



Technical Submission

**Greenlight, Bennet Court
Reading**

Date
25/02/2026

Document No.
L10-25-JDE-660-ZZ-TS-E-11

Tech Sub.
ETS11

Revision
P1

Description : Photovoltaics

Attention of Robert Stevenson

Notes :

Please see attached technical submission for the PV system and associated components

Approval by 11-Mar-26 is required to enable us to proceed.

Response :

No comments

Approved

Signed

Dated

For

t 0121 520 3700
f 0121 520 7007
e sales@jdelectrical.co.uk
w www.jdelectrical.co.uk



**PROJECT: Bennet
Court, Reading**

FULL PROPOSAL
For Review and Comments



Revision	Issue Date	Issued by
P01	13/02/2026	BC
P02	23/02/2026	BC

CARBON3

sheet no.

/ 1

Carbon3 Ltd
Unit 15 The Alders • Seven Mile Lane • Mereworth • Maidstone • Kent • ME18 5JG
t. 0300 303 5688 enquiries@carbon3.co.uk www.carbon3.co.uk



PROPOSED
NEW
WAREHOUSE

FOR
CONSTRUCTION

Scan our QR code to register our system on the C3 Hub for access to all your Operations & Maintenance information and to redeem your 10% service discount code!



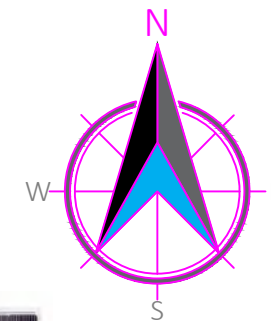
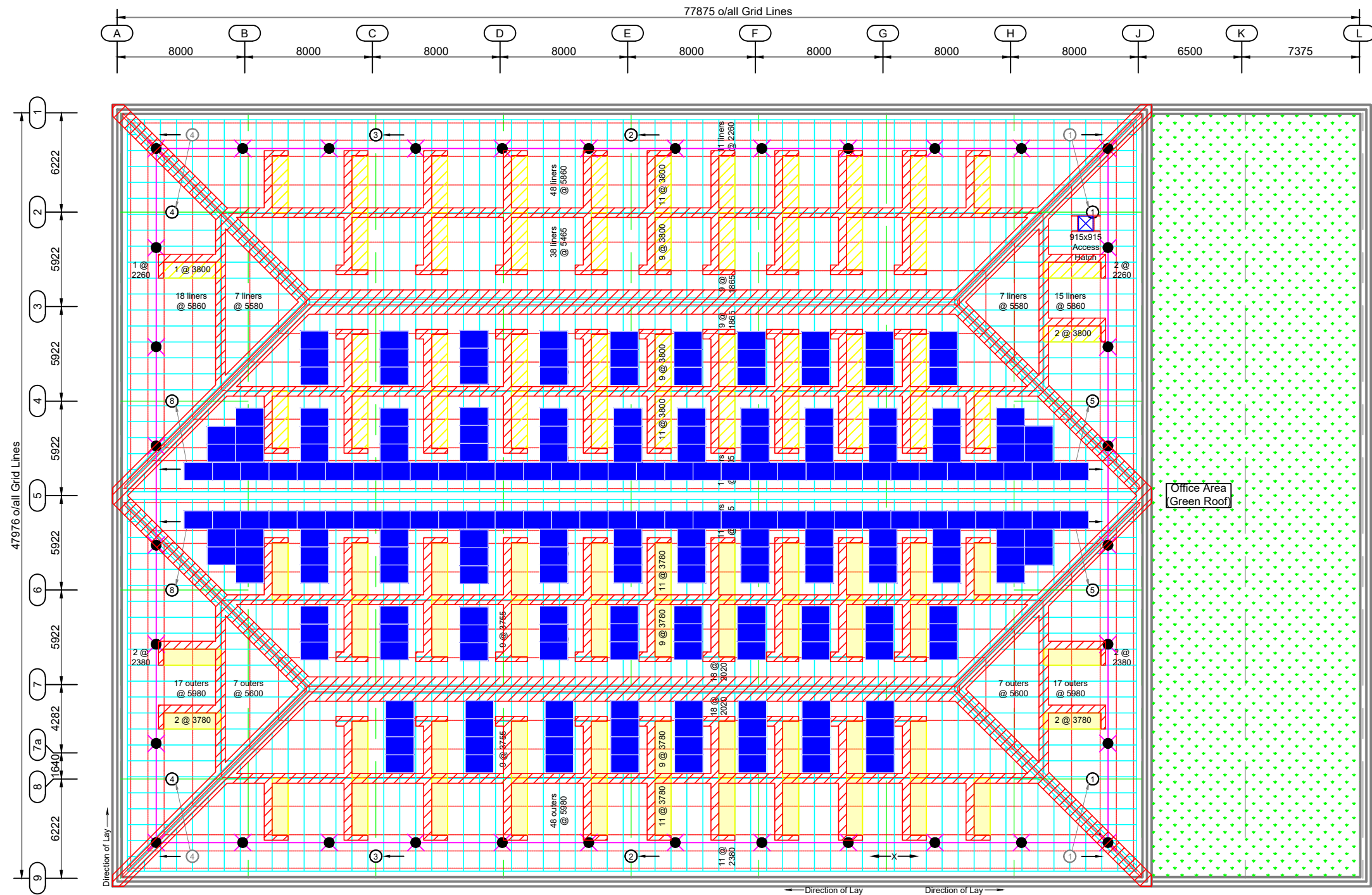
Drawing N° PV-001

TITLE:
Solar PV Layout

Client: JD Electrical
Project: Bennet Court
Address: Bennet Court, Bennet Road, Reading

SCALE	REV	DRAWN	CHK'D	DATE
1:300	P01	BC	HS	18/02/2026

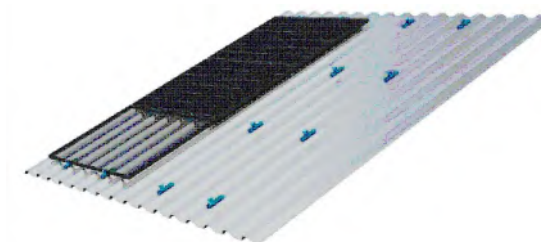




Astronergy 450W Panels



125kW SUNGROW INVERTER



S:FLEX MOUNTING SYSTEM

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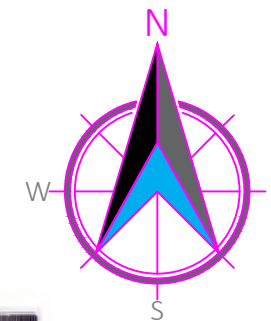
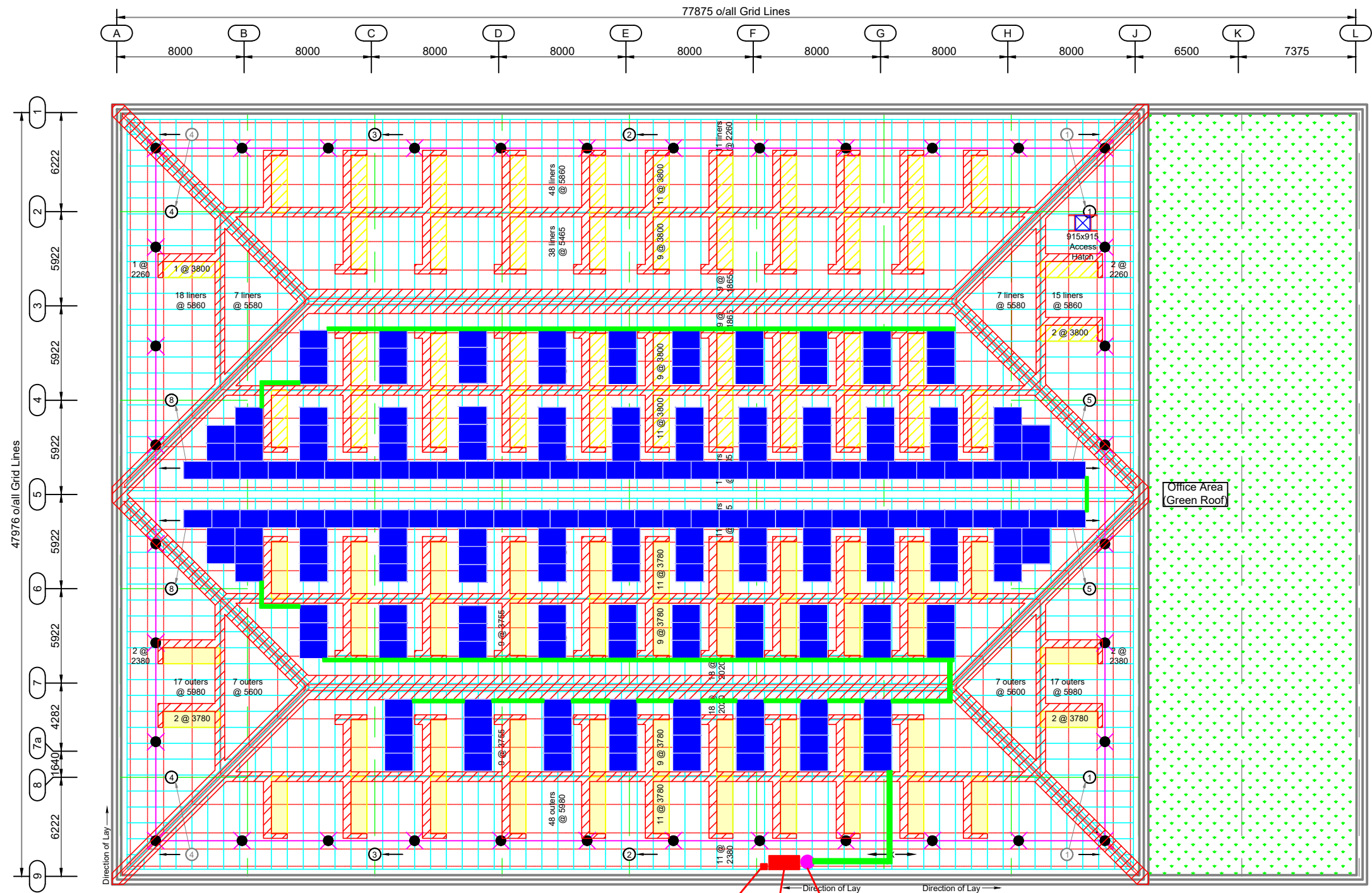


ESTIMATED PV DATA:
PANEL:ASTRONERGY 450W BIFACIAL
MODEL:CHSM54RNs(DG)/F-BH Bifacial
TOTAL PANELS: 236
TOTAL SYSTEM SIZE: 106.20 kWp
FIXINGS: S:FLEX

ROOF AREA	PANEL	ORIENTATION	ORIENTATION FROM SOUTH (°)	NUMBER OF PANELS	DIMENSIONS (MM)	WEIGHT	SYSTEM SIZE kWp	Shading Factor	kWh/kWp Values	MCS GENERATION kWh	INVERTER
Main Roof 3-5	ASTRO 450W	SOUTH	0°	102	1762 X 1134 X 30	22kg	45.9000	0.9000	896	37013.7600	SUNGROW 125kW
Main Roof 5-7		NORTH	180°	102			45.9000	0.9000	745	30775.9500	
Main Roof 7-9		SOUTH	0°	32			14.4000	0.9000	896	11612.1600	
TOTAL				236			106.200000			79401.8700	

**FOR
CONSTRUCTION**

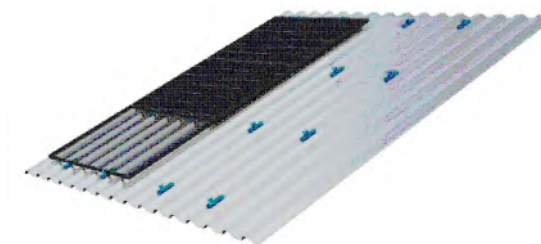




Astronergy 450W Panels



125kW SUNGROW INVERTER



S:FLEX MOUNTING SYSTEM

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ESTIMATED PV DATA:
PANEL:ASTRONERGY 450W BIFACIAL
MODEL:CHSM54RNs(DG)/F-BH Bifacial
TOTAL PANELS: 236
TOTAL SYSTEM SIZE: 106.20 kWp
FIXINGS: S:FLEX

PV SYSTEM KOCK-OFF
BUTTON INTERFACED WITH
FIRE ALARM SYSTEM

PV INVERTER
(AC WORKS BY OTHER)

ROOF PENETRATION FOR DC
CABLE

DC CABLE ROOF LEVEL

ROOF AREA	PANEL	ORIENTATION	ORIENTATION FROM SOUTH (°)	NUMBER OF PANELS	DIMENSIONS (MM)	WEIGHT	SYSTEM SIZE kWp	Shading Factor	kWh/kWp Values	MCS GENERATION kWh	INVERTER
Main Roof 3-5	ASTRO 450W	SOUTH	0°	102	1762 X 1134 X 30	22kg	45.9000	1.0000	942	43237.8000	SUNGROW 125kW
Main Roof 5-7		NORTH	180°	102			45.9000	1.0000	753	34562.7000	
Main Roof 7-9		SOUTH	0°	32			14.4000	1.0000	942	13564.8000	
TOTAL				236			106.200000			91365.3000	

FOR
CONSTRUCTION



Project report
KSSE-26-298-01 Bennet Court
- Carbon 3
2/24/2026

SYSTEM INFORMATION

236 Modules

106.2 kWp

CREATED BY

Solen Energy UK Limited

Pete Roti

19 Montague Road

WA8 8FZ WIDNES

0151 448 9662 (Ext: 254)

pete.roti@solenenergy.com

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PV-Module	24	-	24
Fixation type	25	-	26
Module layout plan	27	-	27
Position	28	-	28
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Roof: Roof_2 (South)			
Roof substructure	34	-	35
PV-Module	36	-	36
Fixation type	37	-	38
Module layout plan	39	-	39
Position	40	-	40
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General Information

This project report is based on the project data provided by the customer. Please check that all information in the project report is correct. Changes can lead to different static requirements and material quantities.

Since each roof has its own project and location-specific characteristics, expert clarification must always be carried out before installation. The installer has to check that the existing roof covering and substructure is suitable for the loads imposed by the PV system before installation occurs. The installer further has to check the condition of the roof substructure, the quality of the roof covering and the maximum loadbearing capacity of the roof structure. Reach out to a local structural engineer for that purpose. In areas where chloride-induced corrosion (e.g. maritime atmosphere) is possible, special corrosion protection measures are required, which must be assessed by a professional.

It is essential to observe the specifications in the installation instructions and the project report during installation. Non-observance of the specifications in the installation instructions and the project report can lead to damage to the PV system and the building and it may result in danger to life and limb!

When installing the PV system, always ensure that the module manufacturer's installation instructions are also observed.

The installation instructions regulate the basic installation steps. The object-specific project report takes into account the information on which the planning is based and may, under certain circumstances, have slightly different information regarding the areas of application of the installation system. Please observe the system-specific instructions and the link to the installation instructions in the respective roof section.

A PV system is an integral part of the building structure. Hence, for the purpose of electrical safety, all metallic parts must be electrically connected and integrated into the local equipotential bonding system in accordance with IEC 60364 and their corresponding national norms. Please create a grounding concept on site. In our product catalog we offer different components that can be combined for this purpose.

You can find our installation instructions at <http://www.sflex.com> (Downloads). Our general terms and conditions apply. These can be viewed at <http://www.sflex.com>.

QR-Code: Download Area



System-specific information: Trapezoidal sheet mounting with HK

The system-specific specifications (e.g. expansion joints and separation distances) from the installation instructions must be observed for planning and installation.

Since individual project-related features must be taken into account for each roof (covering, purlin dimensions and material, etc.), must always be clarified by an expert before installation.

QR code: Assembly instructions



PLANNED BY

User Name	pete.roti@solenenergy.com
Company	Solen Energy UK Limited
Phone	0151 448 9662 (Ext: 254)
Street	19 Montague Road
City	WIDNES
Postal Code	WA8 8FZ
Project Number:	SF_DE_hw1WQJFy


COMMENT

This S:FLEX design follows the design intent of drawing – Bennet Court - PV-001 - 13-02-2026 - Measurements Included. All ridge heights from ground, roof pitches and structural details are assumed - none provided - please check. System alignment [Degree°] details have not been considered - none provided - please check. All trapezoidal details are assumed – no details provided – please check. Crowns assumed to have minimum 30mm of flat surface (not including any rounded edges). Landscape modules are laid on HS Rail HK 172 brackets. S:FLEX advise on all Trapezoidal roofing sheet systems that there is an expansion gap requirement every 7m (vertical or horizontal orientation). Where appropriate, adjust position of brackets to adjacent crowns so that the module clamps are as close as they can be to the module clamping zones. There are 4no Sheet Metal Screws A2 6,0x25 on Roof 1 North (700-900-002). All other roofs have standard 2no Sheet Metal Screws A2 6,0x25 (700-900-002). This PV array design meets the minimum 1m edge distance requirement for commercial 'Permitted Development' planning rights.

PROJECT DATA

Project Name	KSSE-26-298-01 Bennet Court - Carbon 3
Project Number:	SF_DE_hw1WQJFy
Planning Responsible	Pete Roti
Software v.:	11.0.52.43731

Roof_1 (North)

Amount Modules	102
System Size	45.9 kWp
Orientation [°]	0
Pitch angle of roof α	10 °
Deadload on Array Roof Area	11.05 kg/m ²

Roof_1 (South)

Amount Modules	32
System Size	14.4 kWp
Orientation [°]	180
Pitch angle of roof α	10 °
Deadload on Array Roof Area	11.01 kg/m ²

Roof_2 (South)

Amount Modules	102
System Size	45.9 kWp
Orientation [°]	180
Pitch angle of roof α	10 °
Deadload on Array Roof Area	11.03 kg/m ²

Roof_2 (West)

Orientation [°]	270
Pitch angle of roof α	12.37 °
Deadload on Array Roof Area	0 kg/m ²

Amount ModulesSum	236
System Size Sum	106.2 kWp
Total roof area	2,681.42 m ²
Available roof area	2,531.01 m ²
Covered roof area (modules)	471.55 m ²

COMMENT

This S:FLEX design follows the design intent of drawing – Bennet Court - PV-001 - 13-02-2026 - Measurements Included.

All ridge heights from ground, roof pitches and structural details are assumed - none provided - please check.

System alignment [Degree°] details have not been considered - none provided - please check.

All trapezoidal details are assumed – no details provided – please check. Crowns assumed to have minimum 30mm of flat surface (not including any rounded edges).

Landscape modules are laid on HS Rail HK 172 brackets.

S:FLEX advise on all Trapezoidal roofing sheet systems that there is an expansion gap requirement every 7m (vertical or horizontal orientation).

Where appropriate, adjust position of brackets to adjacent crowns so that the module clamps are as close as they can be to the module clamping zones.

There are 4no Sheet Metal Screws A2 6,0x25 on Roof 1 North (700-900-002). All other roofs have standard 2no Sheet Metal Screws A2 6,0x25 (700-900-002).

This PV array design meets the minimum 1m edge distance requirement for commercial 'Permitted Development' planning rights.

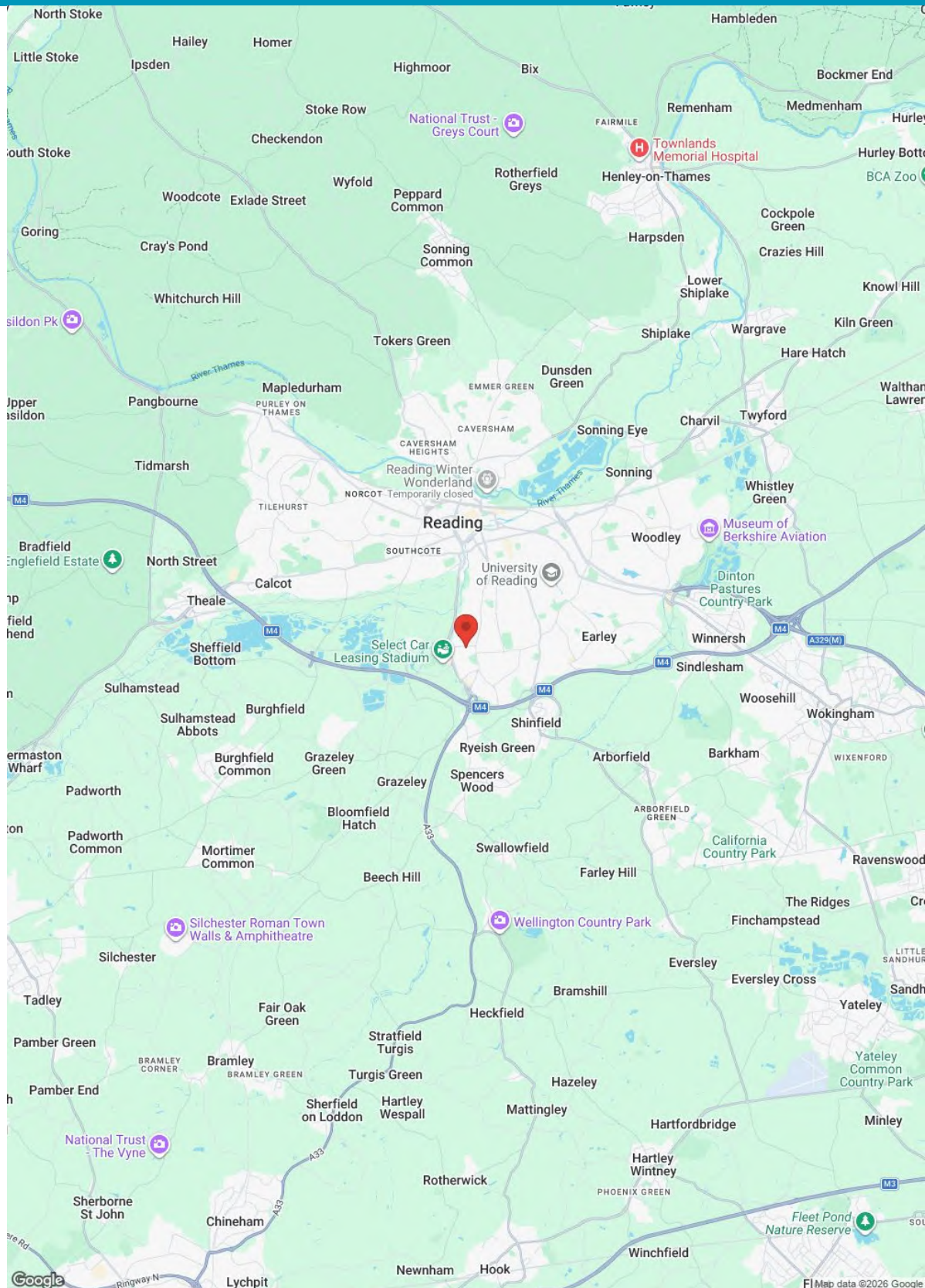
PROJECT ADDRESS

Name	KSSE-26-298-01 Bennet Court
Company	Carbon 3
Street Address	Bennet Court, Bennett Road, Reading
Postal code	RG2 0QX
City	Reading
Phone	
Email	
Notes	
Country	United Kingdom
Latitude [°]	51.42578
Longitude [°]	-0.97384
Altitude [m]	40

SHIPPING ADDRESS

Name	KSSE-26-298-01 Bennet Court
Street Address	Bennet Court, Bennett Road, Reading
Postal code	RG2 0QX
City	Reading
Country	Germany

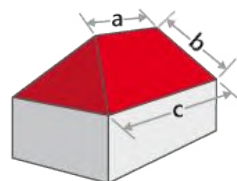
PROJECT LOCATION - GOOGLE MAPS



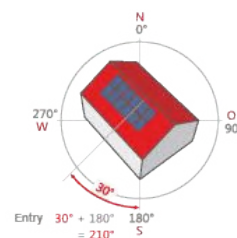
ROOF [ROOF_1 (NORTH)]

Ridge length a [m]	40.411
Width b [m]	20
Roof area [m²]	828.39
Building height h [m]	12
Eaves length c [m]	65.237
Pitch angle [°]	10
Roofing	Trapezoidal Sheet
System alignment [°]	0

Hip roof



System alignment [°]*


SNOW LOAD ACCORDING TO BS EN 1991-1-3 NA:2003

Snow load [kN/m²]:	0.229
Site altitude above sea level [m]	40
Snow load zone:	Area 2
Pitch angle [°]	10

PEAK VELOCITY PRESSURE ACCORDING TO BS EN 1991-1-4:2005+A1:2010

Wind Load [kN/m²]*:	0.604
Terrain Category:	3
Building height h [m]:	12
Reference Height [m]	12
z-hdis	9.282
Distance to edge of City [km]	1.34
Distance to Ocean [km]	109.19

ROOF STRUCTURE [ROOF_1 (NORTH)]

Distance between crowns i [mm] 333

Trapezoidal Sheet Height c [mm]* 35

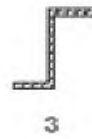
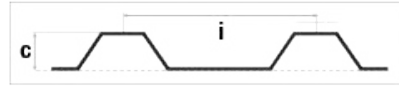
First crown after [mm] 100

Crown width [mm] 30

Roofing Material Steel

Sheet Thickness [mm]* 0.7

Roof beam type: 3



PV-MODULE [ROOF_1 (NORTH)]

Manufacturer	Astronergy Co.,Ltd.
Name	CHSM54RNs-HC 450W
Width [mm]	1134
Height [mm]	1762
Thickness [mm]	30
Framing	Aluminum
Mass [kg]	21.5
Nominal Power [Watt]	450
Module Type	Monocrystalline
Installation	On Both Sides
Frame color	Aluminum
Temperature coefficient [%/°C]	-0.29
Efficiency STC	0.225
Output current MPP - STC [A]	13.66
Output voltage MPP - STC [V]	32.94
Short circuit current [A]	14.35
Open circuit voltage [V]	39.2
Temperature coefficient Current [%/K]	0.043
Temperature coefficient Voltage [%/K]	-0.25
Max. System voltage EU	1500
Max module backcurrent [A]	25
Galvanic separation required	No

FIXATION TYPE [ROOF_1 (NORTH)]

Mounting system type HS Schiene HK 172

Article description:	HS rail HK 172
Item number:	710-400-112
Geometry:	
Length:	172 mm
Width:	31 mm
Height:	24 mm
Holes:	4 x 5 mm; 4 x 6 mm
Sealing tape:	EPDM

Connection component Sheet metal screw A2 6.0x25

Number of Connection Components 4

Number of Fixations 312

Max. Utilization of fixation points 64.48 %

Rail installation system Clamping direct

Endklemme
 Height-adjustable end clamp.
 Compatible with all sflex mounting rails with outer click technology (AK).
 Approval: Z-14.4-858
 Clamping range: 30-50 mm
 Clamp width: 35 mm
 Clamping overlap: 11 mm
 Material: Aluminium EN AW-6063 T6, extruded
 Screw fitting material: Stainless steel A2-70 A (anti-friction coating)

Max. utilization 91.6 %

Mittelklemme Mid Clamp MC AK II klick 30-50 A

Max. utilization 48.96 %

STATIC DETAILS [ROOF_1 (NORTH)]

PV array mass	m_{array}	2,249.38 kg
PV array area	A_{array}	203.81 m ²
Dead load on PV array area	G_{array}	0.11 kN/m ²
Normal Dead load on PV array area	$G_{array,n}$	0.11 kN/m ²
Parallel Dead load on PV array area	$G_{array,p}$	0.019 kN/m ²
LK1, Normal force on PV array area	$F_{array,1,n}$	195.31 kN
LK1, Parallel force on PV array area	$F_{array,1,p}$	19.12 kN
LK2, Normal force on PV array area	$F_{array,2,n}$	219.36 kN
LK2, Parallel force on PV array area	$F_{array,2,p}$	13.14 kN
LK3, Normal force on PV array area	$F_{array,3,n}$	-336.48 kN
LK3, Parallel force on PV array area	$F_{array,3,p}$	4.78 kN
Module area	A_{pv}	2 m ²
Max. Load on Module, downward	$\text{Max} [Q_{1,n} Q_{2,n}]$	1.09 kN/m ²

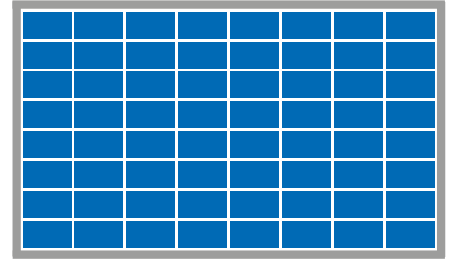
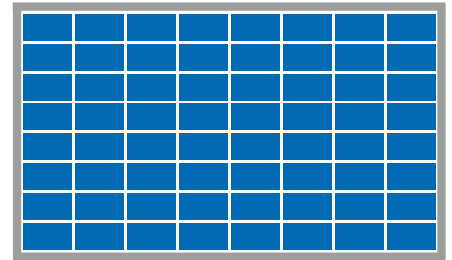
Max. Load on Module, upward

$Q_{3,n}$

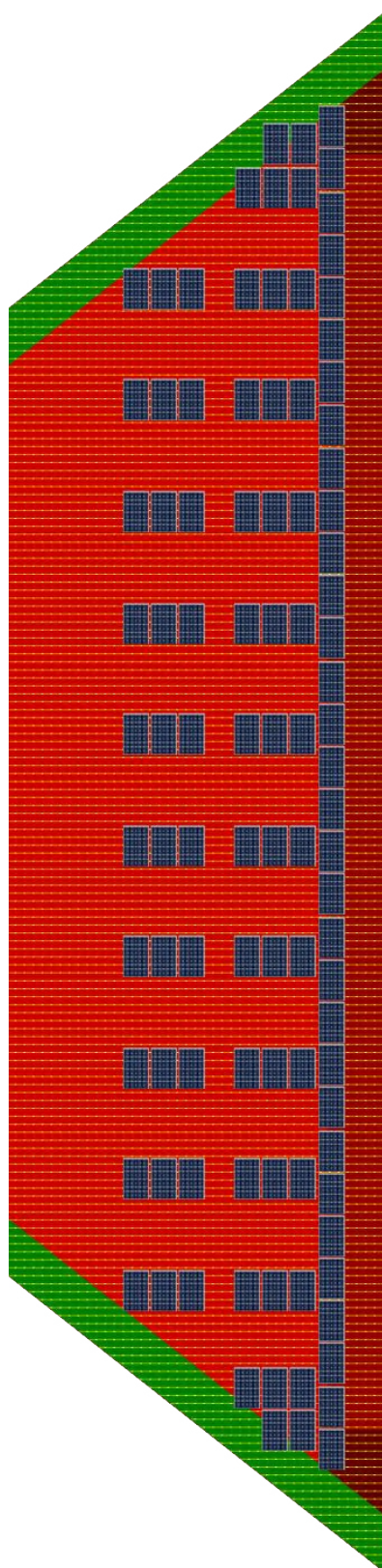
-1.68 kN/m²

MODULE LAYOUT PLAN [ROOF_1 (NORTH)]

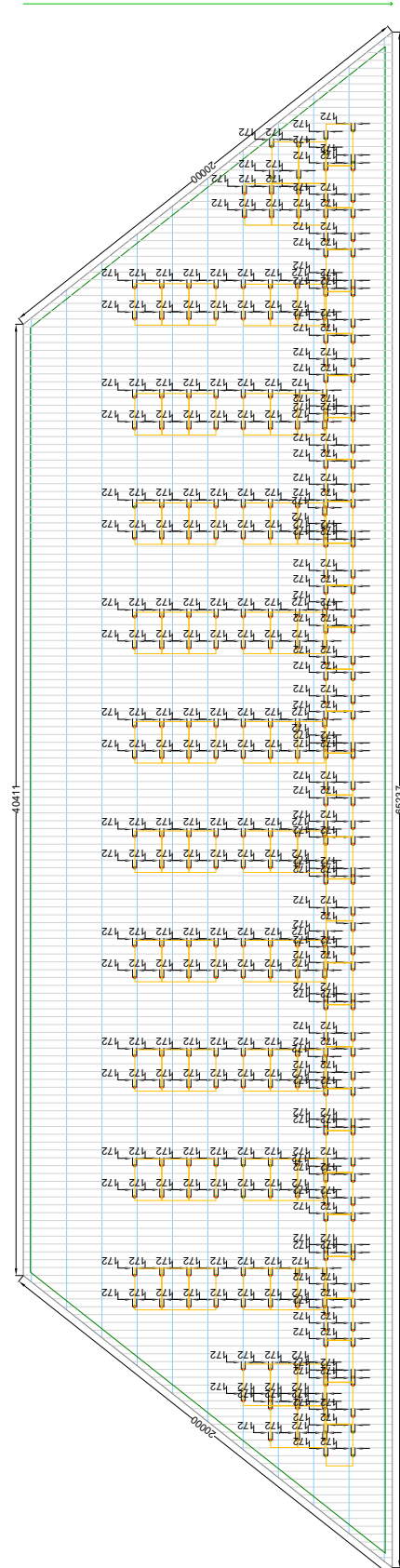
Alignment	Landscape
Horizontal module distance [mm]	20
Vertical module distance [mm]	20
Horizontal starting point (left bottom mm)	
Vertical starting point (left bottom in mm)	300
Distance to roof edge [mm]	300



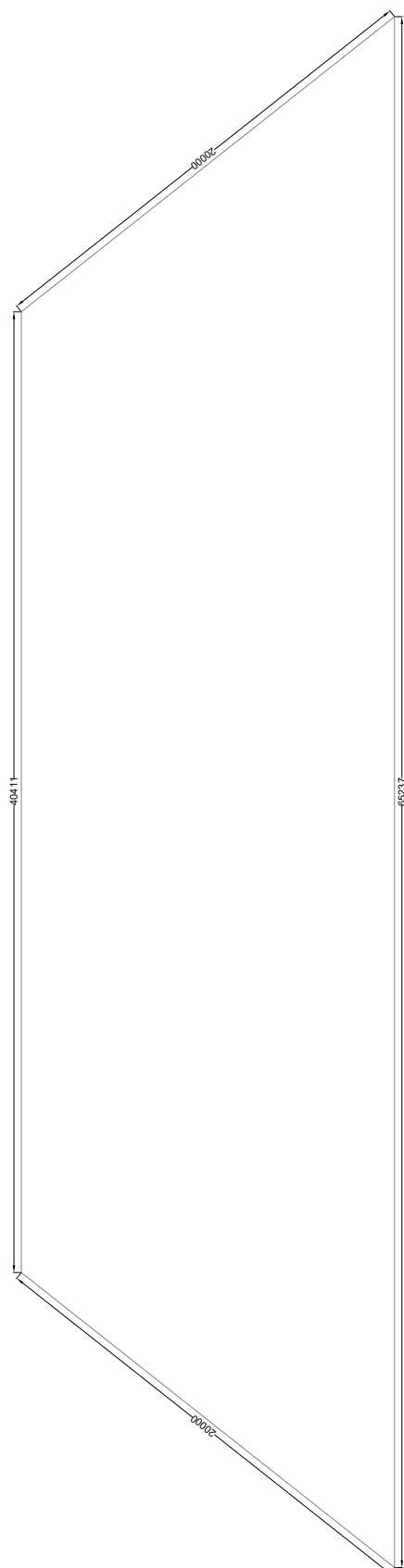
POSITION [ROOF_1 (NORTH)]



INSTALLATION-PLAN [ROOF_1 (NORTH)]



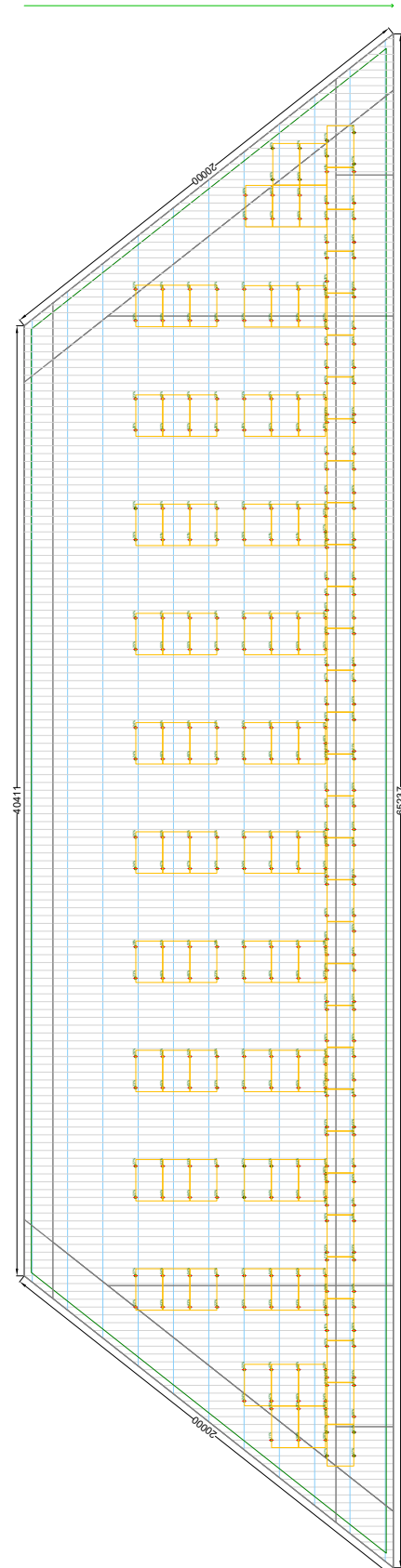
OUTLINE OF THE DEFINED AREA [ROOF_1 (NORTH)]



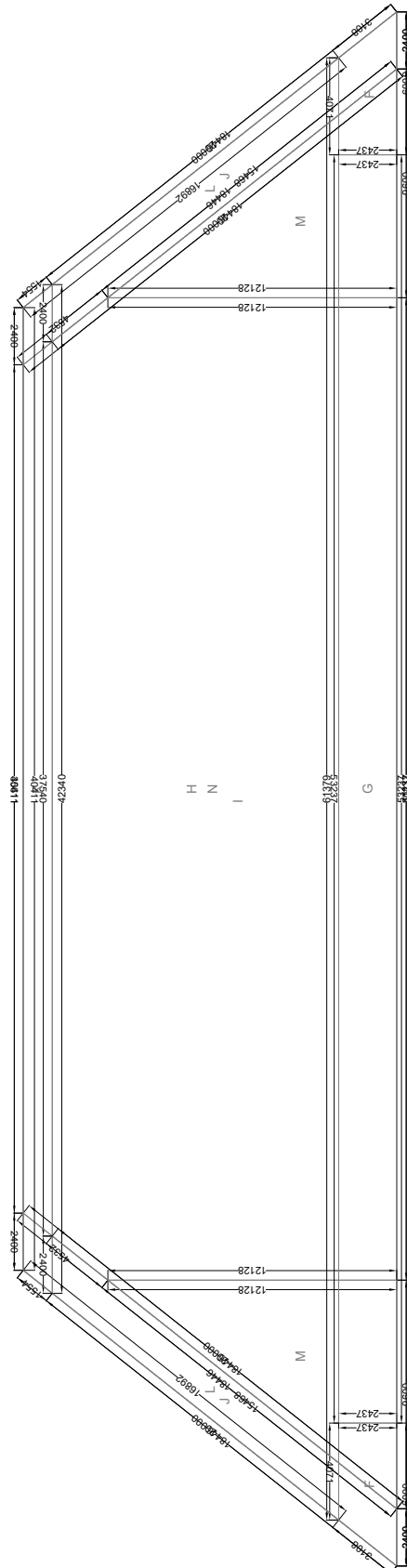
OUTLINE OF THE DEFINED AREA [ROOF_1 (NORTH)]

Coordinate 0	X:	0	Y:	0	Z:	12
Coordinate 1	X:	65.237	Y:	0	Z:	12
Coordinate 2	X:	52.824	Y:	15.682	Z:	12
Coordinate 3	X:	12.413	Y:	15.682	Z:	12

UTILIZATION CAPACITY OF FASTENERS [ROOF_1 (NORTH)]



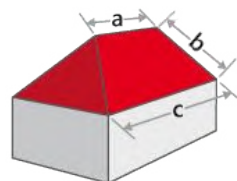
STATIC INFORMATION: AREAS [ROOF_1 (NORTH)]



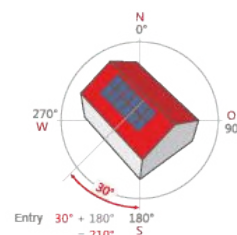
ROOF [ROOF_1 (SOUTH)]

Ridge length a [m]	40.411
Width b [m]	20
Roof area [m²]	828.39
Building height h [m]	12
Eaves length c [m]	65.237
Pitch angle [°]	10
Roofing	Trapezoidal Sheet
System alignment [°]	180

Hip roof



System alignment [°]*


SNOW LOAD ACCORDING TO BS EN 1991-1-3 NA:2003

Snow load [kN/m²]:	0.229
Site altitude above sea level [m]	40
Snow load zone:	Area 2
Pitch angle [°]	10

PEAK VELOCITY PRESSURE ACCORDING TO BS EN 1991-1-4:2005+A1:2010

Wind Load [kN/m²]*:	0.604
Terrain Category:	3
Building height h [m]:	12
Reference Height [m]	12
z-hdis	9.282
Distance to edge of City [km]	1.34
Distance to Ocean [km]	109.19

ROOF STRUCTURE [ROOF_1 (SOUTH)]

Distance between crowns i [mm] 333

Trapezoidal Sheet Height c [mm]* 35

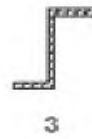
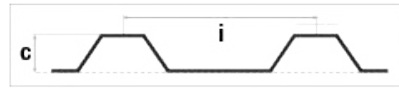
First crown after [mm] 100

Crown width [mm] 30

Roofing Material Steel

Sheet Thickness [mm]* 0.7

Roof beam type: 3



PV-MODULE [ROOF_1 (SOUTH)]

Manufacturer	Astronergy Co.,Ltd.
Name	CHSM54RNs-HC 450W
Width [mm]	1134
Height [mm]	1762
Thickness [mm]	30
Framing	Aluminum
Mass [kg]	21.5
Nominal Power [Watt]	450
Module Type	Monocrystalline
Installation	On Both Sides
Frame color	Aluminum
Temperature coefficient [%/°C]	-0.29
Efficiency STC	0.225
Output current MPP - STC [A]	13.66
Output voltage MPP - STC [V]	32.94
Short circuit current [A]	14.35
Open circuit voltage [V]	39.2
Temperature coefficient Current [%/K]	0.043
Temperature coefficient Voltage [%/K]	-0.25
Max. System voltage EU	1500
Max module backcurrent [A]	25
Galvanic separation required	No

FIXATION TYPE [ROOF_1 (SOUTH)]

Mounting system type HS Schiene HK 172

Article description:	HS rail HK 172
Item number:	710-400-112
Geometry:	
Length:	172 mm
Width:	31 mm
Height:	24 mm
Holes:	4 x 5 mm; 4 x 6 mm
Sealing tape:	EPDM

Connection component Sheet metal screw A2 6.0x25

Number of Connection Components 2

Number of Fixations 95

Max. Utilization of fixation points 98.47 %

Rail installation system Clamping direct

Endklemme
 Height-adjustable end clamp.
 Compatible with all sflex mounting rails with outer click technology (AK).
 Approval: Z-14.4-858
 Clamping range: 30-50 mm
 Clamp width: 35 mm
 Clamping overlap: 11 mm
 Material: Aluminium EN AW-6063 T6, extruded
 Screw fitting material: Stainless steel A2-70 A (anti-friction coating)

Max. utilization 50.96 %

Mittelklemme Mid Clamp MC AK II klick 30-50 A

Max. utilization 37.3 %

STATIC DETAILS [ROOF_1 (SOUTH)]

PV array mass	m_{array}	703.78 kg
PV array area	A_{array}	63.94 m ²
Dead load on PV array area	G_{array}	0.11 kN/m ²
Normal Dead load on PV array area	$G_{array,n}$	0.11 kN/m ²
Parallel Dead load on PV array area	$G_{array,p}$	0.019 kN/m ²
LK1, Normal force on PV array area	$F_{array,1,n}$	61.8 kN
LK1, Parallel force on PV array area	$F_{array,1,p}$	6 kN
LK2, Normal force on PV array area	$F_{array,2,n}$	69.69 kN
LK2, Parallel force on PV array area	$F_{array,2,p}$	4.12 kN
LK3, Normal force on PV array area	$F_{array,3,n}$	-107.28 kN
LK3, Parallel force on PV array area	$F_{array,3,p}$	1.5 kN
Module area	A_{pv}	2 m ²
Max. Load on Module, downward	$\text{Max} [Q_{1,n} Q_{2,n}]$	1.09 kN/m ²

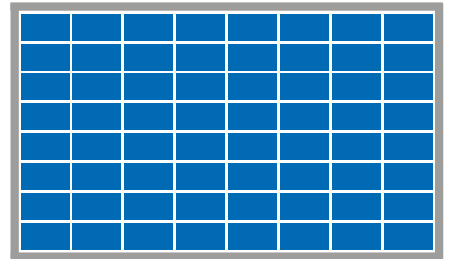
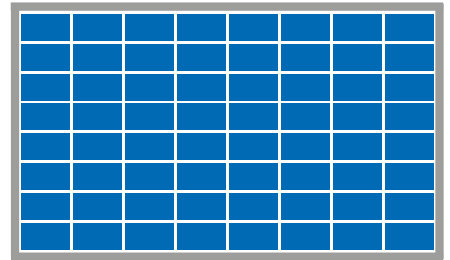
Max. Load on Module, upward

$Q_{3,n}$

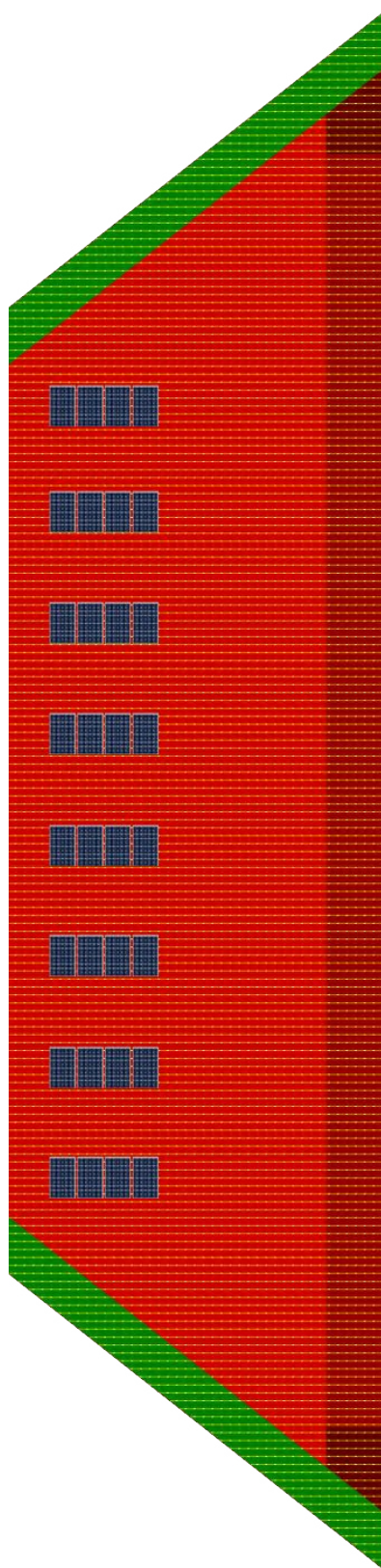
-1.68 kN/m²

MODULE LAYOUT PLAN [ROOF_1 (SOUTH)]

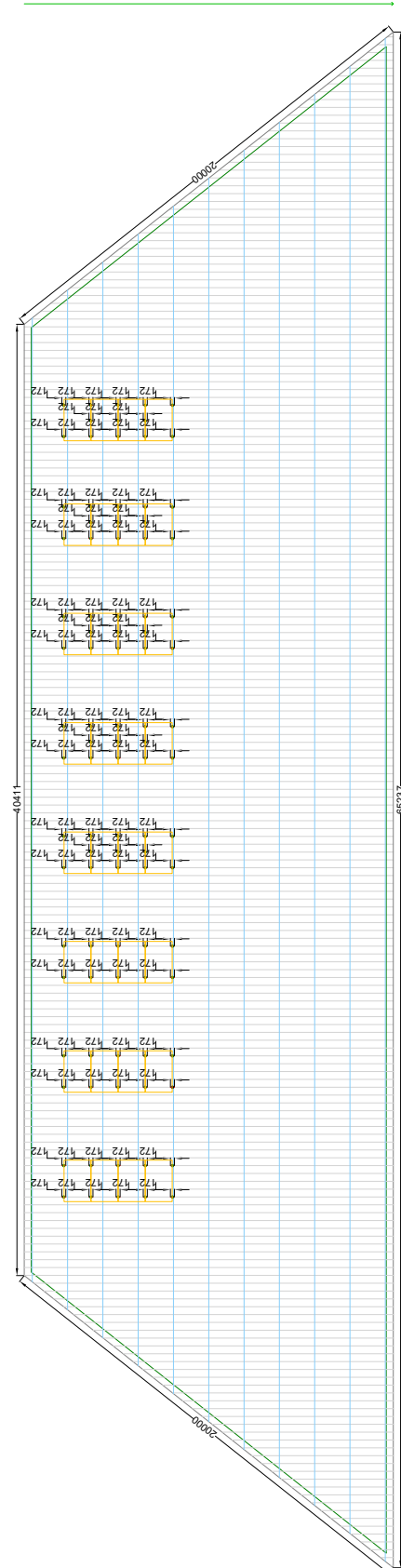
Alignment	Landscape
Horizontal module distance [mm]	20
Vertical module distance [mm]	20
Horizontal starting point (left bottom mm)	
Vertical starting point (left bottom in mm)	300
Distance to roof edge [mm]	300



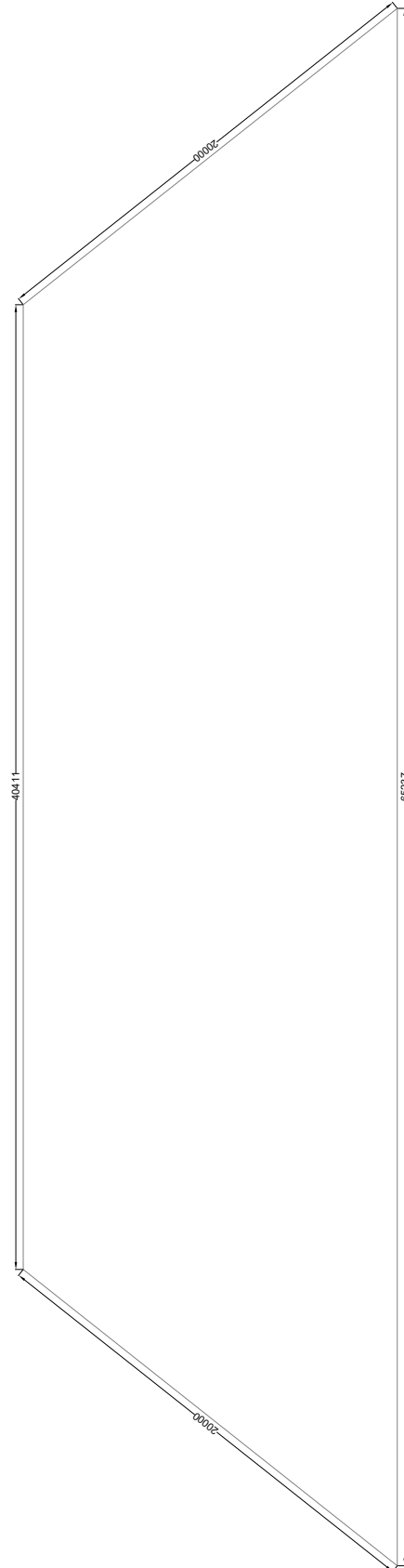
POSITION [ROOF_1 (SOUTH)]



INSTALLATION-PLAN [ROOF_1 (SOUTH)]



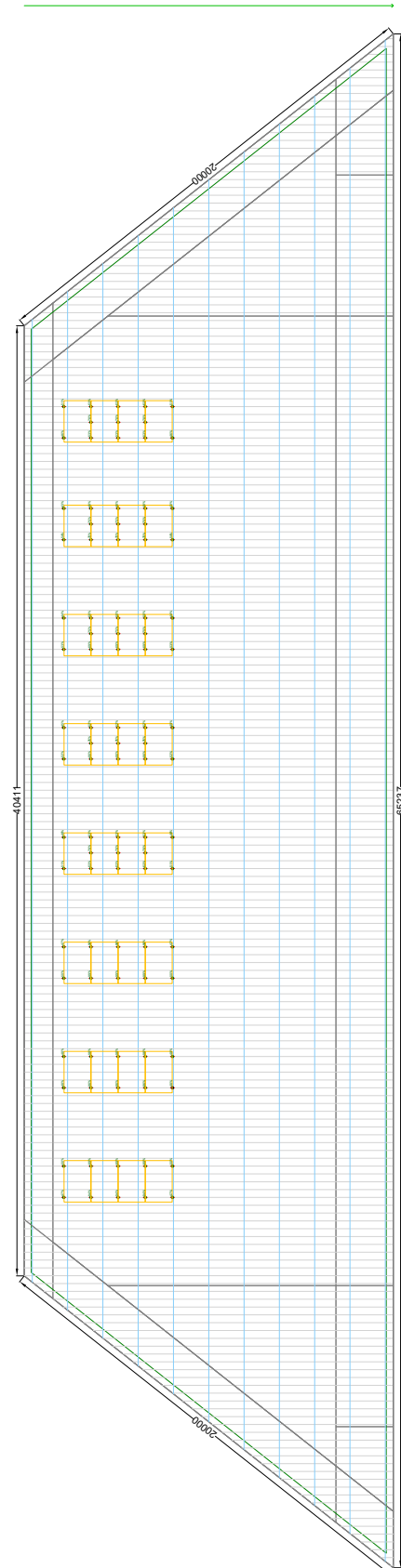
OUTLINE OF THE DEFINED AREA [ROOF_1 (SOUTH)]

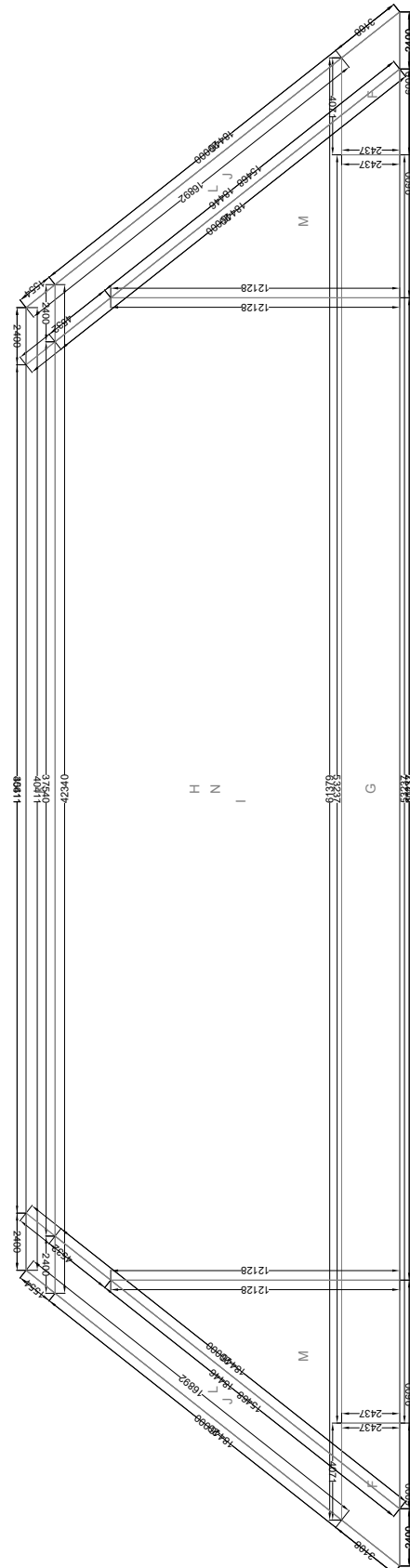


OUTLINE OF THE DEFINED AREA [ROOF_1 (SOUTH)]

Coordinate 0	X:	0	Y:	0	Z:	12
Coordinate 1	X:	65.237	Y:	0	Z:	12
Coordinate 2	X:	52.824	Y:	15.682	Z:	12
Coordinate 3	X:	12.413	Y:	15.682	Z:	12

UTILIZATION CAPACITY OF FASTENERS [ROOF_1 (SOUTH)]

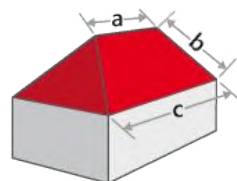




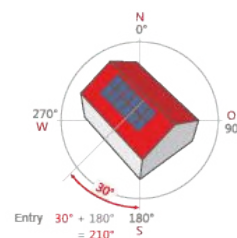
ROOF [ROOF_2 (SOUTH)]

Ridge length a [m]	40.411
Width b [m]	20
Roof area [m²]	828.39
Building height h [m]	12
Eaves length c [m]	65.237
Pitch angle [°]	10
Roofing	Trapezoidal Sheet
System alignment [°]	180

Hip roof



System alignment [°]*



SNOW LOAD ACCORDING TO BS EN 1991-1-3 NA:2003

Snow load [kN/m²]:	0.229
Site altitude above sea level [m]	40
Snow load zone:	Area 2
Pitch angle [°]	10

PEAK VELOCITY PRESSURE ACCORDING TO BS EN 1991-1-4:2005+A1:2010

Wind Load [kN/m²]*:	0.604
Terrain Category:	3
Building height h [m]:	12
Reference Height [m]	12
z-hdis	9.282
Distance to edge of City [km]	1.34
Distance to Ocean [km]	109.19

ROOF STRUCTURE [ROOF_2 (SOUTH)]

Distance between crowns i [mm] 333

Trapezoidal Sheet Height c [mm]* 35

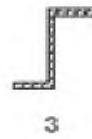
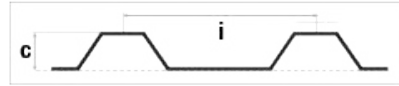
First crown after [mm] 100

Crown width [mm] 30

Roofing Material Steel

Sheet Thickness [mm]* 0.7

Roof beam type: 3



PV-MODULE [ROOF_2 (SOUTH)]

Manufacturer	Astronergy Co.,Ltd.
Name	CHSM54RNs-HC 450W
Width [mm]	1134
Height [mm]	1762
Thickness [mm]	30
Framing	Aluminum
Mass [kg]	21.5
Nominal Power [Watt]	450
Module Type	Monocrystalline
Installation	On Both Sides
Frame color	Aluminum
Temperature coefficient [%/°C]	-0.29
Efficiency STC	0.225
Output current MPP - STC [A]	13.66
Output voltage MPP - STC [V]	32.94
Short circuit current [A]	14.35
Open circuit voltage [V]	39.2
Temperature coefficient Current [%/K]	0.043
Temperature coefficient Voltage [%/K]	-0.25
Max. System voltage EU	1500
Max module backcurrent [A]	25
Galvanic separation required	No

FIXATION TYPE [ROOF_2 (SOUTH)]

Mounting system type HS Schiene HK 172

Article description:	HS rail HK 172
Item number:	710-400-112
Geometry:	
Length:	172 mm
Width:	31 mm
Height:	24 mm
Holes:	4 x 5 mm; 4 x 6 mm
Sealing tape:	EPDM

Connection component Sheet metal screw A2 6.0x25

Number of Connection Components 2

Number of Fixations 341

Max. Utilization of fixation points 99.68 %

Rail installation system Clamping direct

Endklemme
 Height-adjustable end clamp.
 Compatible with all sflex mounting rails with outer click technology (AK).
 Approval: Z-14.4-858
 Clamping range: 30-50 mm
 Clamp width: 35 mm
 Clamping overlap: 11 mm
 Material: Aluminium EN AW-6063 T6, extruded
 Screw fitting material: Stainless steel A2-70 A (anti-friction coating)

Max. utilization 91.6 %

Mittelklemme Mid Clamp MC AK II klick 30-50 A

Max. utilization 37.8 %

STATIC DETAILS [ROOF_2 (SOUTH)]

PV array mass	m_{array}	2,247.78 kg
PV array area	A_{array}	203.81 m ²
Dead load on PV array area	G_{array}	0.11 kN/m ²
Normal Dead load on PV array area	$G_{array,n}$	0.11 kN/m ²
Parallel Dead load on PV array area	$G_{array,p}$	0.019 kN/m ²
LK1, Normal force on PV array area	$F_{array,1,n}$	195.31 kN
LK1, Parallel force on PV array area	$F_{array,1,p}$	19.12 kN
LK2, Normal force on PV array area	$F_{array,2,n}$	219.36 kN
LK2, Parallel force on PV array area	$F_{array,2,p}$	13.14 kN
LK3, Normal force on PV array area	$F_{array,3,n}$	-336.48 kN
LK3, Parallel force on PV array area	$F_{array,3,p}$	4.78 kN
Module area	A_{pv}	2 m ²
Max. Load on Module, downward	$\text{Max} [Q_{1,n} Q_{2,n}]$	1.09 kN/m ²

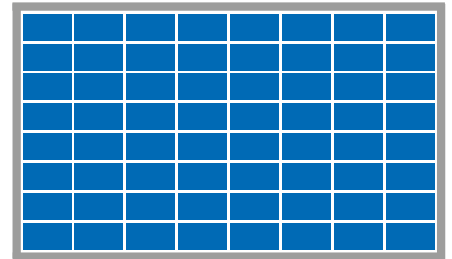
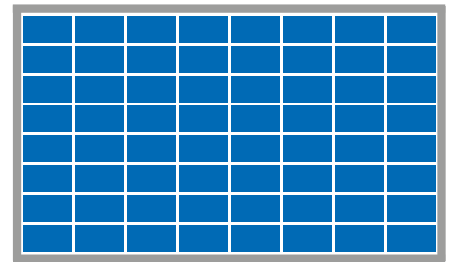
Max. Load on Module, upward

$Q_{3,n}$

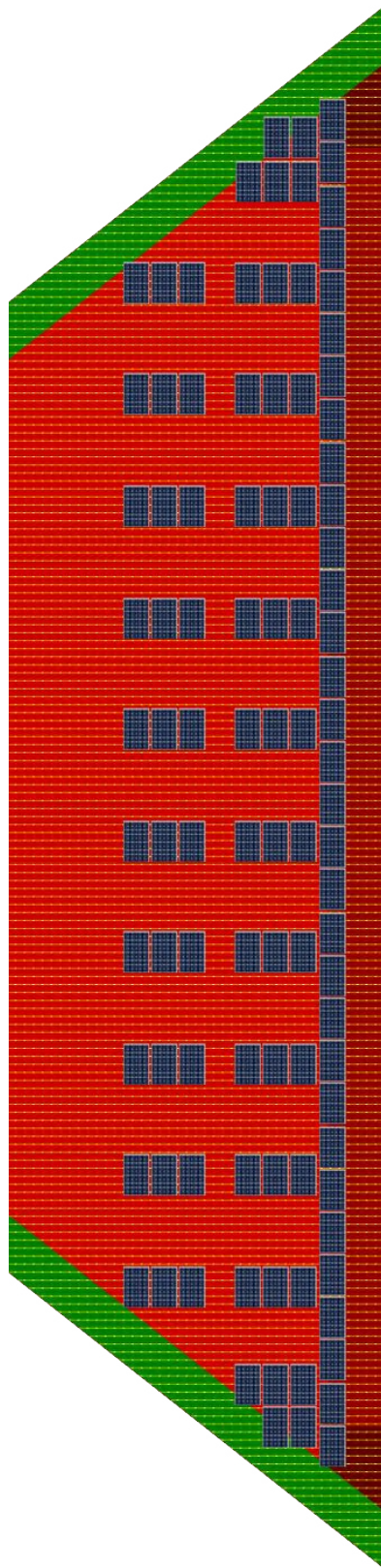
-1.68 kN/m²

MODULE LAYOUT PLAN [ROOF_2 (SOUTH)]

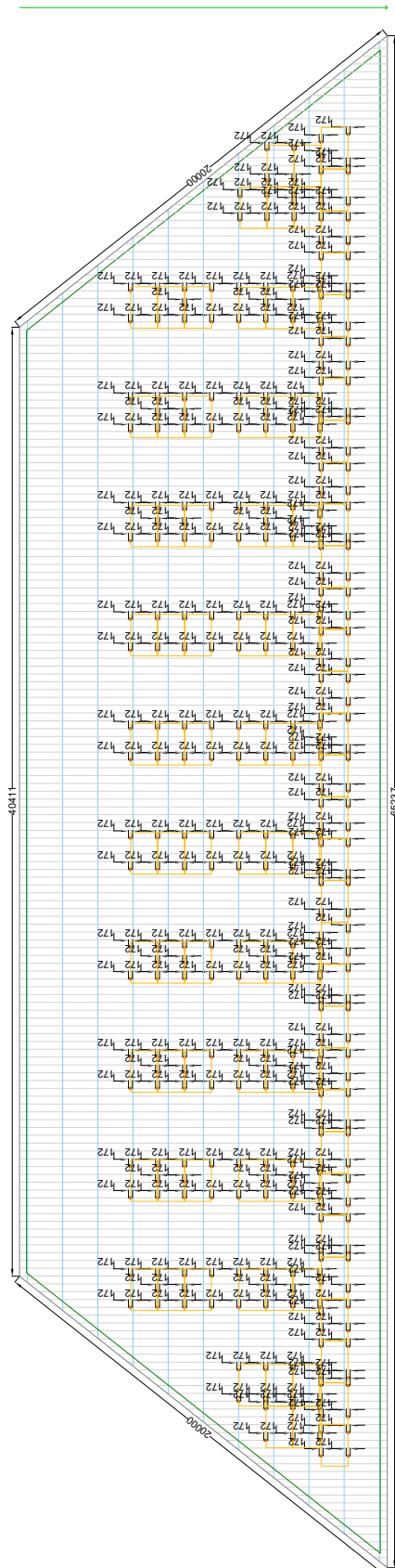
Alignment	Landscape
Horizontal module distance [mm]	20
Vertical module distance [mm]	20
Horizontal starting point (left bottom mm)	
Vertical starting point (left bottom in mm)	300
Distance to roof edge [mm]	300



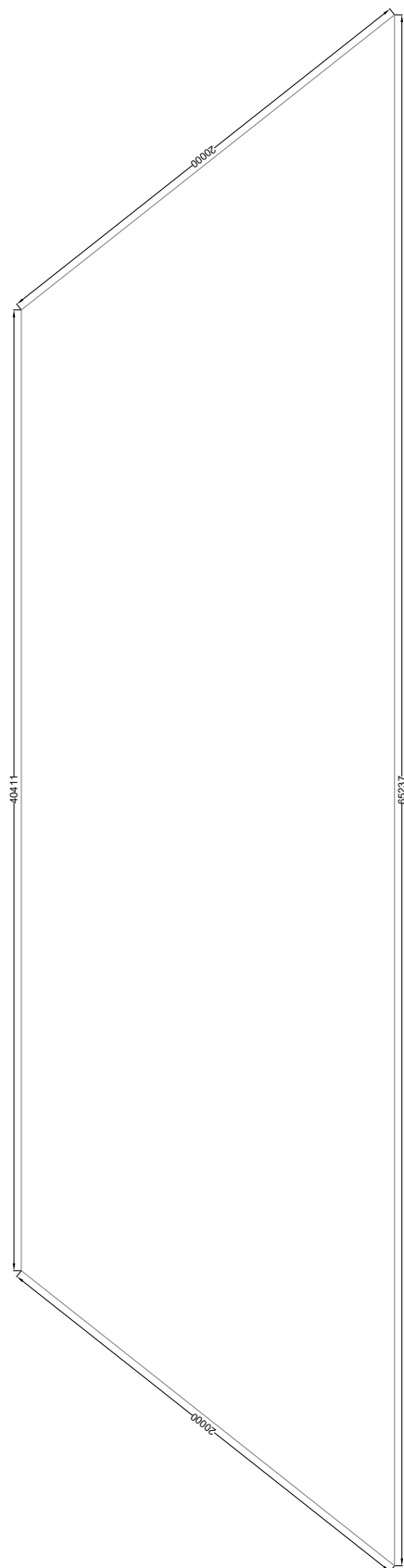
POSITION [ROOF_2 (SOUTH)]



INSTALLATION-PLAN [ROOF_2 (SOUTH)]



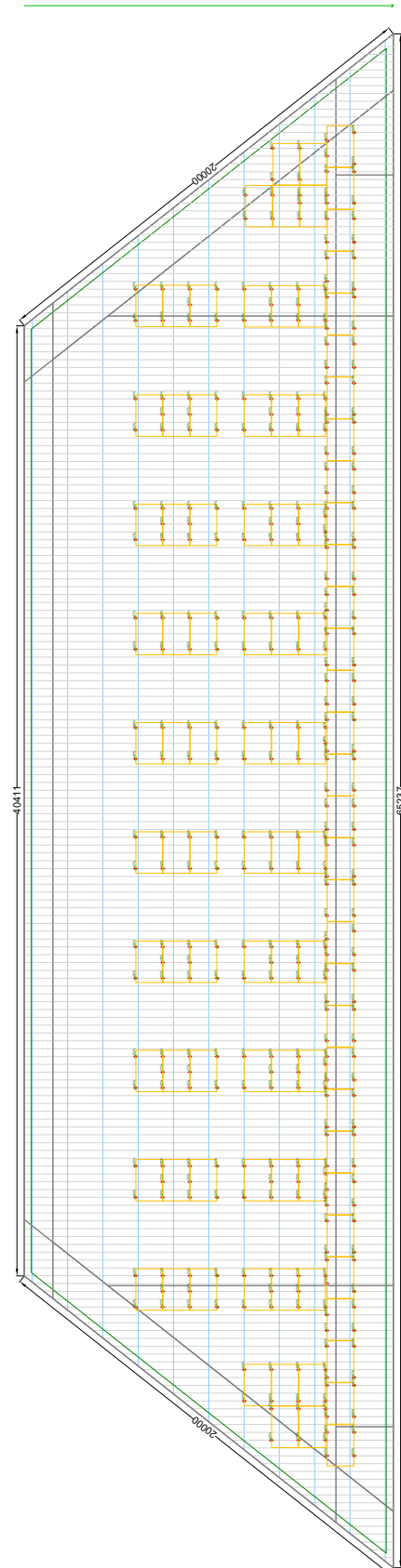
OUTLINE OF THE DEFINED AREA [ROOF_2 (SOUTH)]

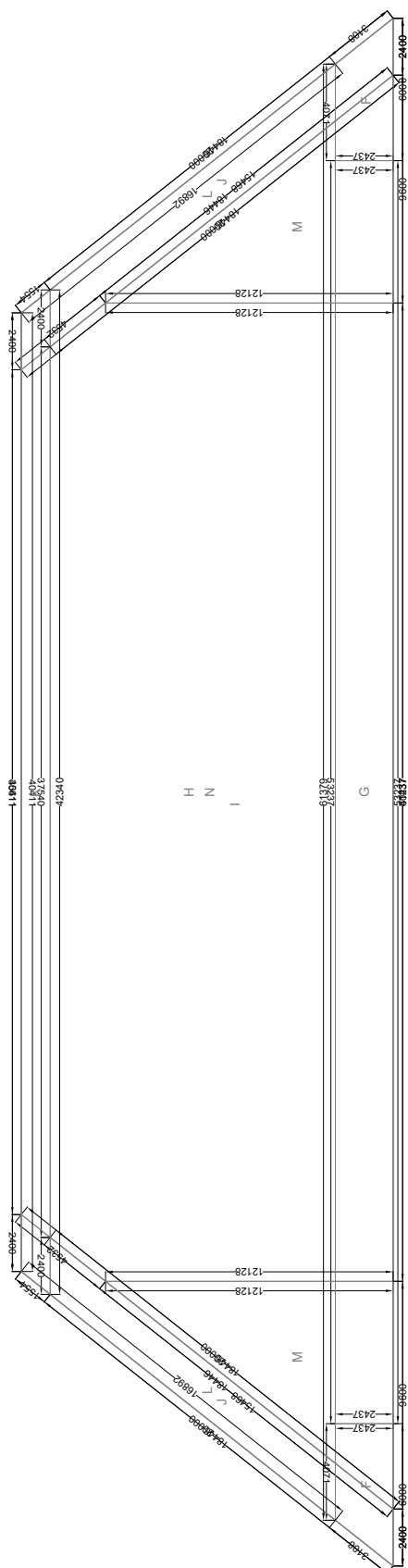


OUTLINE OF THE DEFINED AREA [ROOF_2 (SOUTH)]

Coordinate 0	X:	0	Y:	0	Z:	12
Coordinate 1	X:	65.237	Y:	0	Z:	12
Coordinate 2	X:	52.824	Y:	15.682	Z:	12
Coordinate 3	X:	12.413	Y:	15.682	Z:	12

UTILIZATION CAPACITY OF FASTENERS [ROOF_2 (SOUTH)]

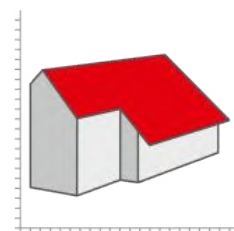




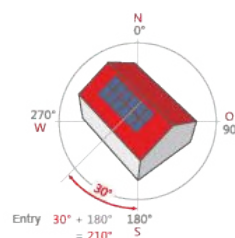
ROOF [ROOF_2 (WEST)]

Roof area [m²]	196.26
Building height h [m]	12
Eaves length c [m]	65.237
Pitch angle [°]	12.373
Roofing	Trapezoidal Sheet
System alignment [°]	270

Customized pitched roof



System alignment [°]*


SNOW LOAD ACCORDING TO BS EN 1991-1-3 NA:2003

Snow load [kN/m²]:	0.229
Site altitude above sea level [m]	40
Snow load zone:	Area 2
Pitch angle [°]	10

PEAK VELOCITY PRESSURE ACCORDING TO BS EN 1991-1-4:2005+A1:2010

Wind Load [kN/m²]*:	0.604
Terrain Category:	3
Building height h [m]:	12
Reference Height [m]	12
z-hdis	9.282
Distance to edge of City [km]	1.34
Distance to Ocean [km]	109.19

ROOF STRUCTURE [ROOF_2 (WEST)]

Distance between crowns i [mm] 333

Trapezoidal Sheet Height c [mm]* 35

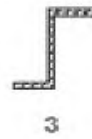
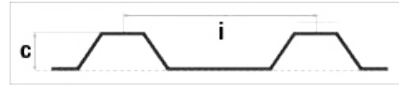
First crown after [mm] 100

Crown width [mm] 30

Roofing Material Steel

Sheet Thickness [mm]* 0.7

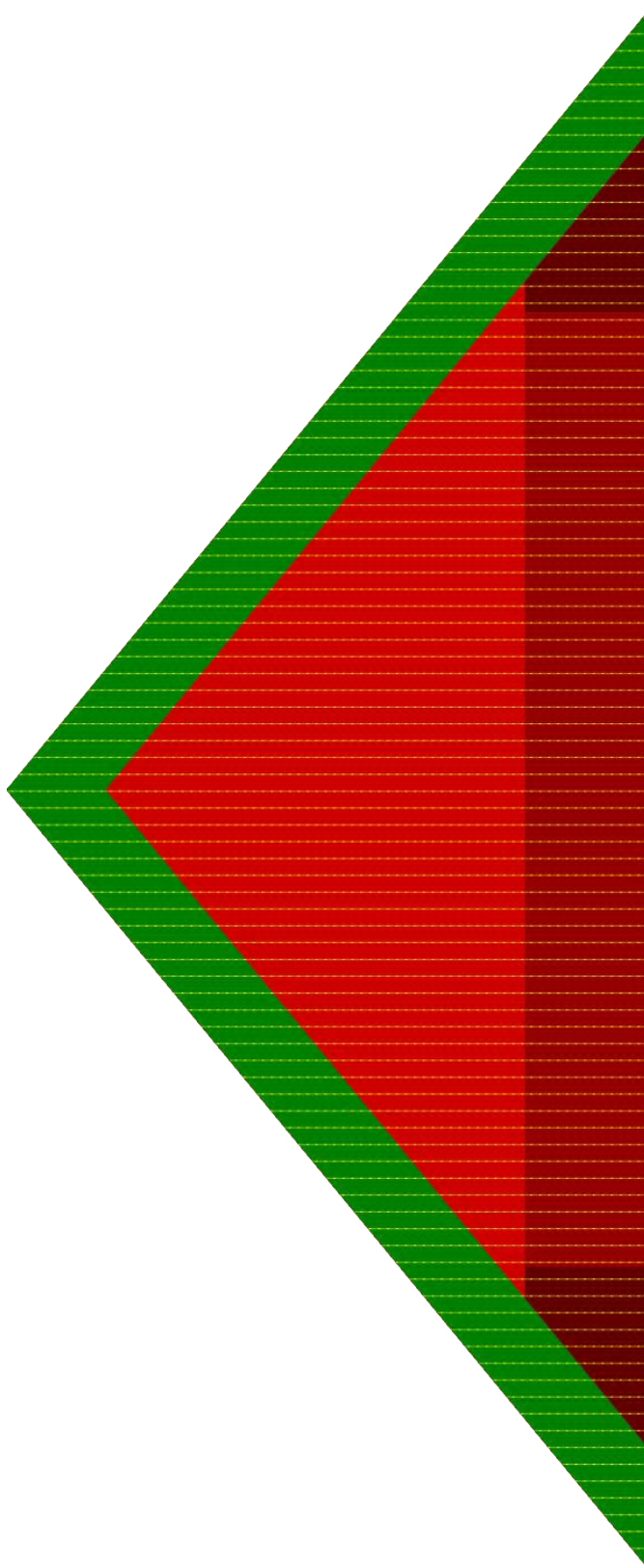
Roof beam type: 3



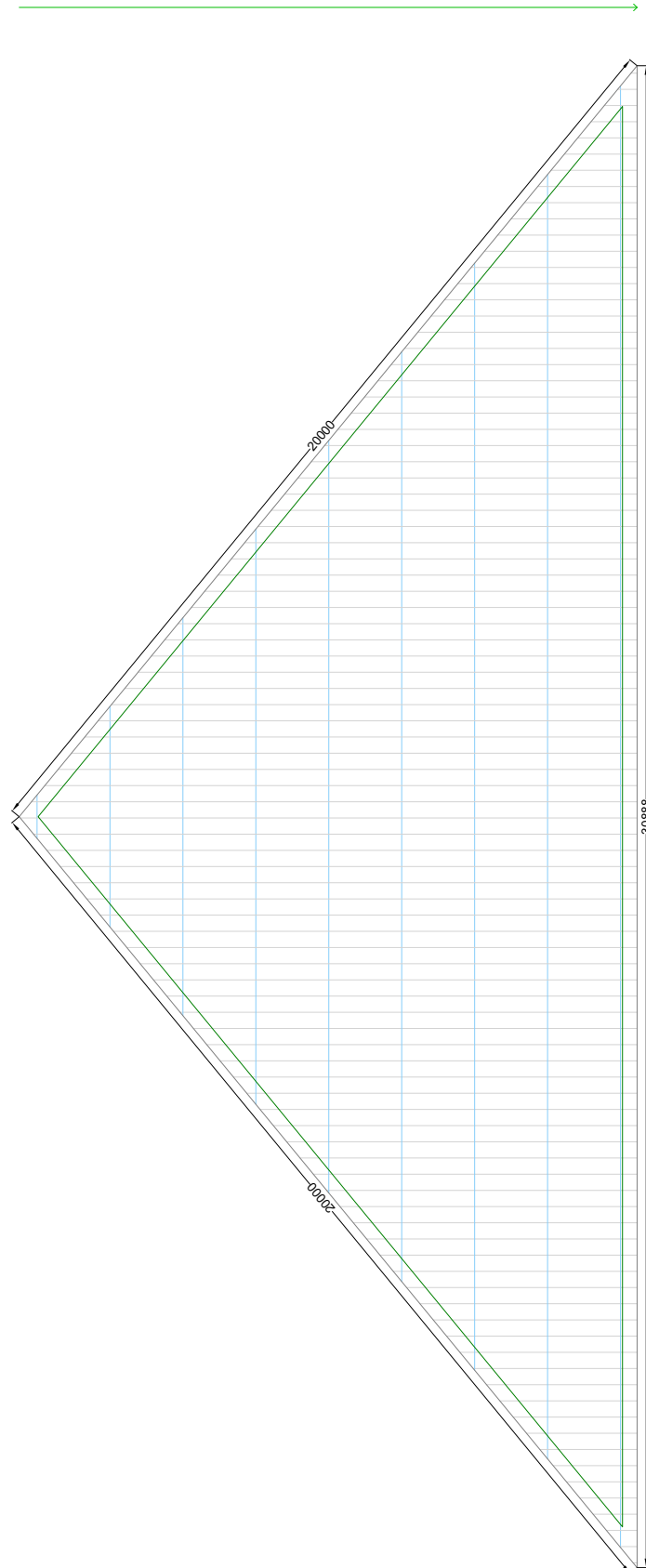
PV-MODULE [ROOF_2 (WEST)]

Manufacturer	Astronergy Co.,Ltd.
Name	CHSM54RNs-HC 450W
Width [mm]	1134
Height [mm]	1762
Thickness [mm]	30
Framing	Aluminum
Mass [kg]	21.5
Nominal Power [Watt]	450
Module Type	Monocrystalline
Installation	On Both Sides
Frame color	Aluminum
Temperature coefficient [%/°C]	-0.29
Efficiency STC	0.225
Output current MPP - STC [A]	13.66
Output voltage MPP - STC [V]	32.94
Short circuit current [A]	14.35
Open circuit voltage [V]	39.2
Temperature coefficient Current [%/K]	0.043
Temperature coefficient Voltage [%/K]	-0.25
Max. System voltage EU	1500
Max module backcurrent [A]	25
Galvanic separation required	No

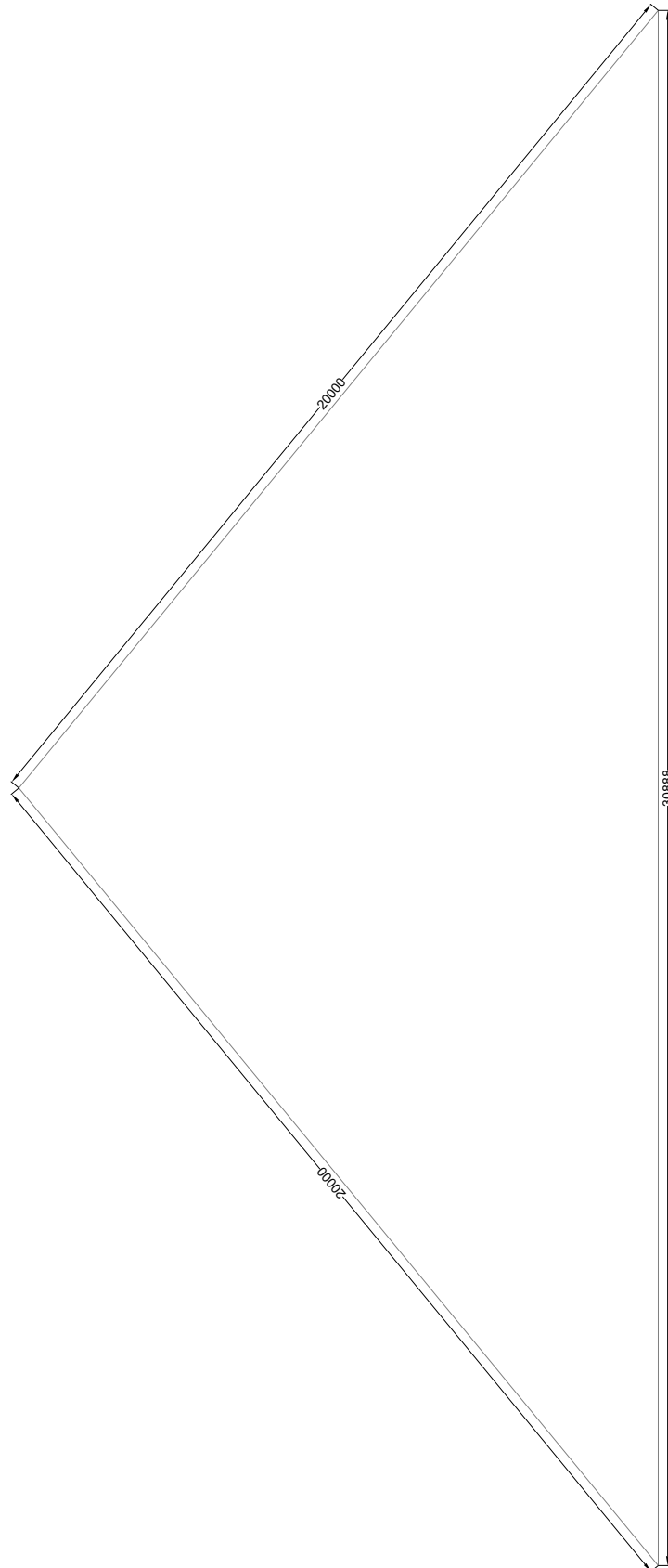
POSITION [ROOF_2 (WEST)]



INSTALLATION-PLAN [ROOF_2 (WEST)]



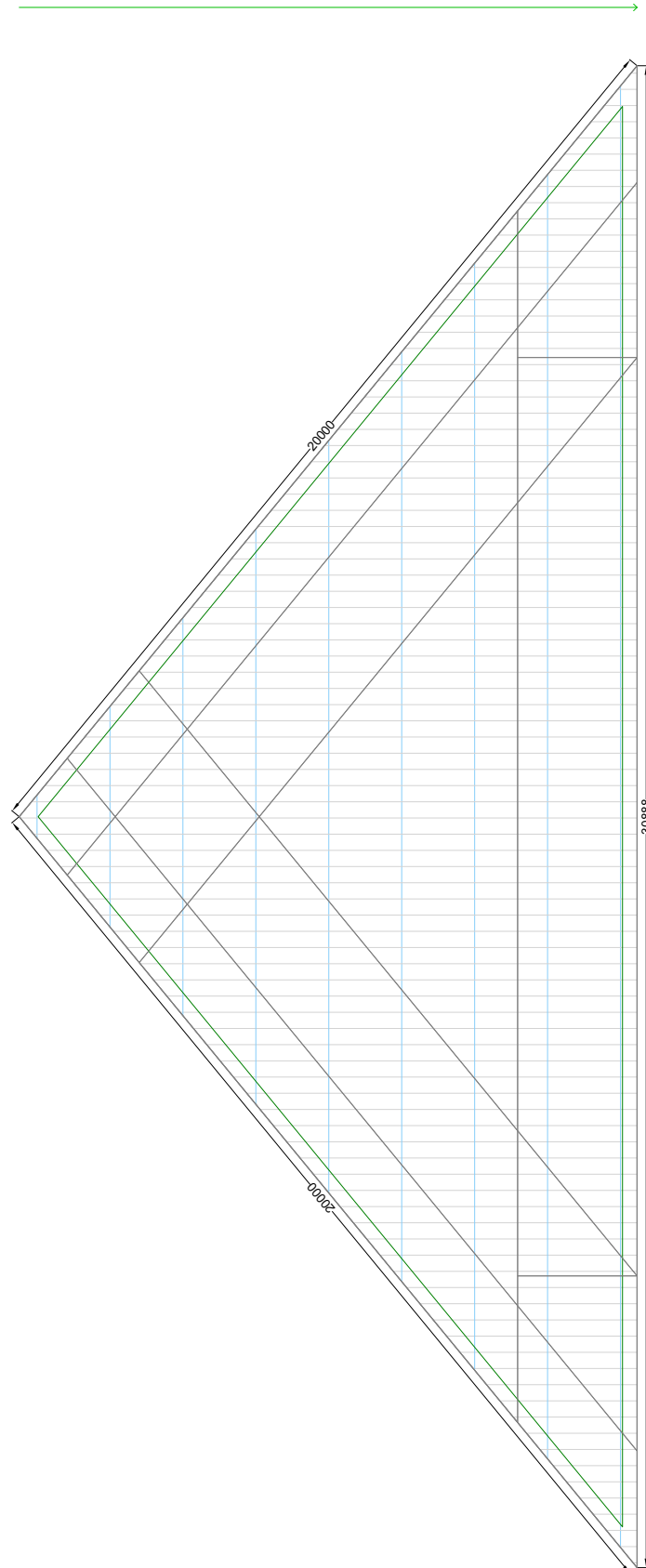
OUTLINE OF THE DEFINED AREA [ROOF_2 (WEST)]

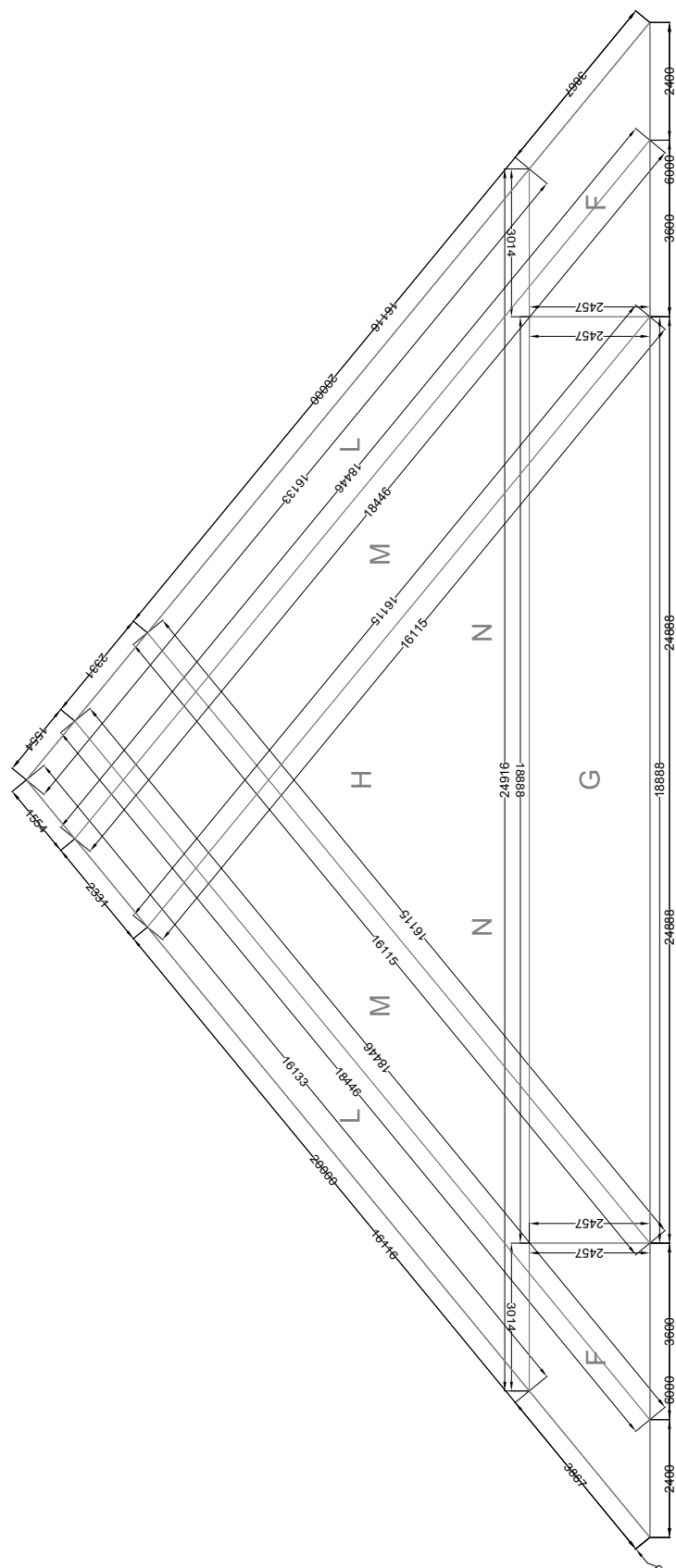


OUTLINE OF THE DEFINED AREA [ROOF_2 (WEST)]

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Coordinate 0	X:	30.888	Y:	0	Z:	12
Coordinate 0	X:	30.888	Y:	0	Z:	12
Coordinate 1	X:	15.444	Y:	12.708	Z:	12
Coordinate 1	X:	15.444	Y:	12.708	Z:	12
Coordinate 1	X:	15.444	Y:	12.708	Z:	12
Coordinate 2	X:	0	Y:	0	Z:	12
Coordinate 2	X:	0	Y:	0	Z:	12
Coordinate 2	X:	0	Y:	0	Z:	12

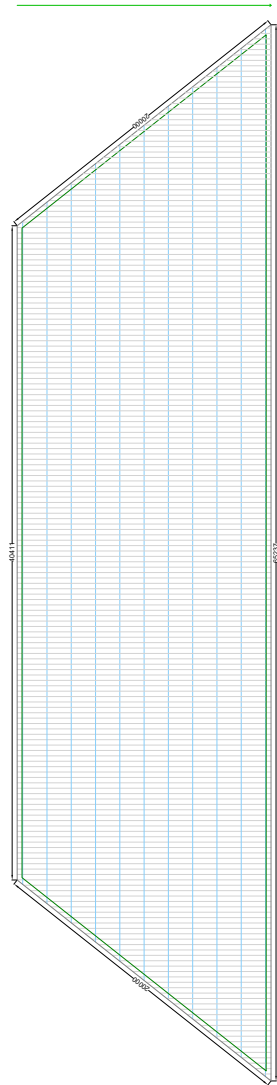
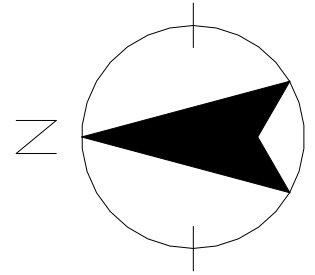
UTILIZATION CAPACITY OF FASTENERS [ROOF_2 (WEST)]





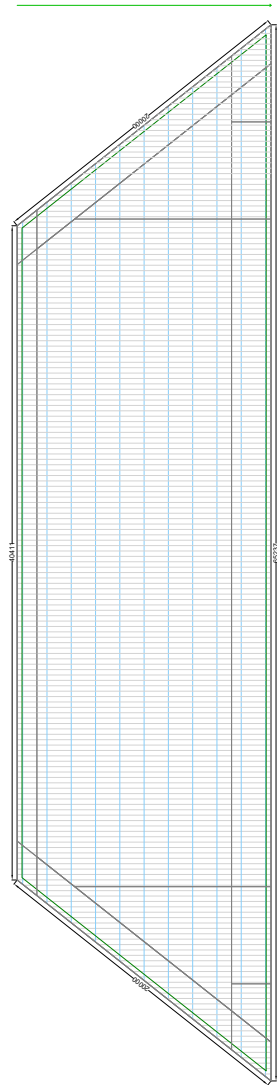
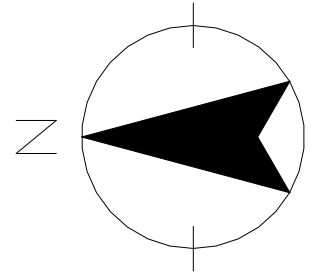
MATERIAL LIST TOTAL

Image	Part number	Description	Matchcode	Pck	Number	Anzahl exakt	Total weight (kg)	Length (mm)	Total length (mm)
	30-400-008	End Clamp AK II klick 30-50 A		10	470	465	28.200	--	--
	30-400-049	Mid Clamp MC AK II klick 30-50 A		40	320	283	16.000	--	--
	30-500-002	Slider lock XL AK A		20	240	233	5.760	--	--
	700-900-002	Sheet metal screw A2 6,0x25 E16		100	2200	2120	13.200	--	--
	710-400-112	HS rail HK 172		50	750	748	55.500	--	--
	720-800-004	Cable clip 0,7-3,0 mm KC 15		100	300	236	0.900	--	--
							119.56		--



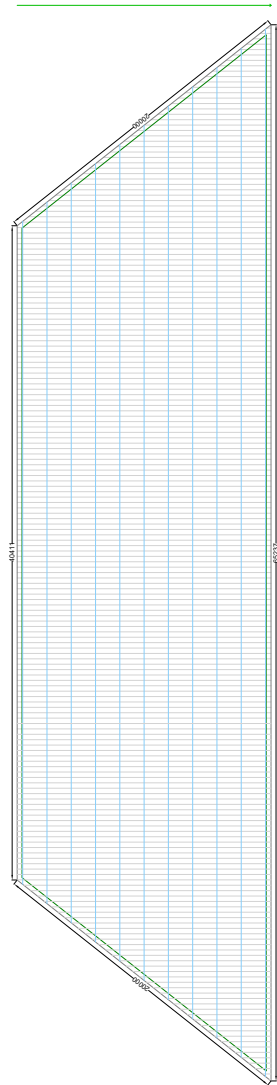
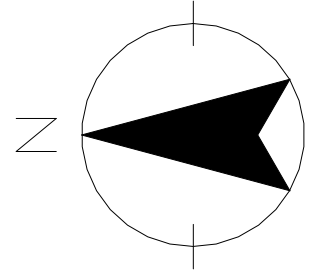
-- Depending on roofing
-- Roof sub structure

Department -	Technical reference -	Created by Roti	Approved by -	1:467
		Document type -	Status -	
		Title KSSE-26-298-01 Bennet Court - Carbon 3 Roof_2 (South)	SF_DE_hw1WQJFy	
		Vers. R1	Created 2/24/2026	Lang. DE
			Page 1/1	

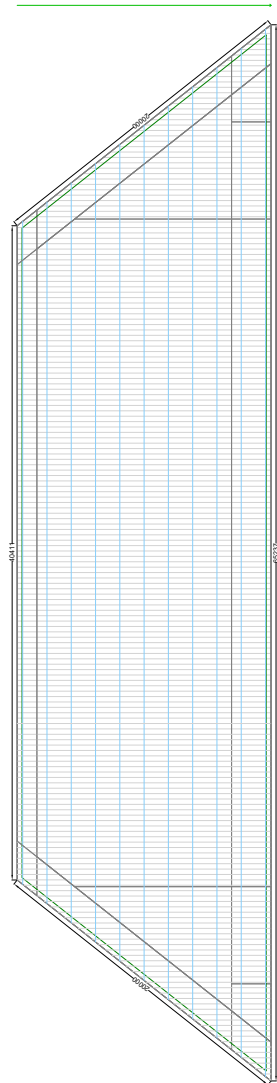
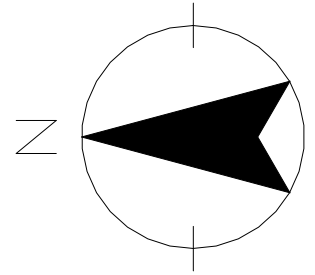


- ☐ Areas
- Depending on roofing
- Roof sub structure

Department -	Technical reference -	Created by Roti	Approved by -	1:467
		Document type -	Status -	
		Title KSSE-26-298-01 Bennet Court - Carbon 3 Roof_2 (South)	SF_DE_hw1WQJFy	
		Vers. R1	Created 2/24/2026	Lang. DE
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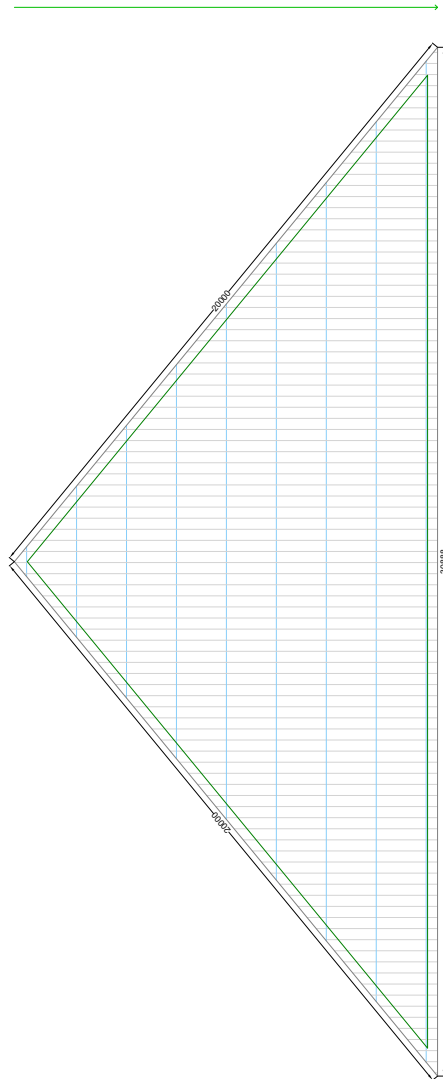
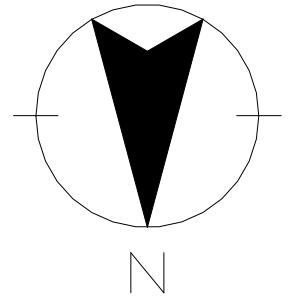


Department -	Technical reference -	Created by Roti	Approved by -	1:467
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		Vers. R1	Created 2/24/2026	Lang. DE
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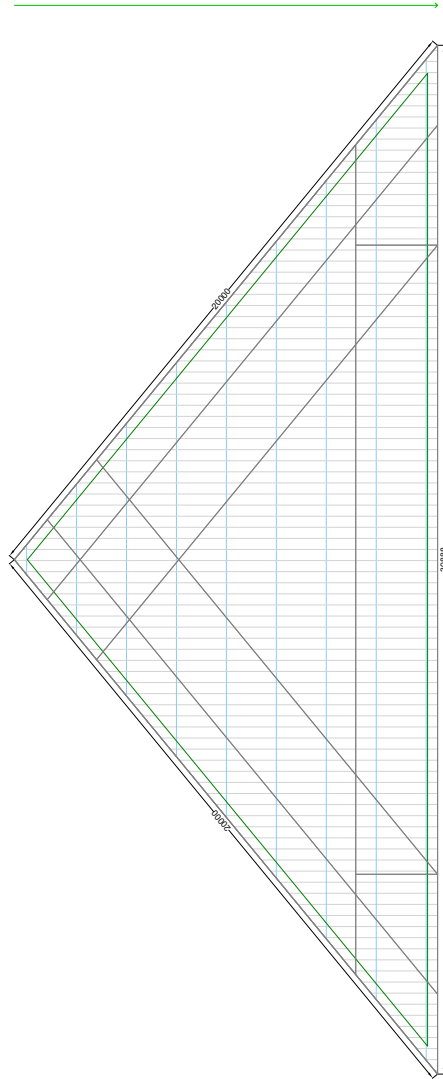
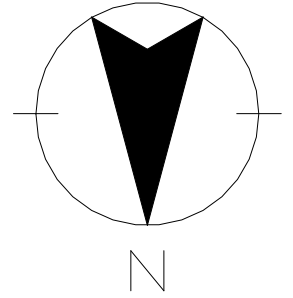
☐ Areas

Department -	Technical reference -	Created by Roti	Approved by -	1:467
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		Vers. R1	Created 2/24/2026	Lang. DE
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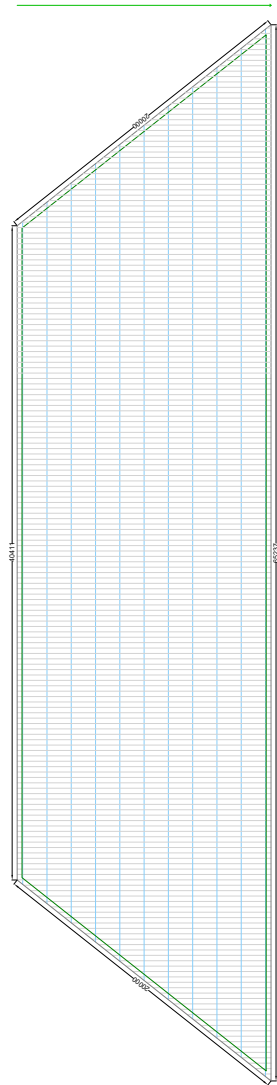
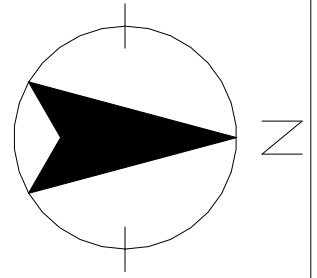
-- Depending on roofing
-- Roof sub structure

Department -	Technical reference -	Created by Roti	Approved by -	1:227
		Document type -	Status -	
		Title KSSE-26-298-01 Bennet Court - Carbon 3 Roof_2 (West)	SF_DE_hw1WQJFy	
		Vers. R1	Created 2/24/2026	Lang. DE
			Page 1/1	



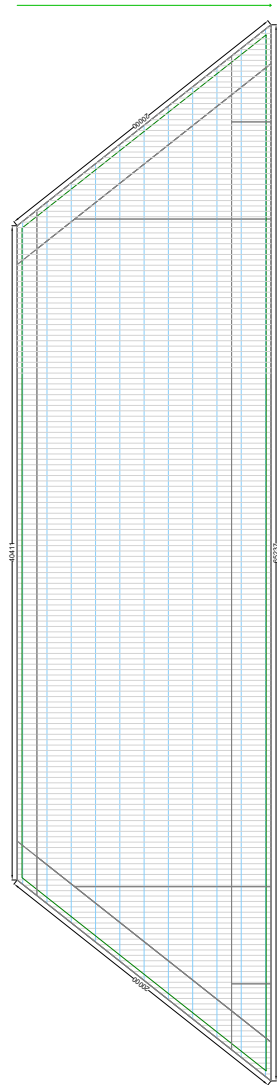
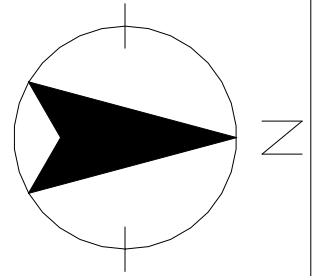
- ☐ Areas
- Depending on roofing
- Roof sub structure

Department -	Technical reference -	Created by Roti	Approved by -	1:227
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		Vers. R1	Created 2/24/2026	Lang. DE
			Page 1/1	



-- Depending on roofing
-- Roof sub structure

Department -	Technical reference -	Created by Roti	Approved by -	1:467
		Document type -	Status -	
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		Vers. R1	Created 2/24/2026	Lang. DE
			Page 1/1	



- ☐ Areas
- Depending on roofing
- Roof sub structure

Department -	Technical reference -	Created by Roti	Approved by -	1:467
		Document type -	Status -	
		Title KSSE-26-298-01 Bennet Court - Carbon 3 Roof_1 (North)	SF_DE_hw1WQJFy	
		Vers. R1	Created 2/24/2026	Lang. DE
			Page 1/1	

Bennet Road
Reading
RG2 0QX

Carbon3 Ltd
Unit 15 The Alders
Mereworth, Maidstone
Kent, ME18 5JG

Contact person:

Phone: 03003035688
E-Mail: office@carbon3.co.uk

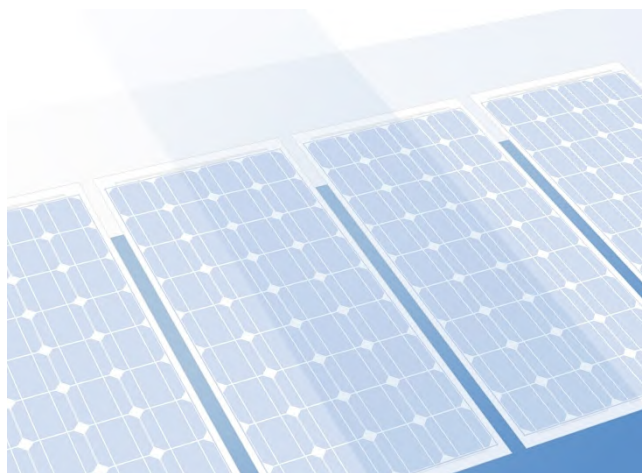
Project Name: Bennet Court

18/02/2026

Your PV system from Carbon3 Ltd

Address of Installation

Bennet Road
Reading
RG2 0QX



Project Overview

PV System

Grid-connected PV System

Climate Data	Bracknell, GBR (2001 - 2020)
Values source	Meteonorm 9.0
PV Generator Output	106.2 kWp
PV Generator Surface	471.6 m ²
Number of PV Modules	236
Number of Inverters	1

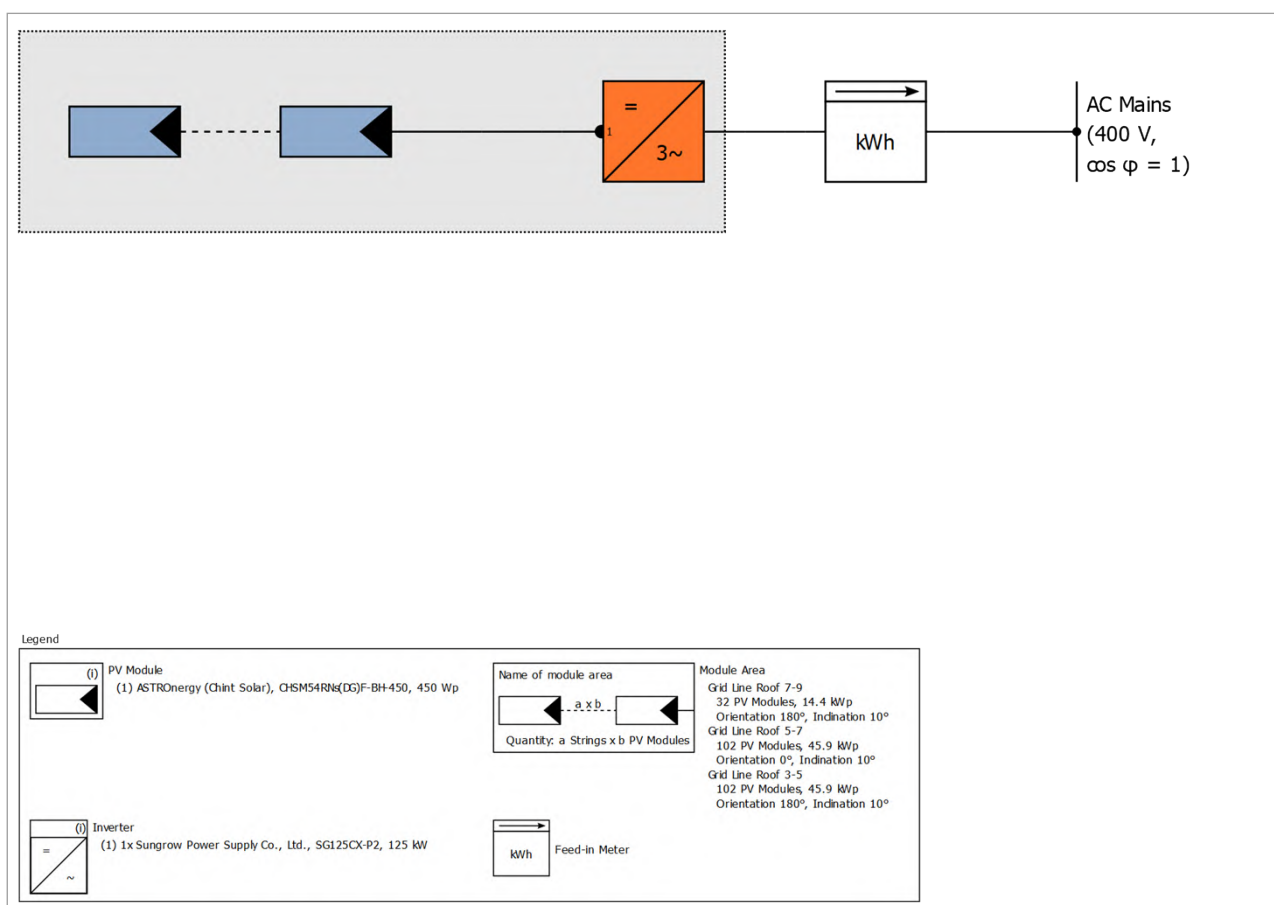


Figure: Schematic diagram

Production Forecast

Production Forecast

PV Generator Output	106.20 kWp
Spec. Annual Yield	864.27 kWh/kWp
Performance Ratio (PR)	86.10 %
Grid Export	91,804 kWh/Year
Grid Export in the first year (incl. module degradation)	91,602 kWh/Year
Standby Consumption (Inverter)	18 kWh/Year
CO ₂ Emissions avoided	18,724 kg / year

The results have been calculated with a mathematical model calculation from Valentin Software GmbH (PV*SOL algorithms). The actual yields from the solar power system may differ as a result of weather variations, the efficiency of the modules and inverter, and other factors.

Set-up of the System

Overview

System Data

Type of System	Grid-connected PV System
----------------	--------------------------

Climate Data

Location	Bracknell, GBR (2001 - 2020)
Values source	Meteonorm 9.0
Data resolution	1 h
Simulation models used:	
- Diffuse Irradiation onto Horizontal Plane	Hofmann
- Irradiance onto tilted surface	Hay & Davies

Module Areas

1. Module Area - Grid Line Roof 7-9

PV Generator, 1. Module Area - Grid Line Roof 7-9

Name	Grid Line Roof 7-9
PV Modules	32 x CHSM54RNs(DG)F-BH-450 (v1)
Manufacturer	ASTROnergy (Chint Solar)
Inclination	10 °
Orientation	South 180 °
Installation Type	Roof parallel
PV Generator Surface	63.9 m ²

2. Module Area - Grid Line Roof 5-7

PV Generator, 2. Module Area - Grid Line Roof 5-7

Name	Grid Line Roof 5-7
PV Modules	102 x CHSM54RNs(DG)F-BH-450 (v1)
Manufacturer	ASTROnergy (Chint Solar)
Inclination	10 °
Orientation	North 0 °
Installation Type	Roof parallel
PV Generator Surface	203.8 m ²

3. Module Area - Grid Line Roof 3-5

PV Generator, 3. Module Area - Grid Line Roof 3-5

Name	Grid Line Roof 3-5
PV Modules	102 x CHSM54RNs(DG)F-BH-450 (v1)
Manufacturer	ASTROnergy (Chint Solar)
Inclination	10 °
Orientation	South 180 °
Installation Type	Roof parallel
PV Generator Surface	203.8 m ²

Inverter configuration

Configuration 1

Module Areas	Grid Line Roof 7-9 + Grid Line Roof 5-7 + Grid Line Roof 3-5
Inverter 1	
Model	SG125CX-P2 (v19)
Manufacturer	Sungrow Power Supply Co., Ltd.
Quantity	1
Sizing Factor	85 %
Configuration	MPP 1: 1 x 16
	MPP 2: 1 x 16
	MPP 3: 1 x 21
	MPP 4: 1 x 21
	MPP 5: 1 x 20
	MPP 6: 1 x 20
	MPP 7: 1 x 20
	MPP 8: 1 x 21
	MPP 9: 1 x 21
	MPP 10: 1 x 20
	MPP 11: 1 x 20
	MPP 12: 1 x 20

AC Mains

AC Mains

Number of Phases	3
Mains voltage between phase and neutral	400 V
Displacement Power Factor (cos phi)	+/- 1

Simulation Results

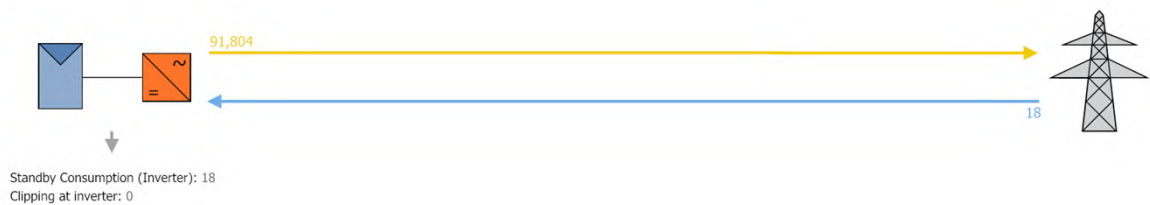
Results Total System

PV System

PV Generator Output	106.20 kWp
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Energy Flow Graph

Project: Bennet Court



All values in kWh
Small deviations in the totals can occur due to rounding
created with PV*SOL

Figure: Energy flow

Plans and parts list

Circuit Diagram

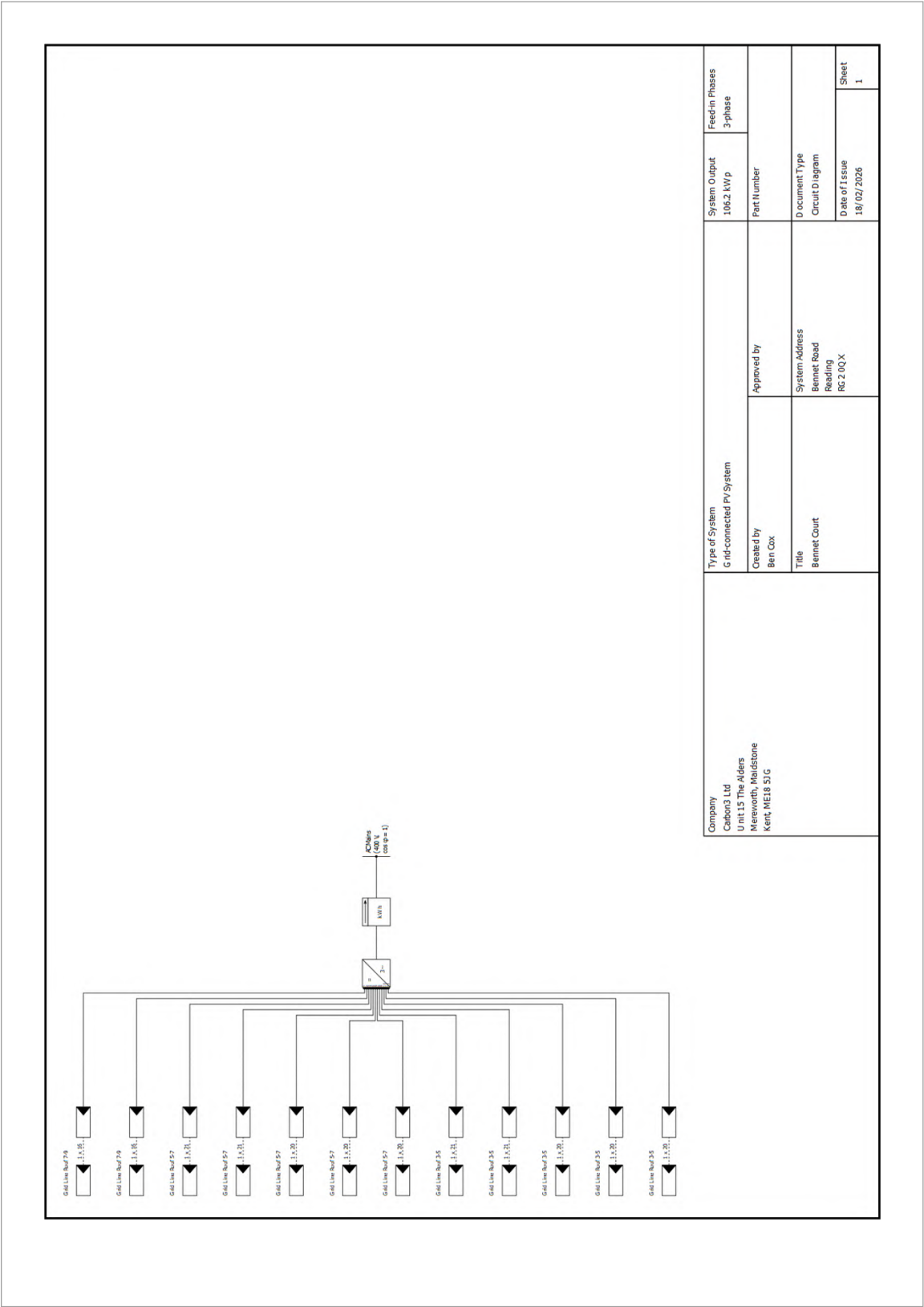
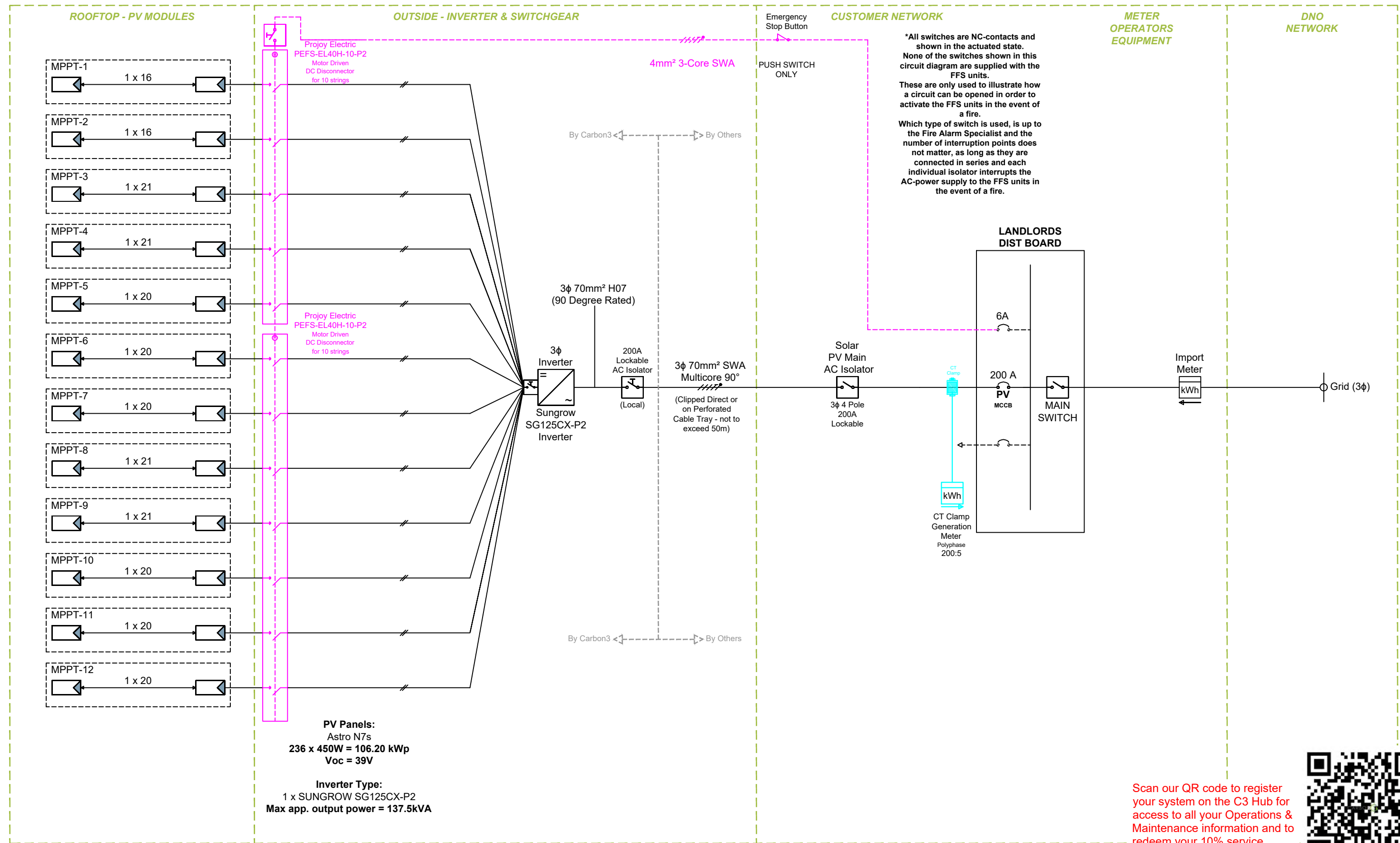


Figure: Circuit Diagram

Parts list

Parts list

#	Type	Item number	Manufacturer	Name	Quantity	Unit
1	PV Module		ASTROnergy (Chint Solar)	CHSM54RNs(DG)F-BH-450	236	Piece
2	Inverter		Sungrow Power Supply Co., Ltd.	SG125CX-P2	1	Piece
3	Components			Feed-in Meter	1	Piece



Scan our QR code to register your system on the C3 Hub for access to all your Operations & Maintenance information and to redeem your 10% service discount code!



106.20kWp Solar PV Electric Schematic: Bennet Court, Reading | Drawing No.SLD-001 | Rev: P01 | Date: 18/02/2026

Installer:



Unit 15, The Alders
Seven Mile Lane, Mereworth
Maidstone, Kent
ME18 5JG
+44 (0)300 303 56 88
office@carbon3.co.uk
www.carbon3.co.uk

Start-up sequence:

- 1) Ensure that all isolators and breakers in the Distribution Board area for the Solar PV installation are "on".
- 2) Ensure that the DC isolator(s) next to or on the inverter(s) are set to "1"("on").
- 3) Turn on the local mains AC isolator(s) next to the inverter(s).
- 4) Assuming sufficient daylight for generation, the "ON" or "Operation" light or the display will indicate that the system is functioning correctly.

Disconnection Sequence:

- 1) Turn off the mains AC at the isolator(s) next to the inverter(s). The inverter(s) will automatically and safely disconnect.
- 2) Turn off the DC isolator(s) next to or on the inverter(s) (set to "0").
- 3) Wait 5 minutes before removing cover.

ER G99/1-5 Inverter Settings:

- 1) Over Voltage 262.2V (1s) / 273.7V (0.5s)
- 2) Under Voltage 184V (2.5s)
- 3) Over Frequency 52Hz (0.5s)
- 4) Under Frequency 47.5Hz (20s) / 47Hz (0.5s)
- 5) Loss of Supply ROCOF 1.0Hz/sec (0.5s)
- 6) Reconnection Time 20sec minimum

DC Calculations

System Information

Module Characteristics	
Peak Power (Pmax) =	450
Module Efficiency =	23.3
Maximum Series Fuse Rating	30
Module Voc =	39.2
Module Isc =	14.35
Module Vmpp =	32.94
Module Impp =	13.66

[illegible]



ASTRONERGY



ASTRO N7s

CHSM54RNs(DG)/F-BH
Bifacial Series

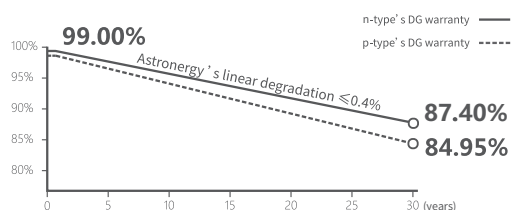
445~465W



Warranty

25 25-year Product Warranty

30 30-year Linear Power Warranty



n-type TOPCon 4.0

Novel upgrade, enhancing module efficiency



ZBB-TF (Tiling Film)

Zero-busbar integrated interconnection



Sleek Design

≤ 2 m² area, easy to transport and install



Integrated Appearance

Streamlined design without busbars or harpoon-like ribbons, perfect for upscale zero-carbon buildings



IEC 61215, IEC 61730
ISO 9001:2015:ISO Quality Management System
ISO 14001:2015:ISO Environment Management System
ISO 45001:Occupational Health and Safety
The first solar company which passed the Nord IEC/TS 62941 certification audit



Tier 1
BloombergNEF



445~465W

POWER RANGE

0~+3%

POWER SORTING

23.3%

MAX MODULE
EFFICIENCY

≤ 1.0%

FIRST YEAR
POWER DEGRADATION

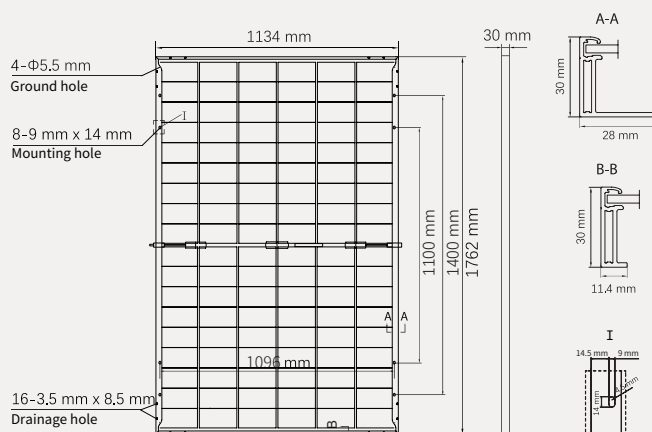
≤ 0.4%

YEAR 2-30
POWER DEGRADATION

Mechanical Specifications

Outer dimensions (L x W x H)	1762 x 1134 x 30 mm
Cell type	n-type mono-crystalline
No. of cells	108 (6*18)
Frame technology	Aluminum, black or silver anodized
Front / Back glass	1.6+1.6 mm
Cable length (Including connector)	Portrait: (+)350 mm,(-)250 mm; Customized length
Cable diameter (IEC/UL)	4 mm ² / 12 AWG
① Maximum mechanical test load	5400 Pa (front) / 2400 Pa (back)
Connector type (IEC/UL)	HCB40 (Standard) / MC4-EVO2A (Optional)
Module weight	21.5 kg
Packing unit	36 pcs / box
Weight of packing unit (for 40'HQ container)	820 kg
Modules per 40' HQ container	936 pcs (Subject to sales contract)

① Refer to Astronergy crystalline installation manual or contact technical department.
Maximum Mechanical Test Load=1.5×Maximum Mechanical Design Load.



Electrical Specifications

STC: Irradiance 1000W/m², Cell Temperature 25° C, AM=1.5

Rated output (P _{mp} / Wp)	445	450	455	460	465
Rated voltage (V _{mp} / V)	32.77	32.94	33.11	33.28	33.45
Rated current (I _{mp} / A)	13.58	13.66	13.74	13.82	13.90
Open circuit voltage (V _{oc} / V)	39.00	39.20	39.40	39.60	39.80
Short circuit current (I _{sc} / A)	14.26	14.35	14.44	14.52	14.60
Module efficiency	22.3%	22.5%	22.8%	23.0%	23.3%

NMOT: Irradiance 800W/m², Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s

Rated output (P _{mp} / Wp)	334.6	338.4	342.2	345.9	349.7
Rated voltage (V _{mp} / V)	30.85	31.01	31.16	31.32	31.48
Rated current (I _{mp} / A)	10.85	10.91	10.98	11.04	11.11
Open circuit voltage (V _{oc} / V)	37.04	37.23	37.42	37.61	37.80
Short circuit current (I _{sc} / A)	11.51	11.58	11.65	11.72	11.79

Electrical Specifications (Integrated power)

P _{mp} gain	P _{mp} / Wp	V _{mp} / V	I _{mp} / A	V _{oc} / V	I _{sc} / A
5%	478	33.39	14.31	39.40	15.16
10%	501	33.39	14.99	39.40	15.88
15%	523	33.39	15.67	39.40	16.60
20%	546	33.39	16.35	39.40	17.32
25%	569	33.39	17.03	39.40	18.04

Electrical characteristics with different rear power gain (reference to 455W)

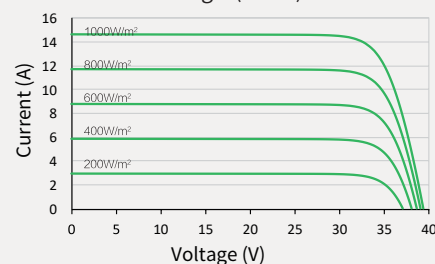
Temperature Ratings (STC)

Operating Parameters

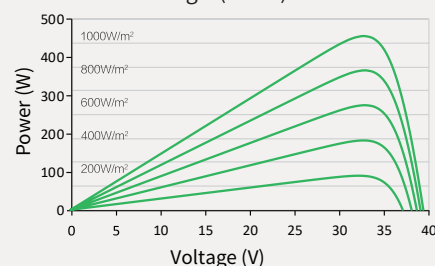
Temperature coefficient (P _{mp})	-0.29%/°C	No. of diodes	3
Temperature coefficient (I _{sc})	+0.043%/°C	Junction box IP rating	IP 68
Temperature coefficient (V _{oc})	-0.25%/°C	Max. series fuse rating	30 A
Nominal module operating temperature (NMOT)	41±2°C	Max. system voltage (IEC/UL)	1500V _{DC}

Curve

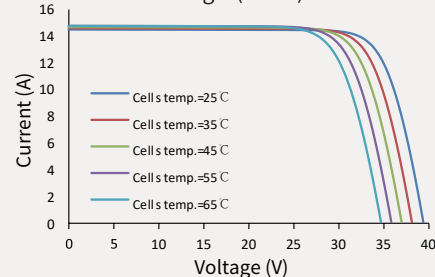
Current-Voltage (455W)



Power-Voltage (455W)



Current-Voltage (455W)



SG125CX-P2

Multi-MPPT String Inverter for 1000 Vdc System



HIGH YIELD

- 12 MPPTs with max. efficiency 98.5%
- DC 15A current input, compatible with over 500W+ PV module
- Dynamic shading optimization mode

SMART O&M

- Key component diagnosis and protection
- Smart IV Curve Diagnosis
- Grid fault record function, easy for remote O&M

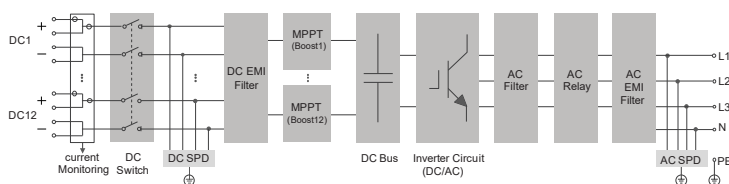
LOWER INVESTMENT

- Compatible max. 240mm² Al AC cables
- Drawer-style cable sealing plate support AC cable pre-assembly

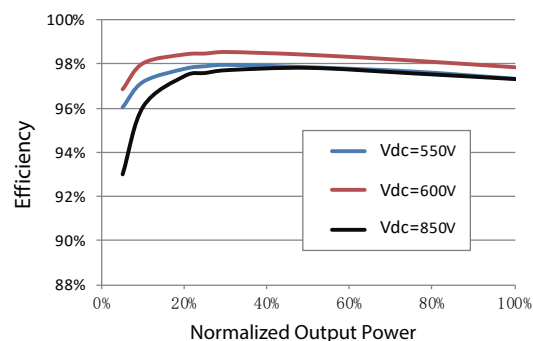
PROVEN SAFETY

- IP66 protection and C5 Anti-corrosion
- DC Type I+II SPD, AC Type II SPD
- Support AFCI 2.0 function

CIRCUIT DIAGRAM



EFFICIENCY CURVE



Type designation	SG125CX-P2
Input (DC)	
Recommended max. PV input power	175 kW
Max. PV input voltage *	1100 V
Min. PV input voltage / Startup input voltage	180 V / 200 V
Rated PV input voltage	600 V
MPPT voltage range **	180 V – 1000 V
No. of independent MPP inputs	12
No. of PV strings per MPPT	2
Max. PV input current	360 A (30 A * 12)
Max. DC short-circuit current	480 A (40 A * 12)
Max. current for DC connector	30 A
Output (AC)	
Rated AC output power	125 kW
Max. AC output apparent power	125 kVA
Max. AC output current	181.1 A
Rated AC output current(at 230V)	181.1 A
Rated AC voltage	3 / N / PE, 220 V / 380 V; 230 V / 400 V
AC voltage range	320 V – 480 V
Rated grid frequency	50 Hz / 60 Hz
Grid frequency range	45 Hz – 55 Hz / 55 Hz – 65 Hz
Harmonic (THD)	< 3 % (at rated power)
Power factor at rated power / Adjustable power factor	> 0.99 / 0.8 leading – 0.8 lagging
Feed-in phases / AC connection	3 / 3-N-PE
Efficiency	
Max. efficiency / European efficiency	98.5% / 98.3%
Protection & function	
Grid monitoring	Yes
DC reverse polarity protection	Yes
AC short-circuit protection	Yes
Leakage current protection	Yes
Surge protection	DC Type I + II / AC Type II
Ground fault monitoring	Yes
DC switch	Yes
PV string current monitoring	Yes
Arc fault circuit interrupter (AFCI)	Yes
PID recovery function	Yes
Optimizer compatibility ***	Optional
RSD compatibility ***	Optional
General data	
Dimensions (W * H * D)	1020 mm * 795 mm * 360 mm
Weight	≤ 93 kg
Mounting method	Wall-mounting bracket
Topology	Transformerless
Degree of protection	IP66
Night power consumption	< 5 W
Corrosion	C5
Operating ambient temperature range	-30 °C - 60 °C
Allowable relative humidity range (non-condensing)	0 % - 100 %
Cooling method	Smart forced air cooling
Max. operating altitude	4000 m
Display	LED, Bluetooth+APP
Communication	RS485 / WLAN (optional) / Ethernet (optional)
DC connection type	EVO2 (Max. 6 mm ²)
AC connection type	OT / DT terminal (Max. 240 mm ²)
AC cable specification	Outside diameter 30 mm - 60 mm
Grid compliance	IEC 62109-1, EN/IEC 61000-6-1/2/3/4, IEC 61727, IEC 62116, EN 50549-1/2, UTE C15-712-1, VDE V 0126-1-1, VDE-AR-N 4105:2018, VFR 2019, NC RfG, G99, UNE 217002, NTS, CEI 0-21 2019, CEI0-16 2019, NRS-097-2-1, IEC 63027
Grid support	Q at night function, LVRT, HVRT, active & reactive power control and power ramp rate controlramp rate control

* Input voltage exceeding the MPPT operating voltage range triggers inverter protection

** Please refer to the user manual for the full load MPPT voltage range

*** For optimizer & RSD compatibility, please consult Sungrow before placing an order



**Technical Data****TRAPEZOIDAL SHEET METAL RAIL AK**

Mounting rail for trapezoidal sheet metal roofs

**Save material and logistics costs**

All S:FLEX fastening systems for trapezoidal and corrugated sheet metal roofs combine a reliable roof connection and high rigidity suitable for heavier loads with significantly reduced material usage. This enables you to achieve higher margins for your projects.

Thanks to its length of 395 mm, the trapezoidal sheet metal rail AK l=395mm is easy to handle on the roof and easy to transport and store. Alternatively, the rail is also available in a length of 3150 mm.

Fast fitting, uncomplicated installation

The S:FLEX trapezoidal sheet metal rail AK complete is supplied pre-fabricated with 24 holes (5 mm) and EPDM sealing tape covered bottom side.

Using chip-free sheet metal screws, it can be quickly and directly fastened to the raised seams in one step and without pre-drilling.

The PV modules are attached in portrait mode with one-click clamps that make installation a snap.

TRAPEZOIDAL SHEET METAL RAIL AK

Mounting rail for trapezoidal sheet metal roofs

Technical Data

**Trapezoidal sheet metal rail
AK complete l=395 mm**



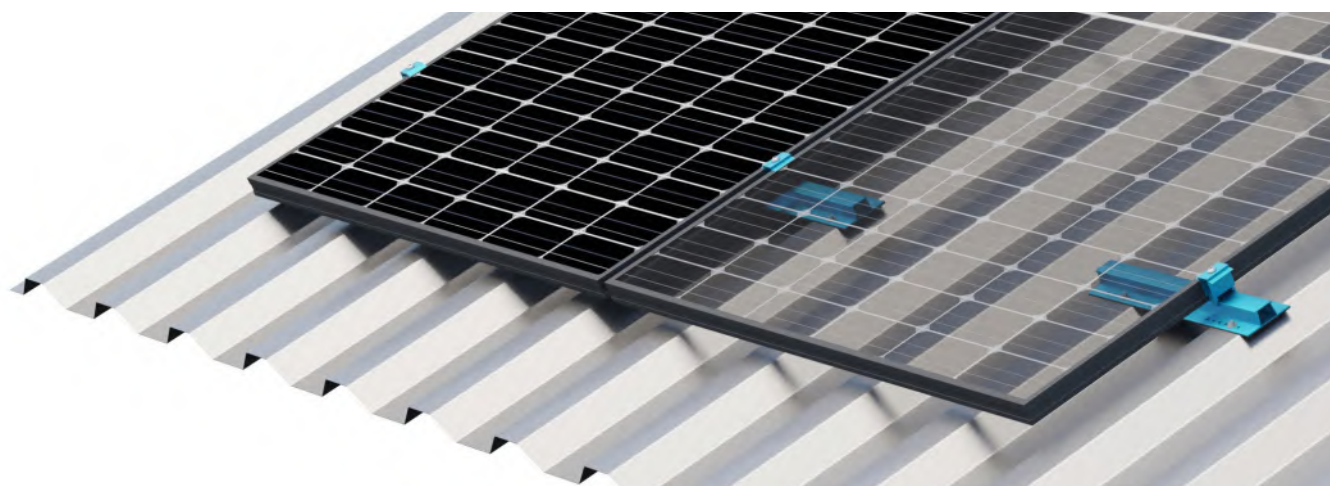
**End clamp
AK II Klick 30-50 A**



**Mid clamp
AK II Klick 30-50 A**

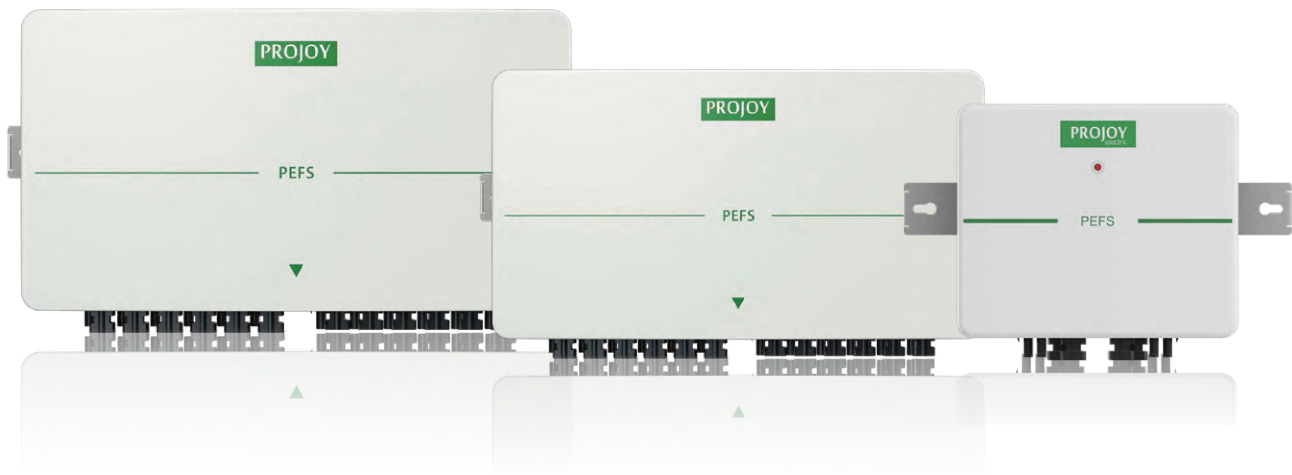


Application	Trapezoidal and corrugated sheet metal
Module type	Framed modules, all common sizes
Module orientation	Portrait
Roof pitch	75° max.
Module field length	7 m max.
Max. load	Up to 5.4 kN/m²
Fastening	Screwed onto raised corrugations
Contact surface seams	15 mm min. (when used on corrugated sheet metal, the fastening is made on the high point of the corrugation crest)
Sheet metal thickness	Sheet steel min. 0.5 mm Aluminium min. 0.5 mm
Material	Aluminium EN AW 6063 / T6, Stainless steel, EPDM seals
Colour	Natural, extruded finish



PEFS Series

Firefighter Switch (P2) 1~10 Strings



High Craftsmanship AND High Standards



Max 1500V
Max 50A



Arc Fault protection
(Optional)



PID recovery
(Optional)



Flame retardant
UL94-V0



Easy Installation



Physical isolation



Outdoor installation
IP65

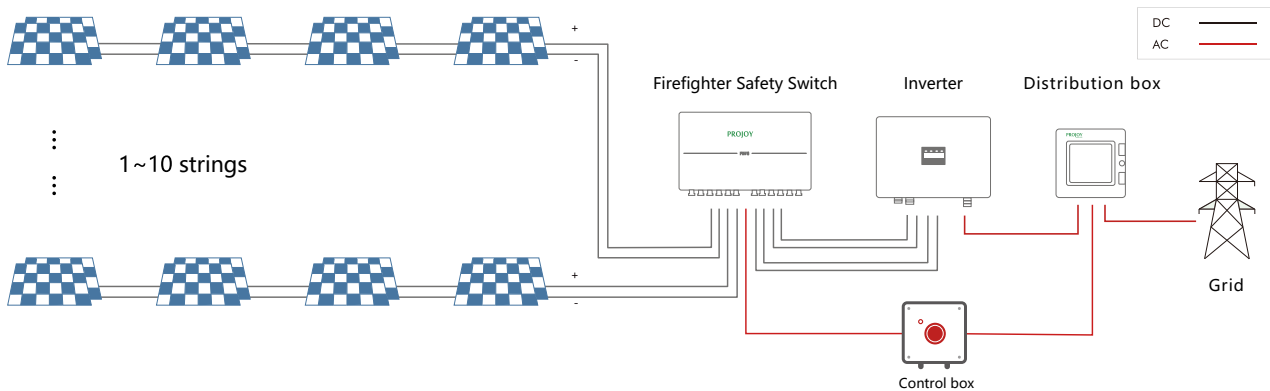


Over temperature
protection > 70 °C



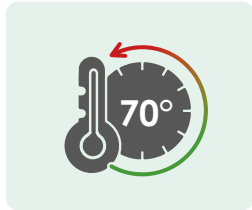
FB1 FB2
function achieves
external monitoring

Diagram

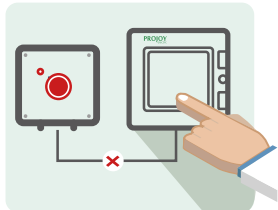


Tripping ways

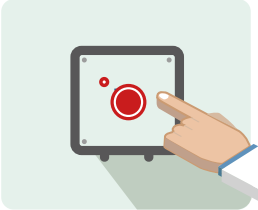
By temperature



By AC Power cut-off



By Manual



Technical data

Technical Parameter	1-2 strings	3-5 strings	6-10 strings
Main Parameters			
System voltage (Vdc)	300~1500		
Max current (A)	50		
Number of strings	1/2	3/4/5	6/8/10
Poles	2/4	6/8/10	12/16/20
Operating voltage	100Vac - 270Vac		
Nominal voltage	230Vac		
Nominal current	30mA	30mA	60mA
Operating temperature	-40°C - +70°C		
Automatically switch off by temperature	+70°C		
FB1 FB2 function (Standard configuration)	Contact Capacity: 250VAC,16A		
Storage temperature	-40°C - +85°C		
Ingress protection level	IP66	IP65	
Protection level	Class II		
Certification	CE		
Regulations compliance	EN 60947-1&3		
Mechanical life	10000		
Electrical life	>1500		
PID recovery function	/	optional	optional
Arc fault protection	/	optional	optional

Technical data

PID Recovery Module Spec (optional)		
AC Input	Static Power	<0.5W
	Operating Power	3.75W
	Max. Power	8.75W
DC Output	Rated Output Voltage To Ground	600V
	Rated Output Current	3.3mA
	Max. Short Circuit Current	6.7mA
PV Modules And Inverter Requirements	Max. System Volatage	1500V
	Module Type Required	P Crystalline Silicon Type
	Minimum Insulating Impendance	200kΩ
Other Info	Operating temperature Range	-20°C~+60°C
	Operating Relative Humidity	0%~98%
	Max. Altitude Without Derating	4000m

Data of PEFS refer to built-in DC isolators. Data according to IEC60947-3(ed.3.2):2015. Utilization category DC-PV 1.						1-10 strings	Part Number
300V	600V	800V	1000V	1200V	1500V		
16A	16A	16A	9A	6A	3A	2/4/6/8/10/12/16/20	PEFS-EL16-Y-P2
25A	25A	22A	11A	8A	4A	2/4/6/8/10/12/16/20	PEFS-EL25-Y-P2
32A	32A	26A	13A	10A	5A	2/4/6/8/10/12/16/20	PEFS-EL32-Y-P2
40A	40A	30A	20A	15A	13A	2/4/6/8/10/12/16/20	PEFS-EL40-Y-P2
55A	55A	45A	33A	33A	18A	2/4/6/8/10/12/16/20	PEFS-EL55-Y-P2
40A	40A	40A	40A	30A	20A	2/4/6/8/10/12/16/20	PEFS-EL40H-Y-P2
50A	50A	50A	50A	40A	30A	2/4/6/8/10/12/16/20	PEFS-EL50H-Y-P2

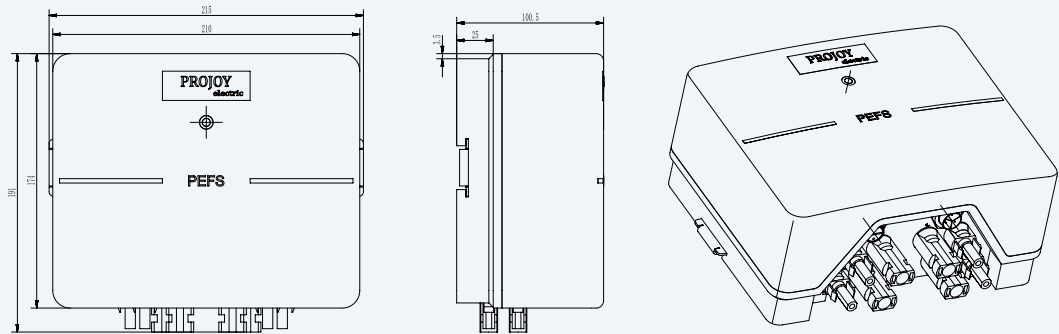
Contact Configuration

2	4	6/2*6	8/2*8	10/2*10

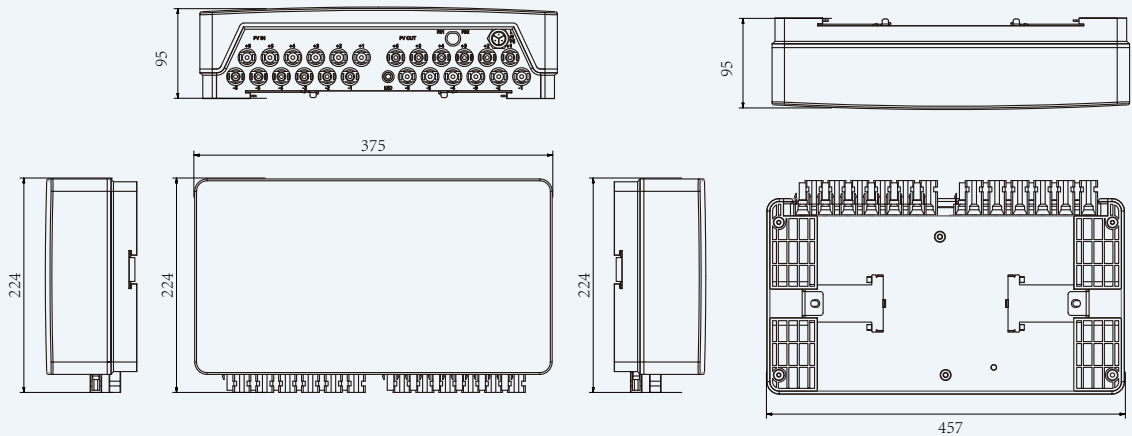
Dimensions

1-2 strings

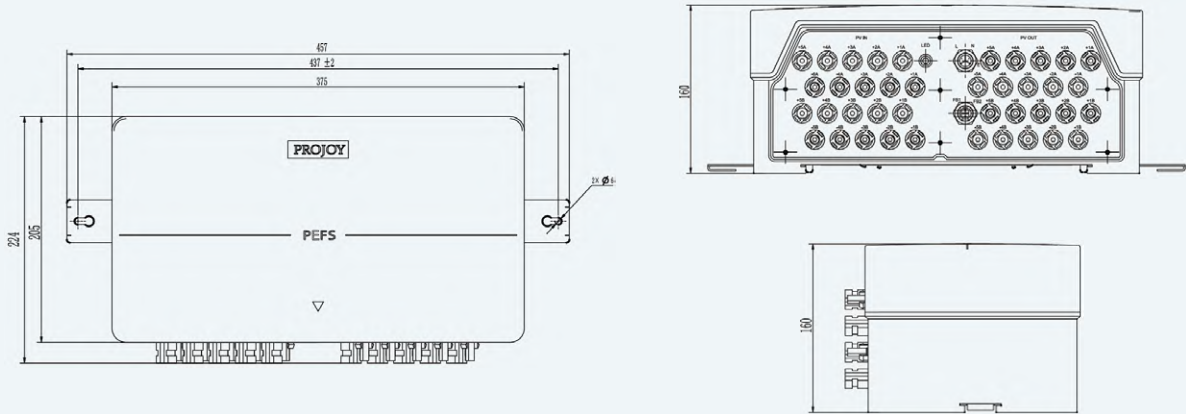
Unit: mm



3-5 strings



6-10 strings



The emlite EMP1 Three phase metering range offers high quality accurate meters that are suitable for direct connected domestic, commercial, Solar PV and light industrial applications.

Features -

- Fully MID approved
- 4 quadrant power measurement (Import and Export, Active and Reactive Energy)
- Optional Power Quality Information - Volts, Current, Power etc.
- Optional pulsed outputs
- Optical communications port
- Solid brass terminals

The EMP1.az and EMP1.av are the entry models of the emlite three phase metering range. They are suitable for a host of different applications where basic consumption or generation metering is required. The EMP1.az and EMP1.av variants covered in this information sheet are of solid high quality construction and benefit from features normally found in more expensive metering.



- Accuracy Class A or B (MID) [active energy] and Cl 2 [reactive energy*]
- 4 quadrant energy measurement
- Optional power quality information*
- Configurable pulsed outputs**
- Multiple terminal cover options (Short, Extended(Standard), Extended plus)
- Clear easy to read 8 digit LCD with specific symbols for different quantities.
- Solid Brass terminals
- Optional finger guard for main terminals

NB: * denotes standard setting, ** pulse set for kWh import as standard

Three Phase Whole Current Meter

EMP1.AV only

Pulsed Output

An opto-isolated pulse output can provide data for collection by an energy management system or AMR data logger. These pulses are output via the meter's auxiliary terminals.

The output conforms to IEC 62053-31.



Technical Data - Meter

Electrical

Voltage	Nominal voltage	3 x 230v
	Voltage withstand	400V continuously
Frequency	Nominal frequency	50Hz, variation $\pm 5\%$
Current	Basic current (Iref)	5, 10, 15 and 20*
	Maximum (Imax)	100A

Metrology

Accuracy	Active energy	Class B, to EN 50470 1-3*
	Reactive energy	Class 2, to IEC 62053-23

Environmental

Temperature Range -25°C to +55°C

Ingress protection IP54, to BS EN 60529

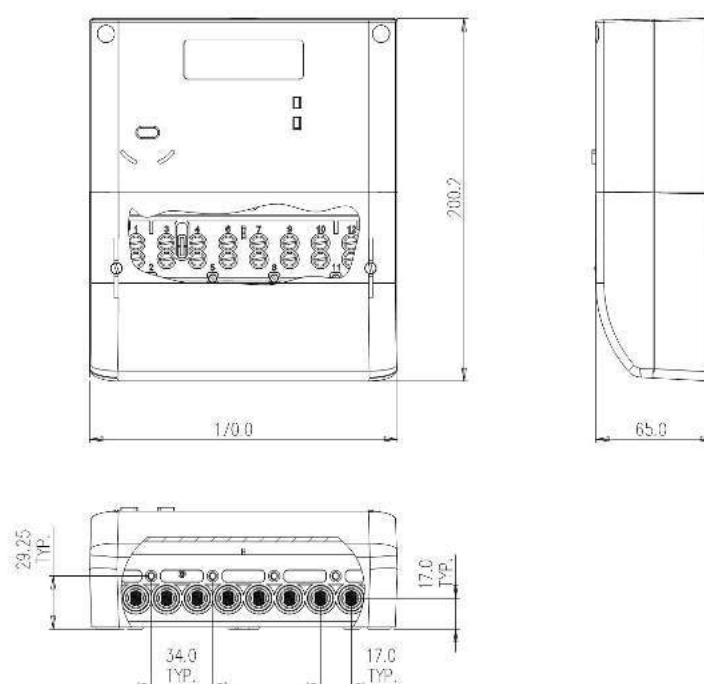
Physical

Terminal arrangement DIN43857-Part 2, fixing centres of 150 $\pm$ 1mm

Main Terminal size 8.2mm $\varnothing \pm 0.2$

Terminal Construction Solid brass

Dimensions



NB * denotes standard setting

Supplied by: J W Smart Meters Ltd, 1 Church Lane, Normanton, West Yorkshire, WF6 2DE.

Email: sales@smartelectricitymeters.co.uk Tel: 01924 891049 Fax: 01924 220846

Browse the full range of 3, 4, 6 & 8 pole Switch-Disconnectors over the page with options including steel, stainless steel & GRP enclosure types



Available in 20A up to 125A

Features

- IP65 Polycarbonate enclosure
- Switch Rating: AC-21 to AC-22
- 20mm Cable entries up to 40A & 25mm up to 63A
- 25 - 40A available in a larger enclosure for 20% more wiring room.



Heavy duty thermoplastic often used in industrial and engineering applications



Easy to Install

Light weight enclosure with two cable entries top & bottom for quick wiring.



Robust

IP65 durable polycarbonate enclosure for wider installation options & UV resistance for outdoor applications.



Enhanced Security

Padlockable in the OFF position to prevent unauthorised access.



3 Pole



3 Pole Polycarbonate Enclosed



3 Pole + Sw. Neutral
Polycarbonate Enclosed



3 Pole + Sw. Neutral
Steel Enclosed

4 Pole



4 Pole Polycarbonate Enclosed



4 Pole Metal Clad Enclosed



4 Pole Metal Clad Enclosed



4 Pole Stainless Steel Enclosed



4 Pole Steel Enclosed



4 Pole DC

6 Pole



6 Pole Polycarbonate Enclosed



6 Pole Steel Enclosed

8 Pole



8 Pole Polycarbonate & Steel

SOLAR ENERGY CABLE



APPLICATION

Standard solar cable intended for the connection of solar panel arrays and similar equipment. Suitable for internal and external installations, Fixed, or within conduit. Our solar cable is manufactured in accordance to BS EN 50618 and meets harmonised code of H1Z2Z2-K.

CABLE STANDARDS

BS EN 50618
EN 50288-3-7
EN 60068-2-78
EN 50395
Halogen free to EN 50267 / IEC 60754
Smoke Density: light transmittance according to EN 50267 / IEC 61034
Flame retardant to IEC/EN 60332-1-2
Ozone and UV Resistant to EN 60811-403, EN 50396 and EN ISO 4892-1/3,
Water Resistant to AD8

CONSTRUCTION

Conductor: Electrolytic annealed flexible tinned copper conductor (class 5)

Insulation: Cross Linked Halogen Free compound

Sheath: Cross Linked Halogen Free compound

Sheath Colour: ■ Black

CHARACTERISTICS

Nominal Voltage: 600V-1000V AC
1800V DC

HCl Content: <0.5%

pH: > 4.3

Conductivity: <10 IS/mm

Smoke Density: light transmittance: >60%

Test Voltage: 6.5kV AC

Temperature Limits

Ambient Temperature: -40 to 90°C

Maximum conductor temp: 120°C

Maximum short circuit temp: 250°C (max 5s)

Short Circuit temp: 250°C

Minimum Bending Radius:

As per cable manufacturer datasheet

Should not be installed at temperatures below 0°C

SOLAR ENERGY CABLE - DIMENSIONS

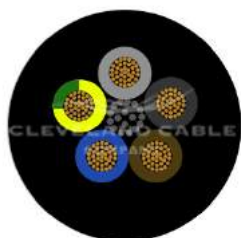
CCC CODE	CONDUCTOR SIZE (MM ²)	STRANDING (MM)	NO. OF CORES	WEIGHT (Kg/Km)	APPROX OVERALL DIAMETER (MM)
SOLAR1X1/5BK	1.5	30/0.25	1	40	4.90
SOLAR1X2/5BK	2.5	50/0.25	1	49	5.35
SOLAR1X4BK	4	56/0.30	1	66	6.00
SOLAR1X6BK	6	84/0.30	1	86	6.55
SOLAR1X10BK	10	80/0.40	1	132	7.60
SOLAR1X16BK	16	126/0.40	1	188	8.60
SOLAR1X25BK	25	196/0.40	1	294	10.80
SOLAR1X35BK	35	276/0.40	1	390	11.90
SOLAR1X50BK	50	396/0.40	1	540	14.00
SOLAR1X70BK	70	360/0.50	1	740	16.10
SOLAR1X95BK	95	475/0.50	1	965	17.50
SOLAR1X120BK	120	608/0.50	1	1210	19.50
SOLAR1X150BK	150	756/0.50	1	1495	21.80
SOLAR1X185BK	185	925/0.50	1	1885	25.00
SOLAR1X240BK	240	1221/0.50	1	2395	27.60

SOLAR ENERGY CABLE – CURRENT CARRYING CAPACITY / RESISTANCE

NOMINAL CROSS SECTIONAL AREA (MM ²)	ONE SINGLE CORE CABLE			MAXIMUM DC RESISTANCE AT 20°C	MAXIMUM DC RESISTANCE AT 90°C
	SINGLE CABLE IN FREE AIR	SINGLE CABLE FREE ON A SURFACE	TWO CABLES ADJACENT ON A SURFACE		
1.5	30	29	24	13.70	17.468
2.5	41	39	33	8.21	10.469
4	55	52	44	5.09	6.490
6	70	67	57	3.39	4.322
10	98	93	79	1.95	2.486
16	132	125	107	1.24	1.581
25	176	167	142	0.795	1.013
35	218	207	176	0.565	0.720
50	276	262	221	0.393	0.501
70	347	330	278	0.277	0.353
95	416	395	333	0.210	0.267
120	488	464	390	0.164	0.209
150	566	538	453	0.132	0.168
185	644	612	515	0.108	0.137
240	775	736	620	0.0817	0.104

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H07RN-F FLEXIBLE MAINS AND CONTROL CABLE BS EN 50525-2-21



APPLICATION

Flexible EPR cable with high resistance to mechanical stress. Able to withstand water and weather. For use on Work sites, mobile power supplies, ports and harbors, water treatment plants, sewage and drains, hot and cold areas and harsh industrial environments. For use in portable power supplies, site equipment, industrial machinery, and audio visual equipment. Can be cut to size for patch leads with a choice of fittings.

CONSTRUCTION

Conductor: Class 5 flexible stranded copper conductor to BS EN 60228

Insulation: EPR (Ethylene Propylene Rubber) to BS 50363

Sheath: PCP (Polychloroprene)
To BS EN 50363

CABLE STANDARDS

BS EN 50525-2-21

BS EN 60811-2-1

BS EN/IEC 60332-1-2

CHARACTERISTICS

Voltage Rating: 450/750 Volts

Temperature Limits: Fixed: -25°C to +60°C,
Can be supplied up to 90°C

Minimum Bending Radius: As per
manufacturer datasheet

CORE IDENTIFICATION

2 Core: Brown Blue

3 Core: Brown Blue G/Y

4 Core: Brown Blue Grey G/Y

5 Core: Brown Black Grey Blue
G/Y

Cable with 6 core and above

Black with White Numbers plus G/Y

Should not be installed below 0°C

H07RN-F FLEXIBLE MAINS AND CONTROL CABLE - DIMENSIONS

CCC CODE	CONDUCTOR SIZE (MM ²)	STRANDING (MM)	NO OF CORES	WEIGHT (KG/KM)	OVERALL MEAN DIAMETER (MM)	
					LOWER LIMIT	UPPER LIMIT
3182P	1	32/0.20	2	95	6.1	8
3183P1	1	32/0.20	3	115	6.5	8.5
3184P1	1	32/0.20	4	140	7.1	9.3
3182P1/5	1.5	30/0.25	2	132	7.6	9.8
3183P1/5	1.5	30/0.25	3	165	8	10.4
3184P1/5	1.5	30/0.25	4	200	9	11.6
3185P1/5	1.5	30/0.25	5	240	11.2	14.4
3187P1/5	1.5	30/0.25	7	385	14.6	18.2
3180/12P1/5	1.5	30/0.25	12	520	17.6	22.4
3180/19P1/5	1.5	30/0.25	19	700	21	26
3180/27P1/5	1.5	30/0.25	27	920	25.3	30
3180/37P1/5	1.5	30/0.25	37	1260	29	34.2
3182P2/5	2.5	50/0.25	2	193	9	11.6
3183P2/5	2.5	50/0.25	3	235	9.6	12.4
3184P2/5	2.5	50/0.25	4	290	10.7	13.8
3185P2/5	2.5	50/0.25	5	345	13.3	17
3187P2/5	2.5	50/0.25	7	520	17.2	21
3180/12P2/5	2.5	50/0.25	12	810	20.6	26.2
3181P4	4	50/0.25	1	94	7.2	9
3182P4	4	56/0.30	2	275	11.8	15.1
3183P4	4	56/0.30	3	320	12.7	16.2
3184P4	4	56/0.30	4	395	14	17.9
3185P4	4	56/0.30	5	485	15.6	19.9
3187P4	4	56/0.30	7	773	19.8	24.4
6381P6	6	84/0.30	1	130	7.9	9.8
6382P6	6	84/0.30	2	350	13.1	16.8
6383P6	6	84/0.30	3	495	14.1	18
6384P6	6	84/0.30	4	610	15.7	20
6385P6	6	84/0.30	5	760	17.5	22.9
6387P6	6	84/0.30	7	904	21.6	26.9
6381P10	10	80/0.40	1	230	17.7	22.6
6383P10	10	80/0.40	3	880	19.1	24.2
6384P10	10	80/0.40	4	1060	20.9	26.5
6385P10	10	80/0.40	5	1300	22.9	29.1
6381P16	16	126/0.40	1	320	10.8	13.4
6382P16	16	126/0.40	2	850	20.2	25.7
6383P16	16	126/0.40	3	1090	21.8	27.6
6384P1	16	126/0.40	4	1345	23.8	30.1
6385P16	16	126/0.40	5	1680	26.4	33.3

H07RN-F FLEXIBLE MAINS AND CONTROL CABLE - DIMENSIONS

CCC CODE	CONDUCTOR SIZE (MM ²)	STRANDING (MM)	NO OF CORES	WEIGHT (KG/KM)	OVERALL MEAN DIAMETER (MM)	
					LOWER LIMIT	UPPER LIMIT
6381P25	25	196/0.40	1	450	12.7	15.8
6382P25	25	196/0.40	2	1210	24.3	30.7
6383P25	25	196/0.40	3	1394	26.1	33
6384P22	5	196/0.40	4	1995	28.9	36.6
6385P25	25	196/0.40	5	2470	32	40.4
6381P35	35	276/0.4	1	605	14.3	17.9
6383P35	35	276/0.40	3	1850	29.3	37.1
6384P35	35	276/0.40	4	2645	32.5	41.1
6385P35	35	276/0.40	5	2930	34	43
6381P50	50	396/0.40	1	825	16.5	20.6
6383P50	50	396/0.40	3	2890	34.1	42.9
6384P50	50	396/0.40	4	3635	37.7	47.5
6385P50	50	396/0.40	5	4450	39.03	49.18
6381P70	70	360/0.50	1	1090	18.6	23.3
6383P70	70	360/0.50	3	3850	38.4	48.3
6384P70	70	360/0.50	4	4830	42.7	54
6385P70	70	360/0.50	5	5938	48.5	55
6381P95	95	475/0.50	1	1405	20.8	26
6383P95	95	475/0.50	3	4185	43.3	50
6384P95	95	475/0.50	4	6320	48.5	61
6385P95	95	475/0.50	5	6695	54	64.5
6381P120	120	608/0.50	1	1745	22.8	28.6
6383P120	120	608/0.50	3	5080	47.4	60
6384P120	120	608/0.50	4	6500	53	66
6385P120	120	608/0.50	5	7542	57.9	68.5
6381P150	150	756/0.50	1	1824	25.2	31.4
6383P150	150	756/0.50	3	6267	52	66
6384P150	150	756/0.50	4	8031	58	73
6381P185	185	925/0.50	1	2202	27.6	34.4
6383P185	185	925/0.50	3	7661	57	72
6384P185	185	925/0.50	4	9830	64	80
6381P240	240	1221/0.50	1	2847	30.6	38.3
6383P240	240	1221/0.50	3	9692	65	82
6384P240	240	1221/0.50	4	12444	72	91
6381P300	300	1525/0.50	1	3495	33.5	41.9
6381P400	400	2257/0.50	1	4880	45.5	56.5
6381P500	500	1769/0.60	1	5301	41.3	52
6381P630	630	2257/0.60	1	7460	45.5	56.5

H07RN-F CURRENT – CARRYING CAPACITY (AMPERES)

CONDUCTOR CROSS – SECTIONAL AREA MM ²	60°C CONDUCTOR OPERATING TEMPERATURE (60°C STANDARD STOCK CABLE)			85°C CONDUCTOR OPERATING TEMPERATURE (90°C CABLE - SPECIAL ORDER)		
	SINGLE-PHASE AC OR DC *1MM – 2.5MM AC ONLY		THREE-PHASE AC	SINGLE-PHASE AC OR DC		THREE-PHASE AC
	2 CORE CABLE WITH OR WITHOUT PROTECTIVE CONDUCTOR	2 SINGLE CORE CABLES	3, 4 OR 5 CORE CABLE	2 CORE CABLE WITH OR WITHOUT PROTECTIVE CONDUCTOR	2 SINGLE CORE CABLES TOUCHING	3, 4 OR 5 CORE CABLE
1	2	3	4	5	6	7
(MM ²)	(A)	(A)	(A)	(A)	(A)	(A)
1*	10	-	10	-	-	-
1.5*	16	-	16	-	-	-
2.5*	25	-	20	-	-	-
4	30	-	26	41	-	36
6	39	-	34	53	-	47
10	51	-	47	73	-	64
16	73	-	63	99	-	86
25	97	-	83	131	-	114
35	-	140	102	-	192	140
50	-	175	124	-	240	170
70	-	216	158	-	297	216
95	-	258	192	-	354	262
120	-	302	222	-	414	303
150	-	347	255	-	476	348
185	-	394	291	-	540	397
240	-	471	343	-	645	467
300	-	541	394	-	741	537
400	-	644	-	-	885	-
500	-	738	-	-	1017	-
630	-	861	-	-	1190	-

THE ABOVE IS IN ACCORDANCE WITH 18TH EDITION OF IET WIRING REGULATIONS

H07RN-F - VOLTAGE DROP

NOMINAL CROSS SECTIONAL AREA MM²	2 CORE CABLE DC mV/A/m	TWO CORE CABLE SINGLE-PHASE AC mV/A/m			1 X THREE CORE, FOUR CORE OR FIVE CORE CABLE, THREE PHASE AC			2 X SINGLE CORE CABLES TOUCHING			
								DC mV/A/m	SINGLE PHASE AC * mV/A/m		
1	46	46			40			-	-		
1.5	32	32			27			-	-		
2.5	19	19			16			-	-		
4	12	12			10			-	-		
6	7.8	7.8			6.7			-	-		
10	4.6	4.6			4			-	-		
16	2.9	2.9			2.5			-	-		
		R	X	Z	R	X	Z		R	X	Z
25	1.8	1.8	0.175	1.85	1.55	0.15	1.55	-	-	-	-
35	-	-	-	-	1.10	0.15	1.15	1.31	1.31	0.21	1.32
50	-	-	-	-	0.83	0.145	0.84	0.91	0.91	0.21	0.93
70	-	-	-	-	0.57	0.14	0.58	0.64	0.64	0.2	0.67
95	-	-	-	-	0.42	0.135	0.44	0.49	0.49	0.195	0.53
120	-	-	-	-	0.33	0.135	0.36	0.38	0.38	0.19	0.43
150	-	-	-	-	0.27	0.13	0.3	0.31	0.31	0.19	0.36
185	-	-	-	-	0.22	0.13	0.26	0.25	0.25	0.19	0.32
240	-	-	-	-	0.17	0.13	0.21	0.19	0.195	0.185	0.27
300	-	-	-	-	0.135	0.125	0.185	0.15	0.155	0.18	0.24
400	-	-	-	-	-	-	-	0.115	0.12	0.175	0.21
500	-	-	-	-	-	-	-	0.09	0.099	0.17	0.2
630	-	-	-	-	-	-	-	0.068	0.079	0.17	0.185

THE ABOVE IS IN ACCORDANCE WITH 18TH EDITION OF IET WIRING REGULATIONS

CONDUCTOR OPERATING TEMPERATURE: 90°C

R = RESISTIVE COMPONENT

X = REACTIVE COMPONENT

Z = IMPEDANCE VALUE

* A LARGER VOLTAGE DROP WILL RESULT IF THE CABLES ARE SPACED APART

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MC4 & MC4-Evo 2 for low-voltage DC applications up to 100 A

Stäubli Description Report

MC4

Connector



PV-KBT4...



PV-KST4...

Receptacle



PV-ADBP4-S2...



PV-ADSP4-S2...

MC4-Evo 2

Connector



PV-KBT4-EVO 2/...-UR



PV-KST4-EVO 2/...-UR

Receptacle



PV-ADB4-EVO 2



PV-ADS4-EVO 2

Consumer electronics

Communications equipment

Automation and robotics

Automotive

Aerospace and Defense

Medtech

Other industries



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1. Information on standards and certifications

MC4 & MC4-Evo 2 connectors and panel receptacles offer a cost-effective, high-quality solution for low voltage DC applications up to 1500 V, 100 A and 10 mm²/8 AWG cable.

This description report offers technical information for non-PV application of:

connectors:	assembly instructions:
PV-KBT4/....	MA231



PV-KBT4-EVO 2/...	MA275
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panel receptacles:	
PV-ADBP4-S2/...	MA273



PV-ADB4-EVO 2/...	MA285
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The following information describes possible cable types on which the connectors might be used in low-voltage DC applications regarding cable stranding, diameter range and limiting temperatures. Further, current ratings with respect to ambient temperature (derating diagrams) are given. The products' assembly instructions (as listed above) are valid for non PV cables as well and have to be followed.

For general low-voltage DC applications the products fulfill the requirements of IEC 61984:2008 (Connectors – Safety requirements and tests).

Further, the technical performance of the connectors is TÜV certified according to IEC 62852:2014 (Connectors for DC-application in photovoltaic systems - Safety requirements and tests). At UL, the connectors are certified according to UL 6703:2014 (Standard for Connectors for Use in Photovoltaic Systems). This high-level PV certification outperforms the general industry level requirements of IEC 61984:2008, UL 1977 and is beyond most known general industry level standards (UL 2237, UL 2238, UL 486A/B, etc.). **These TÜV and UL certifications, however, are only valid when the respective PV cables are mounted.** Also the UR sign on the connectors is only valid for certified PV cables attached as described in the assembly instructions (MA231, MA275, MA273, MA285).

Summary:

- The connectors are suitable for use with other cable types in lieu of PV cables
- For the use in systems outside of photovoltaics, no PV-specific certification is applicable
- In this case connectors perform according to IEC 61984:2008 (Connectors - Safety requirements and tests).

2. Cable stranding possible to connect

		MC4	MC4-Evo 2
Range mm²/AWG		2.5 mm²-10 mm² 14 AWG-8 AWG	
Stranding range	2.5 mm²/14 AWG	19-49	19-49
	4 mm²/12 AWG	19-56	19-56
	6 mm²/10 AWG	19-78	19-105
	10 mm²	56-78	19-168
	8 AWG	7-168	19-168

Cables in the range of 2.5 mm²-10 mm² (12 AWG-8 AWG) can be applied for such application. Cable stranding must be Class 5 according to IEC 60228.

3. Untinned copper strands

Tinned copper strands can be connected with all metal parts.

Untinned copper strands:

For untinned copper strands of 10 mm²/8 AWG, the round crimp MC4 PV-KXT4/8II-UR shall be used (cables of other diameters need to have tinned copper strands in order to be connected to the respective metal parts).

In case of blanc, i.e. untinned, copper strands, it has to be assured that the crimping area on the cable strands is free of oxides and dirt when crimping.

To ensure long-term stable crimping, please submit the cable specification to the Stäubli Electrical Connectors Engineering team for evaluation. We offer support in qualifying cable for customer applications.

4. Cable insulation-outer diameter ranges (regarding the cable gland)

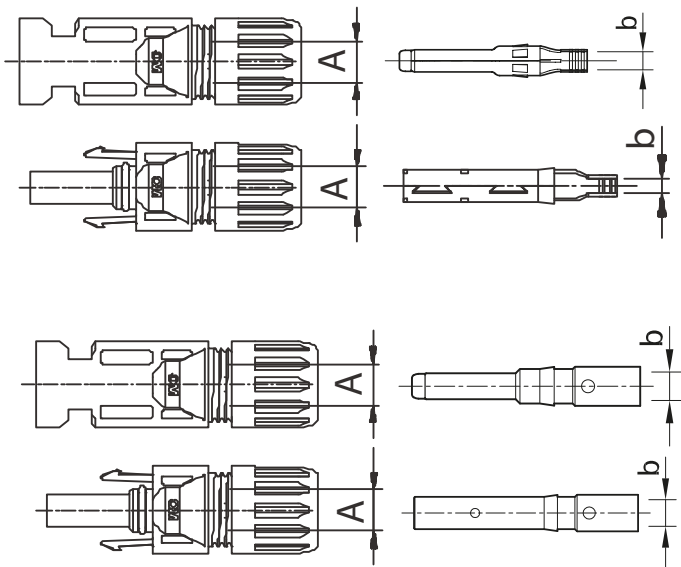
The following table shows the outer diameter ranges for connectable cables as well as the respective sealing element of the connector.

	MC4	MC4-Evo 2
Cable outer diameter range	DZER6: 4.7 mm-6.2 mm DZER7: 5.7 mm-7.4 mm DZER9: 6.0 mm-8.8 mm	Seal DI: 4.7 mm-6.4 mm Seal DII: 6.4 mm-8.4 mm

4.1 MC4

Selection of connector configuration

A: ø range of the cable [mm]	Conductor cross section				
	1.5/2.5 mm ² 14 AWG	4 mm ² 12 AWG	6 mm ² 10 AWG	10 mm ²	8 AWG
Strandings	19-49	19-56	19-78	56-78	7-168
4.7-6.2	PV-K...T4/2,5I	PV-K...T4/6I	PV-K...T4/6I		
5.7-7.4	PV-K...T4/2,5X	PV-K...T4/6X	PV-K...T4/6X		
6.0-8.8	PV-K...T4/2,5II	PV-K...T4/6II	PV-K...T4/6II	PV-K...T4/8II	PV-K...T4/8II
b: Control dimension	~3 mm	~5 mm		~4.4 mm	



6. Rubber cable applications

Rubber cable (usual upper limiting temperature: 90 °C) can be connected to MC4 or MC4-Evo 2.

For example: NSGAFÖU cable according to VDE 0250 T 602

with nominal voltage of at least U_0/U : 1.8/3 kV (short circuit safe and grounded wiring up to 1000 V according to VDE 0100 T520 and VDE 0298 T 3).

6.1. 10 mm² / 8 AWG

The round crimp metal part of the MC4 named PV-KST/KBT4/8II-UR is suitable for 8 AWG or 10 mm² cables. The max. outer diameter of the cable insulation is limited by the sealing to 8.8 mm.

(A H07RNF 10mm² according to DIN EN 50525-2-21/VDE 0285-525-2-21:2012-01 is 9.7 mm outer diameter, so H07RNF can only be used up to 6 mm²)



PV-KBT4/8II-UR



PV-KST4/8II-UR

6.2. 2,5 mm², 4mm², 6 mm² / 10-14 AWG

2.5/4/6 mm² (10-14 AWG) rubber cable (usual upper limiting temperature: 90 °C) can be connected to MC4 or MC4-Evo 2. e. g. NSGAFÖU cable according to VDE 0250 T 602 with nominal voltage of at least U_0/U : 1.8/3 kV (short circuit safe and

earthing safe wiring up to 1000 V according to VDE 0100 T520 and VDE 0298 T 3) or H07RNF according to DIN EN 50525-2-21/VDE 0285-525-2-21:2012-01).



PV-KBT4-EVO2/...



PV-KST4-EVO2/...

or



PV-KBT4/2,5.../PV-KBT4/6...



PV-KST4/2,5.../PV-KST4/6...

7. Maximum currents and temperatures - the derating diagram

The derating diagram is valid for the

connectors: assembly instructions

PV-KBT4/.... MA231

PV-KBT4-EVO 2/... MA275

panel receptacles:

PV-ADBP4-S2/... MA273

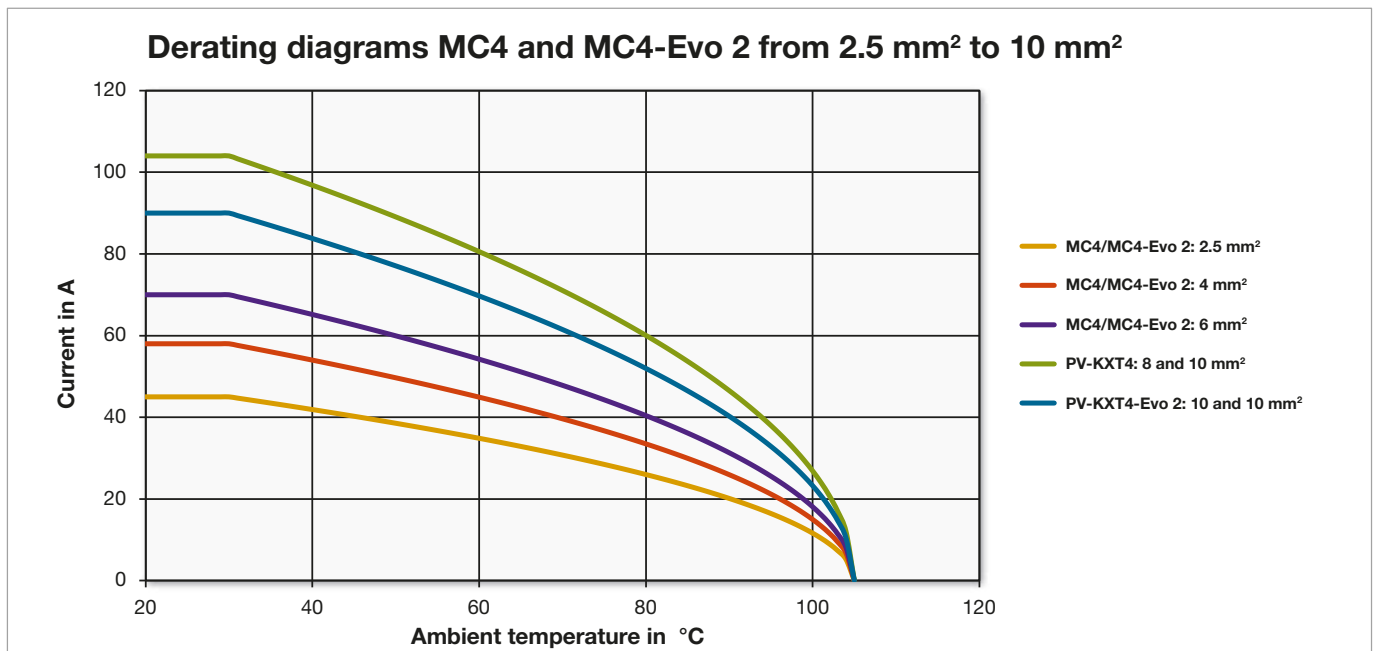
PV-ADB4-EVO 2/... MA285

The current capacity has been evaluated according to IEC 60512-5-2:2002 (with a derating factor of 0,9) and IEC 60364-5-52:2009.

The derating diagram specifies the maximum current at respective ambient temperatures. Operation of the connector is limited by a maximum component temperature (ambient temperature plus heating from current flow). This maximum admissible temperature is 105 °C inside of the connector.

Typical ambient temperatures in industrial applications are between 30 °C and 50 °C.

Beware: Hot surfaces of the connector and attached cables are possible (> 65 °C maximum temperature of touchable surfaces). Please note that in some switchgear applications the maximum temperature of touchable surfaces is limited to 65 °C (touchable/susceptible to manipulation) according to IEC 60947-1 (Low-voltage switchgear and control gear - Part 1: General rules). Depending on the application, it has to be checked whether this requirement applies.



The derating diagram is valid for attached cables with 90 °C admissible temperature or higher. If cables with a temperature rating < 90 °C is used, the derating of the cable has to be considered.

Possible examples of cables:

- PVC cable: H07V-K 10 mm²: 70 °C
- Rubber cable: NSGAFÖU 1.8/3 kV 10 mm²: 90 °C
- PV cable: FLEX-SOL-EVO-DX 10 mm²: 120 °C

The current values of the diagram for 2.5 mm², 4mm² und 6mm² are shown in the following table:

Rated currents at respective ambient temperatures for MC4 and MC4-EVO 2			
Ambient temperature	cable cross section		
	2.5 mm ²	4 mm ²	6 mm ²
30 °C	42	55	70
40 °C	39	51	65
50 °C	36	47	60
60 °C	32	43	54
70 °C	28	38	48
80 °C	24	32	40
90 °C	19	25	31

The following table shows rated currents with respect to cross sections and cable types:

Maximum admissible current in Ampere for T _{AMB} = 30 °C for 2.5 mm ² to 10 mm ²				
Max admissible temperature of attached cable	70 °C cable		90 °C cable or higher	
Connector	MC4	MC4-Evo 2	MC4	MC4-Evo 2
2.5 mm ² / 14 AWG	32 A		42 A	
4.0 mm ² / 12 AWG	42 A		55 A	
6.0 mm ² / 10 AWG	54 A		70 A	
10 mm ² / 8 AWG	85 A*	80 A	104 A*	90 A

* 8II-UR version for 10 mm² / 8 AWG: measured derating, smaller diameters calculated according to IEC 60364-5-52:2009

The following tables display the rated currents for MC4 and for MC4-Evo 2 for the largest possible cable -10 mm²/8 AWG- at different temperatures with respect to cable temperature rating

70 °C or > 90 °C, and for keeping touchable surfaces cooler than 65 °C. Note: Maximum ambient temperature for the connectors is specified to 85 °C.

MC4 PV-KXT4/8		Maximum admissible current in Ampere for		
Ambient temperature	Touchable surface < 65 °C	70 °C cable	90 °C cable or higher	
30 °C	80	85	104	
40 °C	65	74	95	
50 °C	41	58	88	
60 °C	14	30	81	
65 °C	0	15	77	
70 °C		0	72	
80 °C			61	
90 °C			41	

MC4-Evo 2		Maximum admissible current in Ampere for			
Ambient temperature	Touchable surface < 65 °C	70 °C cable	90 °C Cable	120 °C cable or higher	
30 °C	86	80	90	90	
40 °C	72	68	83	83	
50 °C	53	58	76	77	
60 °C	18	30	67	70	
65 °C	0	15	63	67	
70 °C		0	59	63	
80 °C			47	51	
90 °C			27	31	

8. Technical characteristics

MC4 (PV-KBT4/... and PV-ADBP4-S2/...)

Rated voltage	1000 V DC
Rated current (30 °C)	2.5 mm ² /14 AWG: 39 A 4.0 mm ² /12 AWG: 51 A 6.0 mm ² /10 AWG: 65 A 10.0 mm ² /8 AWG: 104 A
Rated surge voltage	12 kV
Ambient temperature range	-40 °C...+85 °C
Upper limiting temperature	105 °C
Mating cycles	100
Degree of protection, mated	IP65
unmated	IP2X
Overvoltage category/Pollution degree	CATIII/3
Contact resistance of plug connectors	≤ 0.35 mΩ
Locking system	snap-in/locking type
Safety class	II
Contact system	MULTILAM
Type of termination	Crimping
Contact material	Tin-plated copper
Warning	Do not disconnect under load
Insulation material	PC/PA
Flame class	UL94-V0

9. Norms and standards

IEC 61984:2008 Connectors - Safety requirements and tests

IEC62852:2014 Connectors for DC-application in photovoltaic systems. Safety requirements and tests

IEC60664: Insulation coordination for equipment within low-voltage systems

IEC 60512-5-2:2002 Connectors for electronic equipment - Tests and measurements - Part 5-2: Current-carrying capacity tests-Test 5b: Current-temperature derating

IEC 60364-5-52:2009 Low-voltage electrical installations - Part 5-52: Selection and erection of electrical equipment - Wiring systems

IEC 60947-1 (Low-voltage switchgear and control gear-Part 1: General rules).

UL 6703:2014 Standard for Connectors for Use in Photovoltaic Systems

UL 1977:2016 Standard for Component Connectors for Use in Data, Signal, Control and Power Applications

UL 2237:2018 Outline of Investigation for Multi-Point Interconnection Power Cable Assemblies For Industrial Machinery

UL 2238:2011 Standard for Cable Assemblies and Fittings for Industrial Control and Signal Distribution

UL 486a,b: wire connectors

EN 50525-2-31:2011, Part 2-31: Power cables for general applications - Conductor and wiring lines with thermoplastic PVC insulation

DIN VDE 0100-520:2013-06 Low-voltage electrical installations - Part 5-52: Selection and erection of electrical equipment - Wiring systems (IEC 60364-5-52:2009, modified + Corrigendum Feb. 2011); German implementation HD 60364-5-52:2011

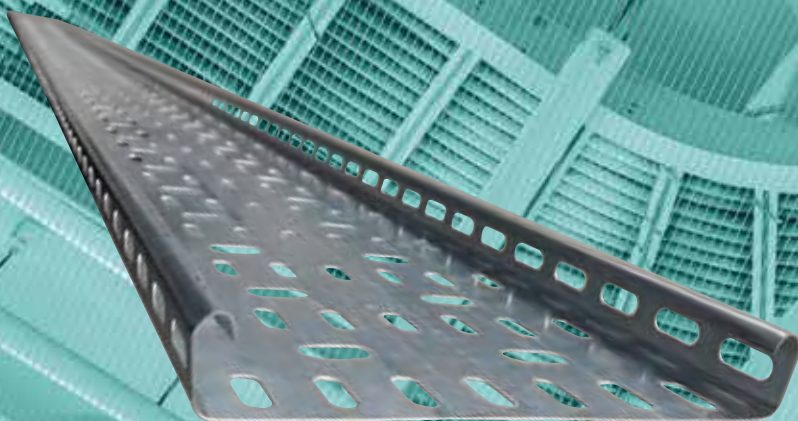
DIN VDE 0298-3:2006-06: Verwendung von Kabeln und isolierten Leitungen für Starkstromanlagen-Teil 3: Leitfaden für die Verwendung nicht harmonisierter Starkstromleitungen
Application of cables and cords in power installations-Part 3: Guide to use of non-harmonized cables

EN 50525-2-21:2011 Kabel und Leitungen-
Starkstromleitungen mit Nennspannungen bis 450/750 V (U₀/U)-
Teil 2-21: Starkstromleitungen für allgemeine Anwendungen-
Flexible Leitungen mit vernetzter Elastomer-Isolierung;
Electric cables-Low voltage energy cables of rated voltages up to and including 450/750 V (U₀/U)-Part 2-21: Cables for general applications-Flexible cables with crosslinked elastomeric insulation;

DIN VDE 0250-602:1985-03 Cables, wires and flexible cords for power installation; special rubber-insulated single-core cables

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Cable Tray Light Duty	64
Cable Tray Medium Duty	64
Cable Tray Heavy Duty	68
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Cable Basket Lengths	72
Cable Basket Fixings & Accessories	73
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Galvanised Conduit Accessories	77
Conlok Galvanised Conduit Boxes	80
Conlok Galvanised Conduit System	81
Flexible Conduit	81
Flexible Conduit Accessories	82
Socket Boxes & Accessories	83
Adaptable Boxes	84
Cable Ties & Mounts	85
Cable Fixings	86
Insulation Tape	86
Crimps and Terminals	87



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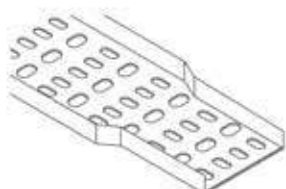
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Cable Tray Light Duty

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12mm Deep Light Duty Cable Tray for cable installation/management.

Cable Tray 12mm Deep Light Duty



Length: 3 metre

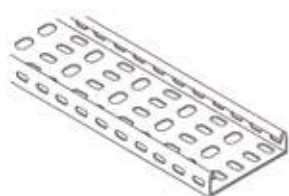
Code	Size	Finish
3018 08121	50mm	HDG
3018 01361	50mm	PG
3018 08173	75mm	HDG
3018 01362	75mm	PG
3018 08040	100mm	HDG
3018 01363	100mm	PG

Code	Size	Finish
3018 08056	150mm	HDG
3018 01364	150mm	PG
3018 08073	225mm	HDG
3018 01365	225mm	PG
3018 08090	300mm	HDG
3018 08091	300mm	PG

Cable Tray Medium Duty

25mm Deep Medium Duty Cable Tray for cable installation/management.

Cable Tray 25mm Medium Duty



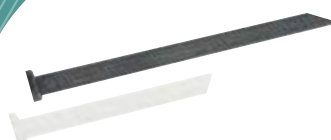
Length: 3 metre

Code	Size	Finish
3019 01370	50mm	PG
3019 08239	50mm	HDG

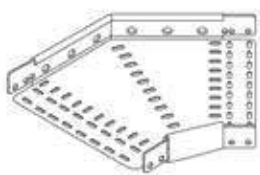
Code	Size	Finish
3019 01371	75mm	PG
3019 08284	75mm	HDG
3019 01372	100mm	PG
3019 01373	100mm	HDG
3019 01374	150mm	PG
3019 01375	150mm	HDG
3019 01376	225mm	PG
3019 01377	225mm	HDG
3019 01378	300mm	PG

Code	Size	Finish
3019 01379	300mm	HDG
3019 01380	450mm	PG
3019 01381	450mm	HDG
3019 01382	600mm	PG
3019 08257	600mm	HDG
3019 01383	750mm	PG
3019 08276	750mm	HDG
3019 01384	900mm	PG
3019 08295	900mm	HDG

See Cable Ties
page 85



Flat 45° Bends 25mm Medium Duty

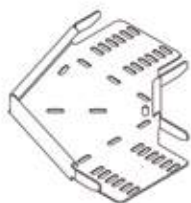


Code	Size	Finish
3019 08236	50mm	HDG
3019 08237	50mm	PG
3019 08283	75mm	HDG

Code	Size	Finish
3019 01398	75mm	PG
3019 08202	100mm	HDG
3019 01399	100mm	PG
3019 08209	150mm	HDG
3019 01400	150mm	PG
3019 08216	225mm	HDG
3019 01401	225mm	PG
3019 08222	300mm	HDG
3019 01402	300mm	PG

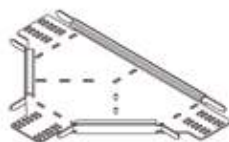
Code	Size	Finish
3019 08232	450mm	HDG
3019 01403	450mm	PG
3019 08253	600mm	HDG
3019 08254	600mm	PG
3019 08272	750mm	HDG
3019 08273	750mm	PG
3019 08291	900mm	HDG
3019 08292	900mm	PG

Flat 90° Bends 25mm Medium Duty



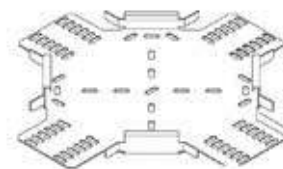
Code	Size	Finish
3019 01404	50mm	PG
3019 08238	50mm	HDG
3019 01405	75mm	PG
3019 01406	75mm	HDG
3019 01407	100mm	PG
3019 01408	100mm	HDG
3019 01409	150mm	PG
3019 01410	150mm	HDG
3019 01411	225mm	PG
3019 01412	225mm	HDG
3019 01413	300mm	PG
3019 01414	300mm	HDG
3019 01415	450mm	PG
3019 01416	450mm	HDG
3019 08256	600mm	PG
3019 08255	600mm	HDG
3019 08275	750mm	PG
3019 08274	750mm	HDG
3019 08294	900mm	PG
3019 08293	900mm	HDG

Equal Tee 25mm Medium Duty



Code	Size	Finish
3019 01385	50mm	PG
3019 08240	50mm	HDG
3019 01386	75mm	PG
3019 01387	75mm	HDG
3019 01388	100mm	PG
3019 01389	100mm	HDG
3019 01390	150mm	PG
3019 01391	150mm	HDG
3019 01392	225mm	PG
3019 01393	225mm	HDG
3019 01394	300mm	PG
3019 01395	300mm	HDG
3019 01396	450mm	PG
3019 01397	450mm	HDG
3019 08259	600mm	PG
3019 08258	600mm	HDG
3019 08278	750mm	PG
3019 08277	750mm	HDG
3019 08296	900mm	PG
3019 08297	900mm	HDG

Equal Cross 25mm Medium Duty

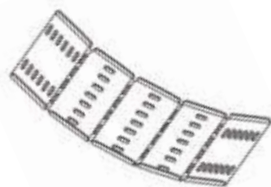


Code	Size	Finish
3019 08241	50mm	HDG
3019 08242	50mm	PG
3019 08285	75mm	HDG
3019 08286	75mm	PG
3019 08203	100mm	HDG
3019 08204	100mm	PG
3019 08210	150mm	HDG
3019 08211	150mm	PG
3019 08217	225mm	HDG
3019 08218	225mm	PG
3019 08223	300mm	HDG
3019 08224	300mm	PG
3019 08233	450mm	HDG
3019 08234	450mm	PG
3019 08260	600mm	HDG
3019 08261	600mm	PG
3019 08279	750mm	HDG
3019 08280	750mm	PG
3019 08298	900mm	HDG
3019 08299	900mm	PG

Finish key:
HDG = Hot-Dip Galv
PG = Pre-Galv

Cable Tray Medium Duty (continued)

Flexible Riser 25mm Medium Duty

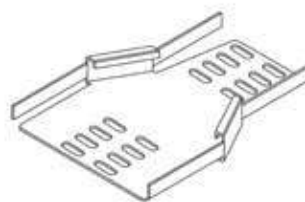


Code	Size	Finish
3019 01417	50mm	PG
3019 08235	50mm	HDG
3019 01418	75mm	PG
3019 01419	75mm	HDG
3019 01420	100mm	PG
3019 01421	100mm	HDG
3019 01422	150mm	PG
3019 01423	150mm	HDG
3019 01424	225mm	PG
3019 01425	225mm	HDG
3019 01426	300mm	PG
3019 01427	300mm	HDG
3019 01428	450mm	PG
3019 01429	450mm	HDG
3019 08251	600mm	PG
3019 08252	600mm	HDG
3019 08271	750mm	PG
3019 08270	750mm	HDG
3019 08290	900mm	PG
3019 08289	900mm	HDG

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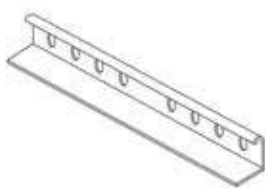
**Contact us for
details.**

Reducer 25mm Medium Duty



Code	Size	Finish	Code	Size	Finish
3019 08281	75mm to 50mm	HDG	3019 08226	450mm to 100mm	PG
3019 08282	75mm to 50mm	PG	3019 08227	450mm to 150mm	HDG
3019 08198	100mm to 50mm	HDG	3019 08228	450mm to 150mm	PG
3019 08199	100mm to 50mm	PG	3019 08229	450mm to 225mm	HDG
3019 08200	100mm to 75mm	HDG	3019 08230	450mm to 225mm	PG
3019 08201	100mm to 75mm	PG	3019 08231	450mm to 300mm	HDG
3019 08206	150mm to 50mm	HDG	3019 01437	450mm to 300mm	PG
3019 08207	150mm to 50mm	PG	3019 08243	600mm to 150mm	HDG
3019 08208	150mm to 75mm	HDG	3019 08244	600mm to 150mm	PG
3019 01430	150mm to 75mm	PG	3019 08245	600mm to 225mm	HDG
3019 08205	150mm to 100mm	HDG	3019 08246	600mm to 225mm	PG
3019 01431	150mm to 100mm	PG	3019 08247	600mm to 300mm	HDG
3019 08214	225mm to 75mm	HDG	3019 08248	600mm to 300mm	PG
3019 08215	225mm to 75mm	PG	3019 08249	600mm to 450mm	HDG
3019 08212	225mm to 100mm	HDG	3019 08250	600mm to 450mm	PG
3019 01432	225mm to 100mm	PG	3019 08262	750mm to 225mm	HDG
3019 08213	225mm to 150mm	HDG	3019 08263	750mm to 225mm	PG
3019 01433	225mm to 150mm	PG	3019 08264	750mm to 300mm	HDG
3019 08219	300mm to 100mm	HDG	3019 08265	750mm to 300mm	PG
3019 01434	300mm to 100mm	PG	3019 08266	750mm to 450mm	HDG
3019 08220	300mm to 150mm	HDG	3019 08267	750mm to 450mm	PG
3019 01435	300mm to 150mm	PG	3019 08268	750mm to 600mm	HDG
3019 08221	300mm to 225mm	HDG	3019 08269	750mm to 600mm	PG
3019 01436	300mm to 225mm	PG	3019 08287	900mm to 300mm	HDG
3019 08225	450mm to 100mm	HDG	3019 08288	900mm to 450mm	PG

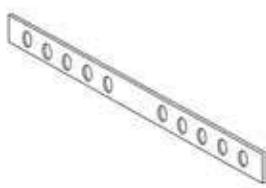
Wrap Over Coupler 25mm Medium Duty



Sold in pairs

Code	Finish
3019 01440	PG
3019 01441	HDG

Straight Coupler



Sold in pairs

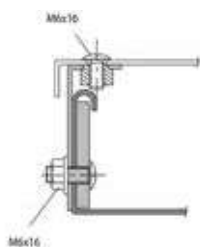
Code	Finish
3019 01438	PG
3019 01439	HDG

Straight Divider Medium Duty



Code	Size	Finish
3019 08300	3m	HDG

Medium Duty Tray Cover Clip



Code	Finish
3019 08301	HDG

Medium Duty Vented Cover Clip



Code	Finish
3019 08302	HDG

Finish key:
HDG = Hot-Dip Galv
PG = Pre-Galv

We stock
a selection of
Power Tools
pages 213–214



Cable Tray Accessories

Overhead Tray Hangers



Used for suspending lengths of cable tray.

Finish: PG

Code	Size	Stud Hole Diameter
3020 01443	75mm	14mm
3020 01444	100mm	14mm
3020 01445	150mm	14mm
3020 01446	225mm	14mm

Studding Hangers



Used for supporting Cable Tray up to a 75mm width.

Code	Size
3020 01453	M8-M12

Earth Straps



Used as connectors to aid conductivity.

Code	Size
3020 01442	100mm

Uniclip Cable Tray to Channel Connector

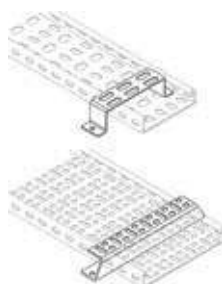


NEW PRODUCT

Use to connect Medium Return Flange cable tray to Channel.

Code	Pack
3019 13223	50

Stand-Off Brackets



Used for mounting cable tray, allowing room for cable ties to be applied.

750 & 900mm also available.

Code	Size	Finish
3020 01447	50mm	PG
3020 01448	100mm	PG
3020 01449	150mm	PG
3020 01450	225mm	PG
3020 01451	300mm	PG
3020 01452	450mm	PG
3020 08331	600mm	HDG

Unistrut Tray Cover



Used to protect cables from falling objects, dust and water.

Code	Size	Finish
3020 08316	50mm	HDG
3020 08321	75mm	HDG
3020 08322	75mm	PG
3020 08306	100mm	HDG
3020 08307	100mm	PG
3020 08308	150mm	HDG
3020 08309	150mm	PG

Code	Size	Finish
3020 08310	225mm	HDG
3020 08311	225mm	PG
3020 08312	300mm	HDG
3020 08313	300mm	PG
3020 08314	450mm	HDG
3020 08315	450mm	PG
3020 08317	600mm	HDG

Code	Size	Finish
3020 08318	600mm	PG
3020 08319	750mm	HDG
3020 08320	750mm	PG
3020 08323	900mm	HDG
3020 08324	900mm	PG

Finish key:
HDG = Hot-Dip Galv
PG = Pre-Galv

Channel 3m & 6m	8
Channel Pre-Cut Lengths	10
Channel Nuts	11
Square Plates	12
Channel Brackets	13
Mini Channel	18
Channel Accessories	18
Heavy Duty Box Section	19
Channel Iron	21

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Channel 3m & 6m

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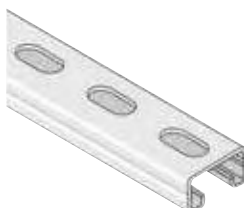
Channel also available in Unistrut Brand and in Stainless Steel & HDG finishes. Ask for further details. 2.5mm or 1.5mm rolled galvanised steel channel sections provide a versatile and economical solution for industrial framing and support. Available in either plain or slotted channel sections.

41 x 21 Plain 2.5mm Channel



Code	Size	Finish
2011 01000	3m	PG
2011 11955	6m	PG

41 x 21 Slotted 1.5mm Channel



Code	Size	Finish
2011 01004	3m	PG
2011 05973	6m	PG

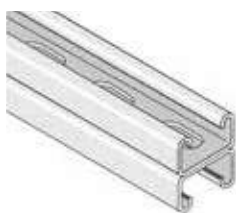
41 x 21 Slotted 2.5mm Channel



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Code	Size	Finish
2011 01005	3m	PG
2011 01006	6m	PG
2011 11256	3m	HDG
2011 12031	6m	HDG

41 x 21 Back to Back Slotted 2.5mm Channel



Code	Size	Finish
2011 01015	3m	PG

41 x 41 Plain 2.5mm Channel



Code	Size	Finish
2011 01001	3m	PG
2011 01002	6m	PG
2011 11176	3m	HDG
2011 12032	6m	HDG

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Material/Finish key:

HDG = Hot-Dip Galv
PG = Pre-Galv
ST/ST = Stainless Steel

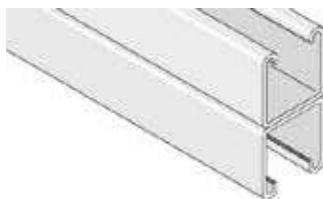
41 x 41 Slotted 2.5mm Channel

**BEST
SELLER**



Code	Size	Finish
2011 01009	3m	PG
2011 01010	6m	PG
2011 11254	3m	HDG
2011 11255	6m	HDG

41 x 41 Back to Back Plain 2.5mm Channel



Code	Size	Finish
2011 11593	3m	PG
2011 05976	6m	PG
2011 11232	3m	HDG
2011 11231	6m	HDG

41 x 41 Back to Back Slotted 2.5mm Channel

Use with Baseplate 200mm
see page 14



Code	Size	Finish
2011 01016	3m	PG
2011 01018	6m	PG
2011 01017	3m	HDG
2011 01019	6m	HDG

41 x 41 Slotted 1.5mm Channel



Code	Size	Finish
2011 01008	3m	PG
2011 05985	6m	PG

41 x 62 Slotted 2.5mm Channel



Code	Size	Finish
2011 05972	3m	PG
2011 01013	6m	PG
2011 12048	3m	HDG
2011 05977	6m	HDG

41 x 62 Back to Back Slotted 2.5mm Channel



Code	Size	Finish
2011 11711	3m	PG
2011 01020	6m	PG

Unistrut 41 x 83 Slotted 2.5mm Channel



Code	Size	Finish
2011 05974	3m	PG
2011 01014	6m	PG
2011 12033	3m	HDG
2011 05978	6m	HDG

Stainless Steel variations available

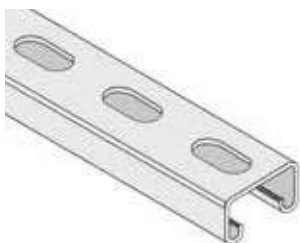
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Channel Pre-Cut Lengths

Pre-cut channel lengths offer a convenient way to save time on site.

41 x 21 Slotted 2.5mm Pre-cut Channel



Code	Length	Finish
2015 01119	100mm	PG
2015 01125	150mm	PG
2015 01131	200mm	PG
2015 01132	250mm	PG
2015 01133	300mm	PG
2015 01134	350mm	PG
2015 01135	400mm	PG
2015 01136	450mm	PG
2015 01137	500mm	PG
2015 01138	550mm	PG
2015 01139	600mm	PG
2015 01140	650mm	PG
2015 01141	700mm	PG
2015 01142	750mm	PG
2015 01143	800mm	PG
2015 01144	850mm	PG
2015 01145	900mm	PG
2015 01146	950mm	PG
2015 01118	1000mm	PG
2015 01120	1100mm	PG
2015 01121	1200mm	PG
2015 01122	1300mm	PG
2015 01123	1400mm	PG
2015 01124	1500mm	PG
2015 01126	1600mm	PG
2015 01127	1700mm	PG
2015 01128	1800mm	PG
2015 01129	1900mm	PG
2015 01130	2000mm	PG

41 x 41 Slotted 2.5mm Pre-cut Channel



Code	Length	Finish
2015 01153	150mm	PG
2015 01159	200mm	PG
2015 01160	250mm	PG
2015 01161	300mm	PG
2015 01162	350mm	PG
2015 01163	400mm	PG
2015 01164	450mm	PG
2015 01165	500mm	PG
2015 01166	550mm	PG
2015 01167	600mm	PG
2015 01168	650mm	PG

Code	Length	Finish
2015 01169	700mm	PG
2015 01170	750mm	PG
2015 01171	800mm	PG
2015 01172	850mm	PG
2015 01173	900mm	PG
2015 01174	950mm	PG
2015 01147	1000mm	PG
2015 01148	1100mm	PG
2015 01149	1200mm	PG
2015 01150	1300mm	PG
2015 01151	1400mm	PG
2015 01152	1500mm	PG
2015 01154	1600mm	PG
2015 01155	1700mm	PG
2015 01156	1800mm	PG
2015 01157	1900mm	PG
2015 01158	2000mm	PG

Prefabrication can help you be more efficient on site.

We can cut and combine channel, studding, pipe support and rubber mounts to create supports and brackets to your exact specifications.

Contact us for details and prices

01322 274226

Channel Nuts

Channel nuts can be used to provide a secure fixing for studding.

Plain Channel Nuts



**BEST
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Simply insert and rotate 90° in order to provide a secure fixing.

Pack size 100.

Code	Size	Finish
2014 01101	M6	PG
2014 01102	M6	HDG
2014 01103	M8	PG
2014 01104	M8	HDG
2014 01105	M10	PG
2014 01106	M10	HDG
2014 01107	M12	PG
2014 01108	M12	HDG
2014 06121	M16	PG

Short Spring Channel Nuts



For use with 21mm deep channel, they hold firmly in place whilst positioning.

Pack size 100.

Code	Size	Finish
2014 01109	M6	PG
2014 01110	M6	HDG
2014 01111	M8	PG
2014 01112	M8	HDG
2014 01113	M10	PG
2014 01114	M10	HDG
2014 01115	M12	PG
2014 01116	M12	HDG

Long Spring Channel Nuts



For use with 41mm deep channel, they hold firmly in place whilst positioning.

Pack size 100.

Code	Size	Finish
2014 01093	M6	PG
2014 01094	M6	HDG
2014 01095	M8	PG
2014 01096	M8	HDG
2014 01097	M10	PG
2014 01098	M10	HDG
2014 01099	M12	PG
2014 01100	M12	HDG

Channel Stud Nut



Pre-assembled for a quick fixing, the assembly remains in place before final tightening.

Finish: BZP

Code	Size	Pack
2014 01117	M10 x 40mm	100

Channel Nut and Washer Assembly



Pre-assembled for a quick fixing, the assembly remains in place before final tightening.

Finish: BZP

Code	Size	Pack
2014 01092	M10 x 40mm	100

Finish key:

BZP = Bright Zinc Plated
HDG = Hot-Dip Galv
PG = Pre-Galv

Square Plates

FREE
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Square plates have numerous applications relating to the installation of channel support systems.

Square Plate Thick (5mm)



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Code	Size	Finish	Pack
2017 01183	M6	PG	100
2017 01186	M6	HDG	100
2017 01184	M8	PG	100
2017 01185	M8	HDG	100
2017 01187	M10	PG	100
2017 01188	M10	HDG	100
2017 01189	M12	PG	100
2017 01190	M12	HDG	100
2017 06162	M16	HDG	100

Square Plate Thin (3mm)



Code	Size	Finish	Pack
2017 01191	M8	BZP	100
2017 01192	M10	BZP	100

Lipped Square Plate (3mm)



Code	Size	Finish	Pack
2017 01180	M8	BZP	100
2017 01181	M10	BZP	100
2017 01182	M12	BZP	100

Unistrut Square Plate (3mm) Domed



Code	Size	Finish	Pack
2017 01193	M6	BZP	100
2017 01195	M8	BZP	100
2017 01196	M10	BZP	100
2017 01194	M12	BZP	100



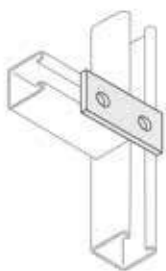
**Our vans are
FORS registered**

We deliver daily in London and the South-East.

Channel Brackets

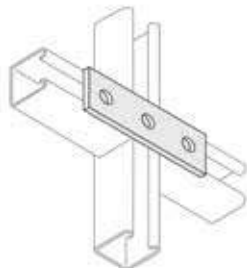
There are many types of channel brackets which can be used for the connecting of channel sections together in a wide variety of ways. Also available in Stainless Steel.

Splice Plate 2-Hole



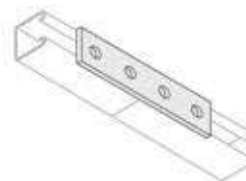
Code	Size	Finish
2013 01072	40 x 88mm	HDG

Splice Plate 3-Hole



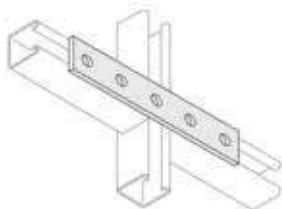
Code	Size	Finish
2013 01073	40 x 136mm	HDG

Splice Plate 4-Hole



Code	Size	Finish
2013 01074	40 x 184mm	HDG

Splice Plate 5-Hole



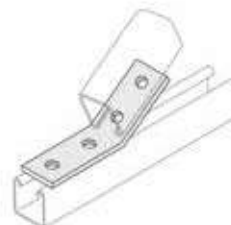
Code	Size	Finish
2013 01075	40 x 232mm	HDG

Obtuse Angle Bracket 2-Hole



Code	Size	Finish
2013 01069	45° x 82mm	HDG
2013 01070	60° x 81mm	HDG
2013 01071	75° x 80mm	HDG

Obtuse Angle Bracket 4-Hole



Code	Size	Finish
2013 01033	45° x 78mm	HDG

Acute Angle Bracket 2-Hole



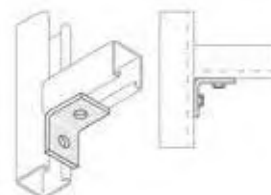
Code	Size	Finish
2013 01042	45° x 77mm	HDG
2013 01043	60° x 79mm	HDG

Adjustable Angle Bracket



Code	Size	Finish
2013 01044	0–180°	HDG

90° Bracket 2-Hole

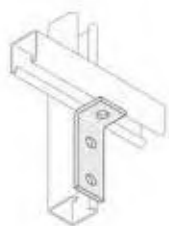


Code	Size	Finish
2013 01034	50 x 47mm	HDG
2013 01035	41 x 57mm	HDG



Channel Brackets (continued)

90° Bracket 3-Hole – 1 hole 2 hole



Code	Size	Finish
2013 01037	47 x 98mm	HDG
2013 01036	41 x 104mm	HDG

90° Bracket 4-Hole – 1 hole 3 hole



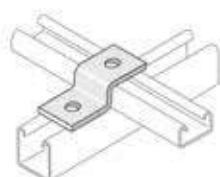
Code	Size	Finish
2013 01038	56 x 137mm	HDG

90° Bracket 4-Hole – 2 hole 2 hole



Code	Size	Finish
2013 01039	89 x 104mm	HDG

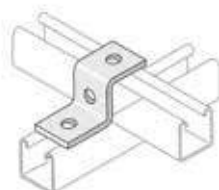
Z Bracket (41 x 21)



For 41 x 21mm channel.

Code	Size	Finish
2013 01089	41 x 21mm	HDG

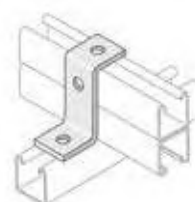
Z Bracket (41 x 41)



For 41 x 41mm channel.

Code	Size	Finish
2013 01090	41 x 41mm	HDG

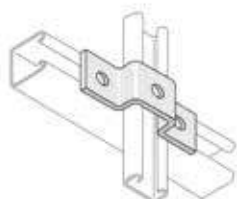
Z Bracket (41 x 82)



For back to back 41 x 41mm channel.

Code	Size	Finish
2013 01091	41 x 82mm	HDG

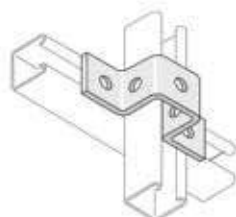
U Bracket (41x21)



For 41 x 21mm channel.

Code	Size	Finish
2013 01080	41 x 21mm	HDG

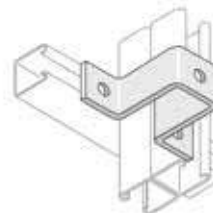
U Bracket (41x41)



For 41 x 41mm channel.

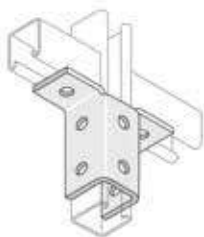
Code	Size	Finish
2013 01082	41 x 41mm	HDG

U Bracket (41x82)

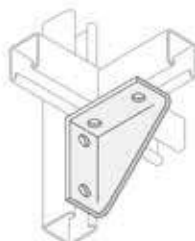


For back to back 41 x 41mm.

Code	Size	Finish
2013 01081	41 x 82mm	HDG

Wing Bracket

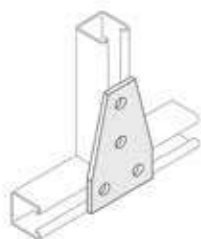
Code	Size	Finish
2013 01087	98 x 137mm	HDG

Gusseted Bracing Bracket

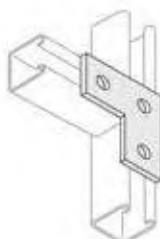
Code	Size	Finish
2013 01063	102 x 102mm	HDG

90° V Plate

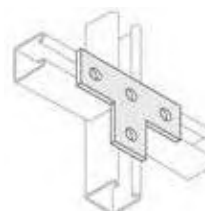
Code	Size	Finish
2013 01041	47 x 98 x 137mm	HDG
2013 01040	41 x 104 x 90mm	HDG

T Plate

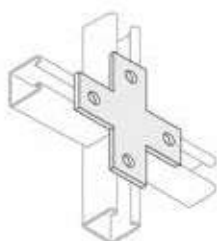
Code	Size	Finish
2013 01076	90 x 136mm	HDG

Flat L Bracket

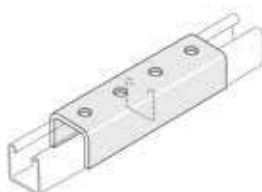
Code	Size	Finish
2013 01060	90 x 90mm	HDG

Flat T Bracket

Code	Size	Finish
2013 01062	90 x 138mm	HDG

Flat Cross Bracket

Code	Size	Finish
2013 01061	90 x 136mm	HDG

External Joiner

For 41x41mm channel.

Code	Finish
2013 01059	HDG

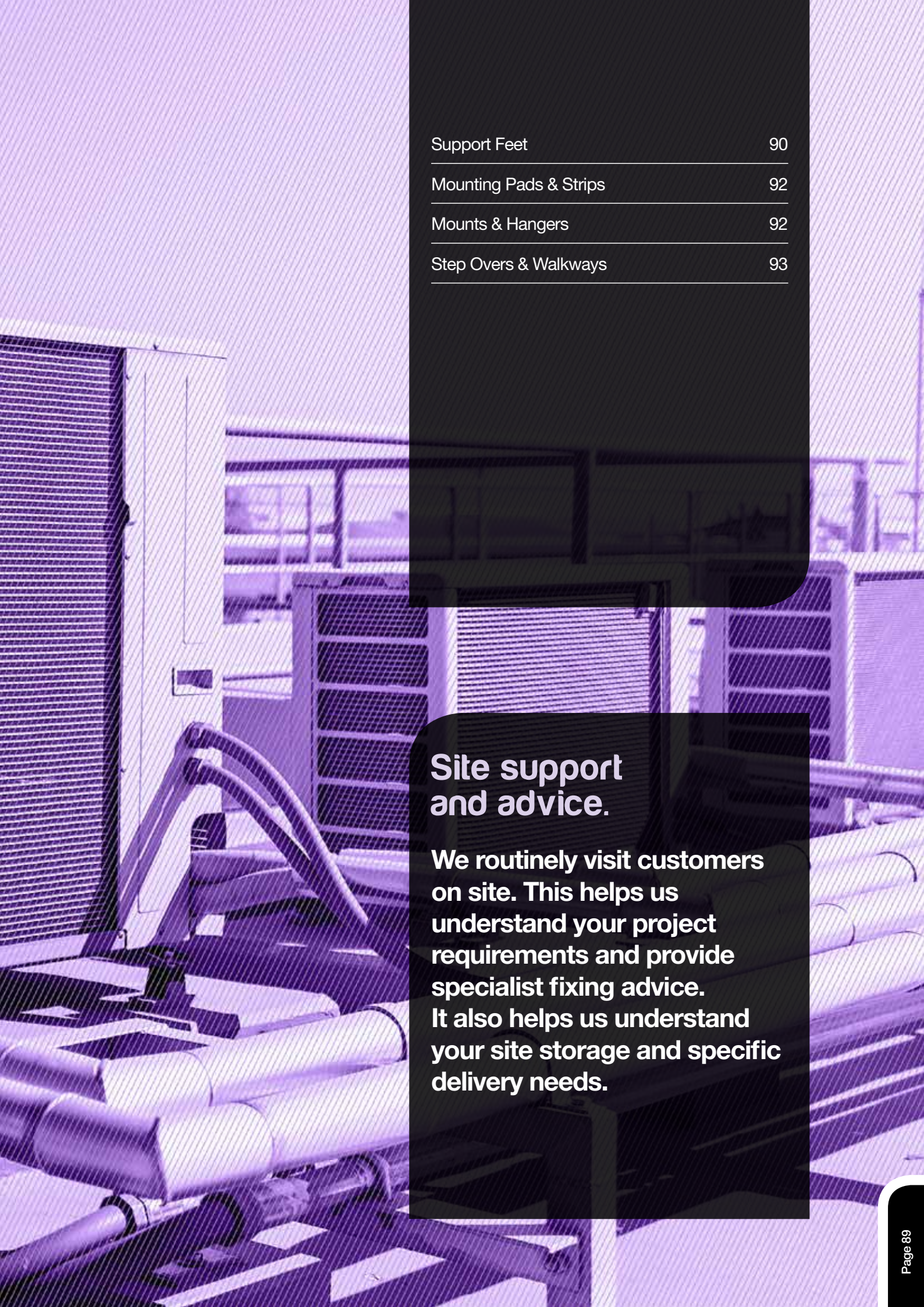
Internal Joiner

Code	Description	Finish
2013 01066	For 41 x 41mm channel	HDG
2013 01067	For 41 x 21mm channel	HDG

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We routinely visit customers on site. This helps us understand your project requirements and provide specialist fixing advice. It also helps us understand your site storage and specific delivery needs.

Support Feet

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Square H Frame Feet

Use with Channel
see pages 8 & 9



This H Frame Set consists of a pair of square 350mm moulded rubber feet which offers a quick, versatile and economical solution for supporting roof top installations.

Code	Suitable For
3312 02567	41 x 41 Channel
3312 02566	41 x 82 Channel

Rubber Foot with Strut

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Fix-it Foot is a rubber foot with 41 x 21mm steel strut pre-inserted for quick and easy installation. The foot can be used to support pipework, runs of cable tray, condenser units and other equipment.

Code	Size
3312 02582	250 x 185 x 100mm
3312 02583	400 x 185 x 100mm
3312 02584	600 x 185 x 100mm
3312 02581	1000 x 185 x 100mm

Condenser Mounting Block



Unit Mounting Blocks reduce vibration and are manufactured from reinforced PVC making them lightweight, 100% rust free and UV stabilised. Anti-slip strips on the base along with the supplied fixings make the blocks quick and simple to install.

Code	Size
3312 02586	100 x 100 x 450mm long
3312 02585	100 x 100 x 1000mm long
3312 02587	Condenser Mounting Block End Cap

Fixmart MiniFoot Channel Assembly



Support system comes pre-assembled so is quick and easy to install saving valuable time on site. The assembly includes two MiniFeet and a 250mm length of 21 x 41mm slotted channel, which comes fixed into position using 6.3 x 19mm screws.

Code	Size
3312 05786	250mm length of channel

Fixmart MiniFoot



The Fixmart MiniFoot with Screw Fixing is ideal for all lightweight installations, as each MiniFoot can support 25kg. This innovative support system is quick and easy to install and is compatible with various 41mm channel types. These are made from High Density Nylon Plastic and have a 5mm foam pad on its base which has anti-vibration and anti-slip properties.

Code	Size	
3312 05785	100 x 100 x 60mm high	With fixing screws
3312 05787	160 x 160 x 66mm high	With fixing screws
3312 05793	100 x 100 x 60mm high	With hole for M10 Stud

Insulated Foot Plate For Sikla Framo



Fits 80 x 80 Framo System, integrated footplate and permeable rubber compound mat to provide a solution for the support of building services.

Code	Size
3312 06205	350 x 350mm Square Feet
3312 06206	500 x 500mm Square Feet

Give us the weight and dimensions of your AHU and we can provide a bespoke frame to suit.