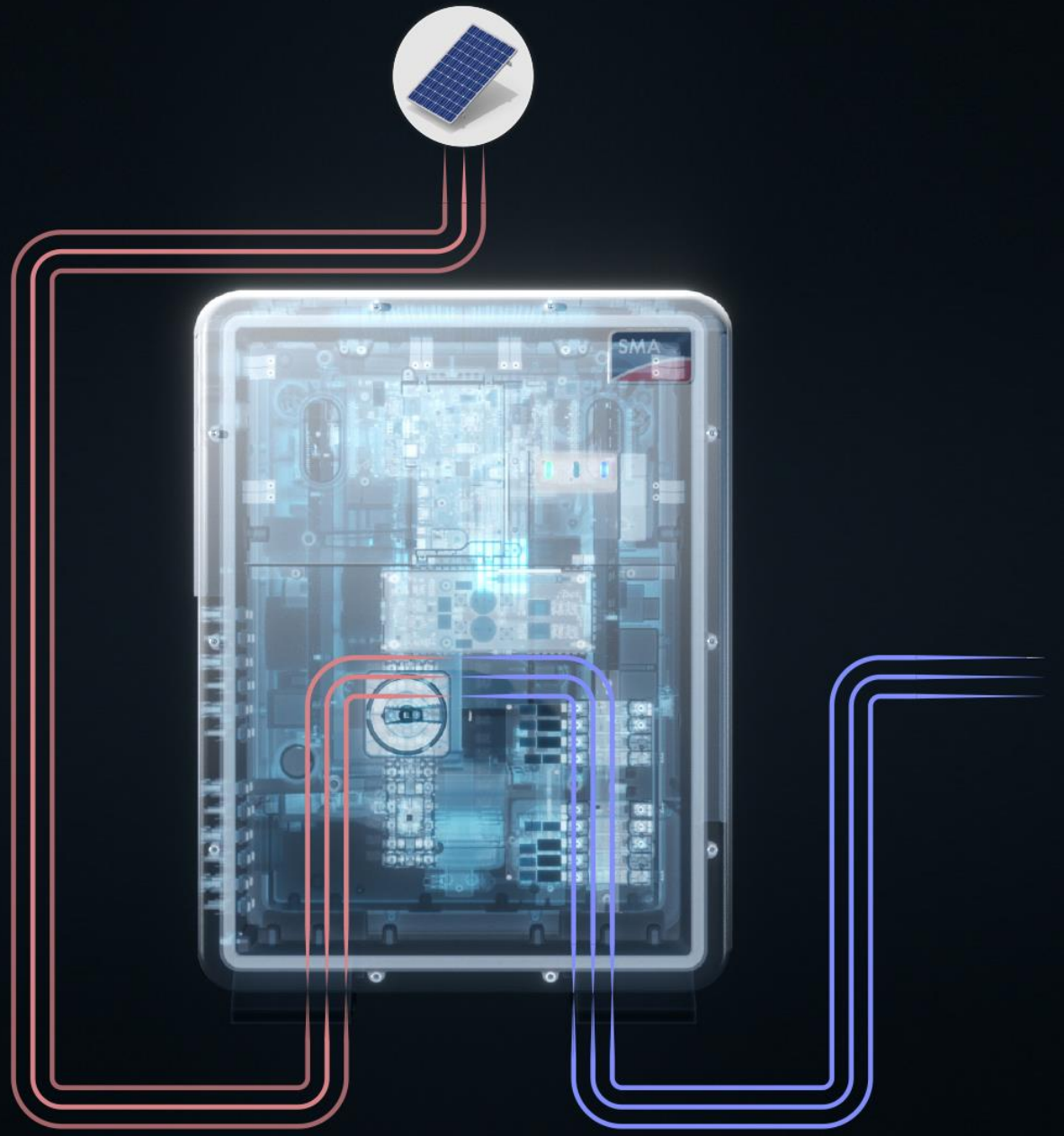
SUNNY TRIPOWER CORE1

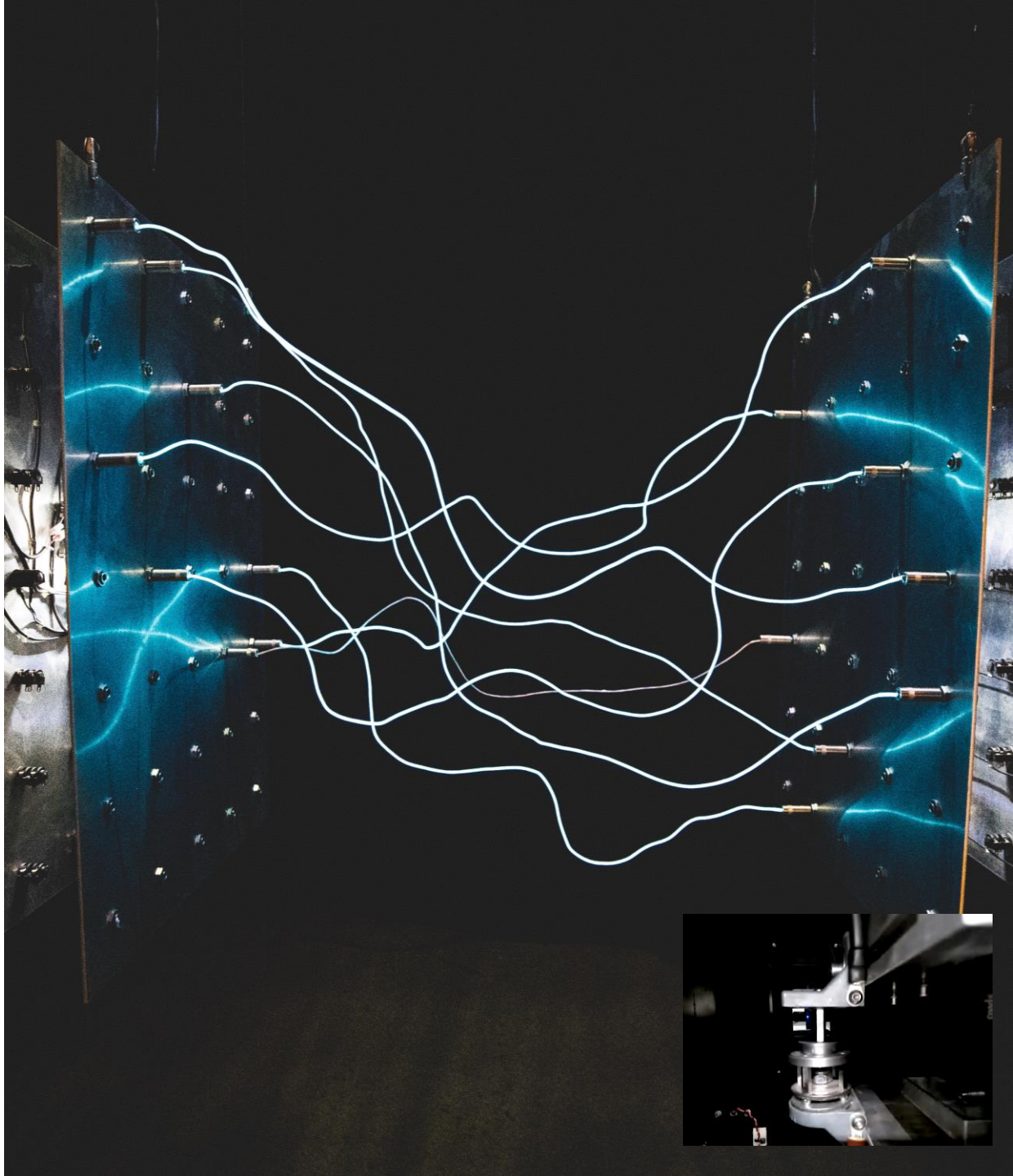
New Functions Available



New: Arc Fault Detection AFCI (Arc Fault Circuit Interruption)

Benefits

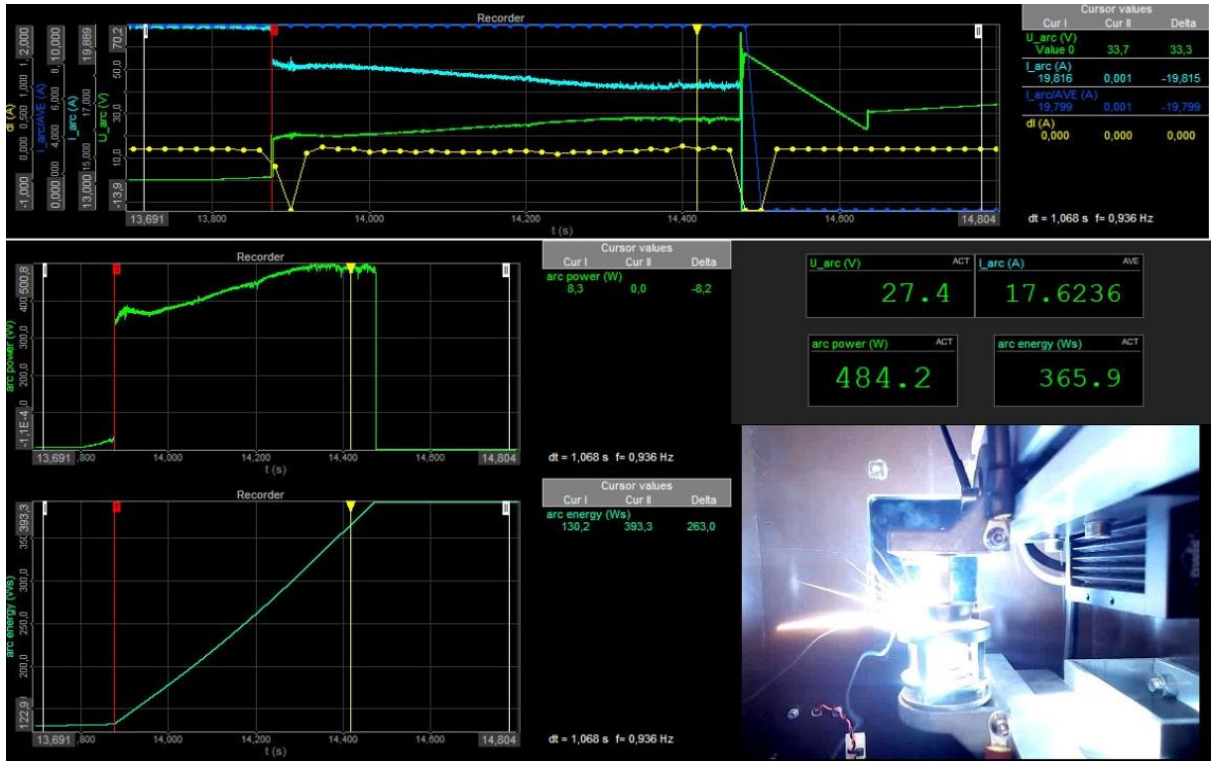
- **Protection against serial electric arcs** in the PV system installation
- No additional **installation costs** – through integration in the inverter
- Easy to implement – no need for **external** components
- **Tried-and-tested process:** AFCI has been used for many years in Sunny Tripower / Sunny Boy US (**UL 1699B-certified**)
- **Pioneering** technology – already complies with IEC 63027 requirements



New: Arc Fault Detection AFCI (Arc Fault Circuit Interruption)

Implementation:

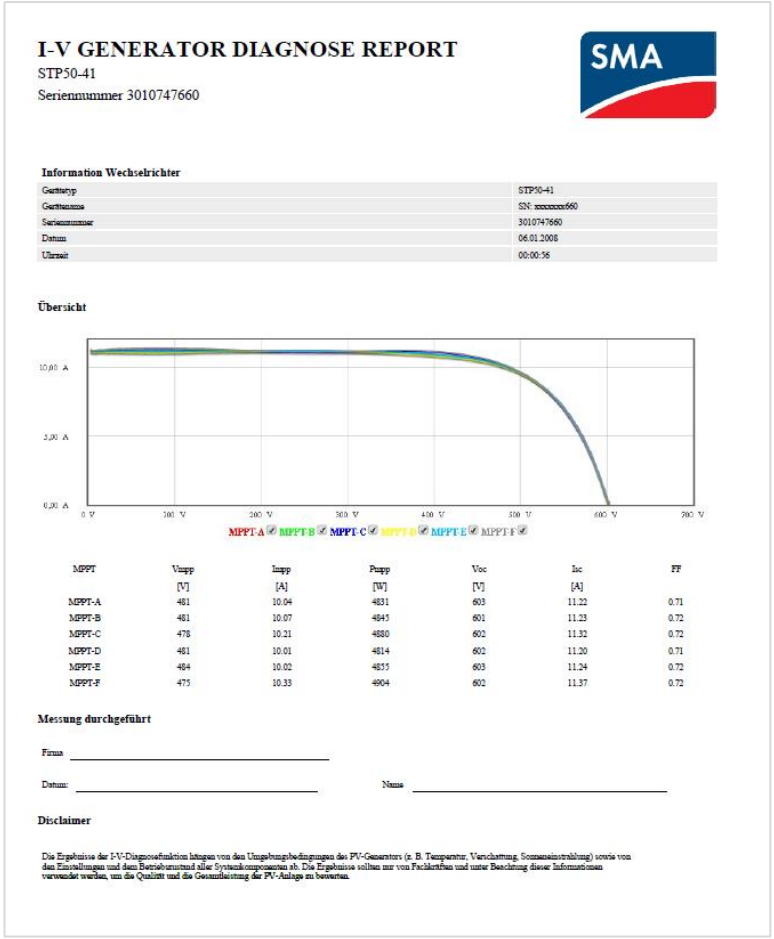
- **Easy activation** through parameterization in the web UI
- **Accurate detection of electric arcs through spectral analysis** via the noise-free DC signal thanks to the superior design
- **Alerts** by e-mail
- **Reliable DC interruption** when an electric arc is detected
- **No downtime due to system shutdown** thanks to automated restart of the inverter and continued detection



New: I-V Diagnosis of the PV Array

Benefits

- **Early and simple** detection of yield losses in the event of problems with the PV array
- **Automatic measurement** of the I-V curve (current/voltage curve)
- **Expanded offering** from our installers during system maintenance
- Inverter performs **documentation tasks for the customer:** Simple report function with graphical display contains all the most important PV array measurement data
- **Integrated** PDF and CSV export



I-V GENERATOR DIAGNOSE REPORT

STP50-41

Seriennummer 3010747660

Information Wechselrichter

Gerätetyp	STP50-41
Gerätename	SN: xxxxxxx660
Seriennummer	3010747660
Datum	06.01.2008
Uhrzeit	00:00:56

Übersicht

MPPT	Vmpp [V]	Impp [A]	Pmpp [W]	Voc [V]	Isc [A]	FF
MPPT-A	481	10.04	4831	603	11.22	0.71
MPPT-B	481	10.07	4845	601	11.23	0.72
MPPT-C	478	10.21	4880	602	11.32	0.72
MPPT-D	481	10.01	4814	602	11.20	0.71
MPPT-E	484	10.02	4855	603	11.24	0.72
MPPT-F	475	10.33	4904	602	11.37	0.72

Messung durchgeführt

Firma _____

Datum: _____ Name _____

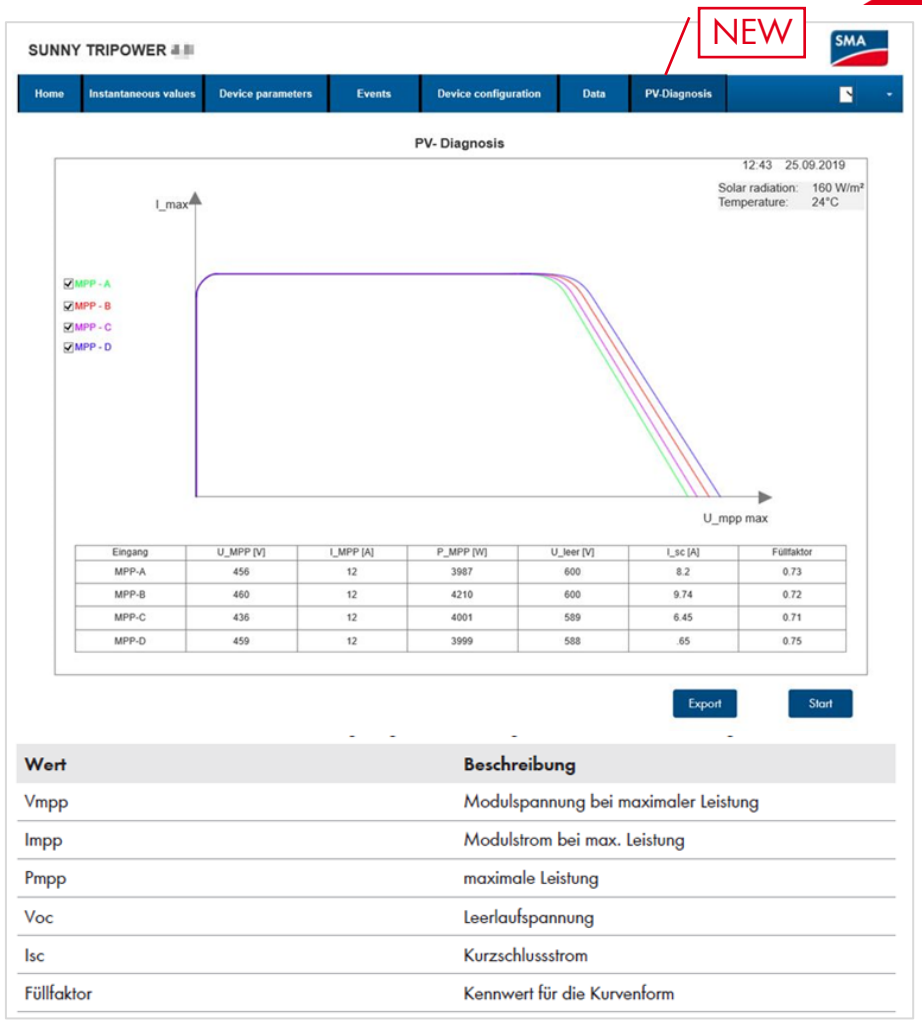
Disclaimer

Die Ergebnisse der I-V-Diagnosefunktion hängen von den Umgebungsbedingungen des PV-Generators (z. B. Temperatur, Verschattung, Sonneneinstrahlung) sowie von den Einstellungen und dem Betriebszustand aller Systemkomponenten ab. Die Ergebnisse sollten nur von Fachkräften und unter Beachtung dieser Informationen verwendet werden, um die Qualität und die Gesamtleistung der PV-Anlage zu bewerten.

New: I-V Diagnosis of the PV Array

Implementation

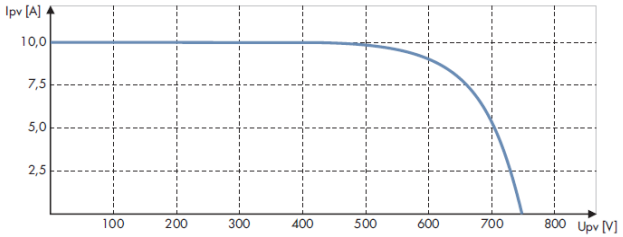
- **Current/voltage measurement** of all MPP trackers in the inverter at the "push of a button"
- **Visualization** of the I-V curves / measured values in the web UI
- Discrepancies with respect to the I-V characteristics potentially indicate problems in the PV array
- Further functional extensions are planned
  - diagnosis directly via Sunny Portal and SMA Data Manager



Wert	Beschreibung
Vmpp	Modulspannung bei maximaler Leistung
Impp	Modulstrom bei max. Leistung
Pmpp	maximale Leistung
Voc	Leerlaufspannung
Isc	Kurzschlussstrom
Füllfaktor	Kennwert für die Kurvenform

New: I-V Diagnosis of the PV Array: Sample Curves

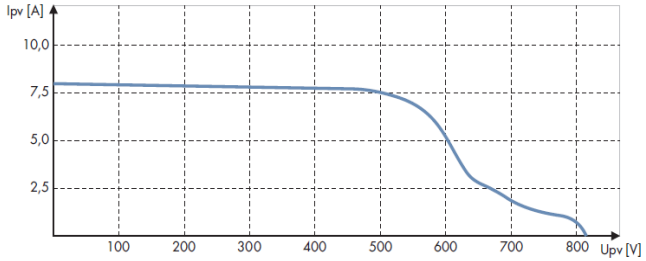
Ideal I-V curve



Ideal I-V curve

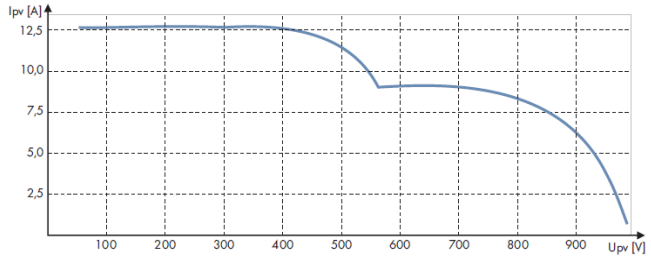
- No measures required

Characteristic deviations



Curve with deviations (e.g., typical for glass breakage)

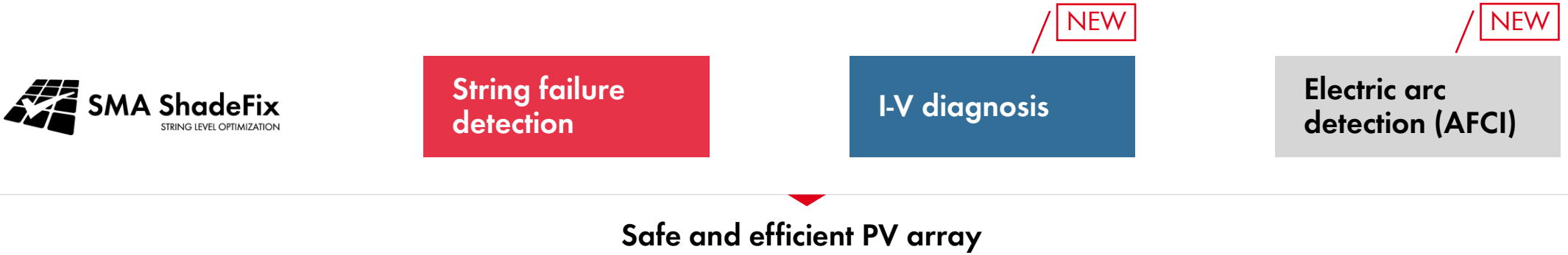
- Check the modules in the string



Module string with shading

- Check whether measures to prevent shading are possible

Maximum Reliability Thanks to SMA String Inverter Technology



- The integration of the new safety functions into the inverter ensures a reduced installation time and a greater reliability of the PV system thanks to the lower complexity of the installation (minimization of additional fault sources)
  A complete system. Everything from a single source.
- Module-based solutions ("MLPE": Module Level Power Electronics) are much harder to implement and can be more prone to faults due to the high number of system components

Thank you!

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