night	Invalid data: day	Inconsistent data: stuck	Inconsistent data: pyro correlation
2	Plant_1			×				
3	Plant_2					×		×
4	Plant_5							×
5	Plant_7		×					
6	Plant_8	×						
7	Plant_11		×	×				×
8	Plant_12		×					×
9	Plant_13		×					
10	Plant_15		×					
11								

	A	B	C	D	E	F
1	Date	Plant	Pyranometer (String)	Daily Solar Energy [kwh/m^2]	Daily Health Status	Operational Status (end of day)
2	2017-10-17	Plant_11	Pyranometer 1-1-3		Invalid: No values	Malfunction
3	2017-10-17	Plant_11	Pyranometer 1-4-3	5.906	Normal Operation	Ok
4	2017-10-17	Plant_11	Pyranometer 1-7-1	5.843	Normal Operation	Ok
5	2017-10-17	Plant_11	Pyranometer 1-7-5		Invalid: Not enough samples during the daylight time	Ok
6	2017-10-17	Plant_11	Pyranometer 1-7-6		Invalid: No values	Ok
7	2017-10-17	Plant_11	Pyranometer 10-7-7		Invalid: Not enough samples during the daylight time	Malfunction
8	2017-10-17	Plant_11	Pyranometer 11-5-5		Invalid: Not enough samples during the daylight time	Malfunction
9	2017-10-17	Plant_11	Pyranometer 12-2-1	4.933	Inconsistent: Pyranometer values are inconsistent with the rest of the pyranometers	Ok
10	2017-10-17	Plant_11	Pyranometer 12-7-3		Invalid: Not enough samples during the daylight time	Malfunction
11	2017-10-17	Plant_11	Pyranometer 2-2-3		Invalid: No values	Malfunction
12	2017-10-17	Plant_11	Pyranometer 5-6-3	5.808	Normal Operation	Ok
13	2017-10-17	Plant_11	Pyranometer 7-1-3	5.827	Normal Operation	Ok
14	2017-10-17	Plant_11	Pyranometer 7-4-5		Invalid: No values	Malfunction
15	2017-10-17	Plant_11	Pyranometer 7-7-3	5.761	Normal Operation	Ok
16						

Figure 2 – Sample report for one plant and sample report for overview



Corporate HQ :
 Berkeley Square House,
 London, W1J 6BD, England
 Tel: +44 2035190998

US - West:
 2880 Zanker Road, Suite 203,
 San Jose, CA 95134
 Tel: +(408) 757 0333

R&D Center:
 12 Sorou Str, Maroussi,
 Athens Greece 15125
 Tel: +30 210 6802300

Melbourne office:
 Level 10, 555 Lonsdale
 Street, Melbourne VIC 3000
 Tel: +61 38 578 4760