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Issue:
0 23.03.12 AHS
Original Issue
1 12.11.12 IRB
Revised Main isolator position

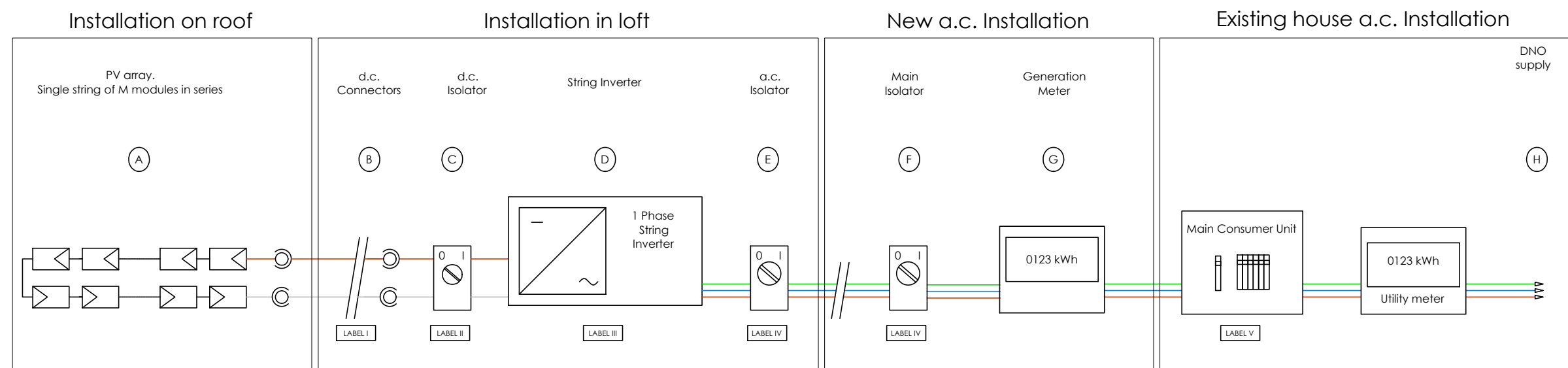
Labels
I - Do not disconnect d.c. plugs and sockets under load - turn off a.c. first
II - P.V. array d.c. isolator. Danger - contains live parts during daylight.
III - Inverter - Isolate a.c. and d.c. before carrying out work
IV - PV System main a.c. isolator
V - Do not work on this equipment until it is isolated from both mains and on-site generation supplies

Notes:

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TITLE
Viridian Clearline PV Wiring
Diagram - Single String Inverter -
Single Phase

DRAWN AHS	CHECKED KTT
DRAWING NUMBER 30 002	SHEET 1 of 4
OUTPUT CURRENT Below 16A/Phase	REVISION -
DATE 20.03.12	SCALE



A Single string PV array connected in series
Voltage rating M x 90.7V for PV30 (Max M = 11)
M x 60.5V for PV20 (Max M = 16)
M x 45.3V for PV15 (Max M = 22)
Current rating 10.4 A

B Connectors must be d.c. rated. They should be touch safe to a standard of ingress protection not less than IP 21, Class II and shrouded.
N.B. ENSURE THAT MALE AND FEMALE CONNECTORS ARE FULLY AND SECURELY JOINED.

C The d.c. isolator must be double pole and rated for the system voltage and current maxima as calculated from the PV array. It should be load-break rated.

D The inverter must be treated as standard electrical apparatus and earthed as per BS 7671 if Class 1. It must carry a Type Test certificate to the requirements of Engineering Recommendation G83/1 or comply with all other parts of ER G83/1. Inverter settings:-
• Over Voltage 264V
• Under Voltage 207V
• Over Frequency 50.5Hz
• Under Frequency 47HZ

E A manual a.c. isolator must be provided located in an accessible position within the Customer's installation as in G83/1, which is:-
• in accordance with BS 60947-3
• must switch all live and neutral conductors.
• must be securable in the OFF position only. It must be simple to secure using a standard padlock- device that require a separate removable adaptor or special key to enable them to be secured are not acceptable.
• must clearly show the ON and OFF positions

F A main isolator must be provided located in an accessible position within the Customer's installation as in G83/1, which is:-
• in accordance with BS 60947-3
• must switch all live and neutral conductors.
• must be securable in the OFF position only.
• must clearly show the ON and OFF positions

G Generation meter should be installed to display/record energy delivered by the PV system (kWh). In addition it is highly recommended for instantaneous power output (kW) to be displayed. A kWh meter approved by OFGEM is recommended as it may facilitate payment on ROCs and other Electricity company scheme payments.

H Installers are obliged to liaise with the relevant distribution Network Operator (DNO) in the following manner:
• Single installation covered by G83/1 - notification at or before day of commissioning followed by G83/1 paperwork (G83/1 appendix 3) within 30 days.
• Multiple installations covered by G83/1 - application to proceed (G83/1 appendix 2). On commissioning - notification and appendix 3 as above.

D.C. Cable
Cables must be rated, as a minimum, to the voltage and current ratings derived from the PV array. Standard de-rating factors must also be applied (BS 7671). Cables should be sized such that overall voltage drop at stc between the array and the inverter is <3%

A.C. Cable
A.C. cables are to be specified and installed in accordance with BS 7671. The a.c. cable connecting the inverter(s) to the consumer unit should be oversized to minimise voltage drop. A 1% drop or less is recommended.

Lightning Protection
Where there is a perceived increase in risk of direct strike as a consequence of the installation of the PV system, specialists in lightning protection should be consulted with a view to installing a separate lightning protection system in accordance with BS 6651.

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Issue:
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Labels
I - Do not disconnect d.c. plugs and sockets under load - turn off a.c. first
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III - Inverter - Isolate a.c. and d.c. before carrying out work
IV - PV System main a.c. isolator
V - Do not work on this equipment until it is isolated from both mains and on-site generation supplies

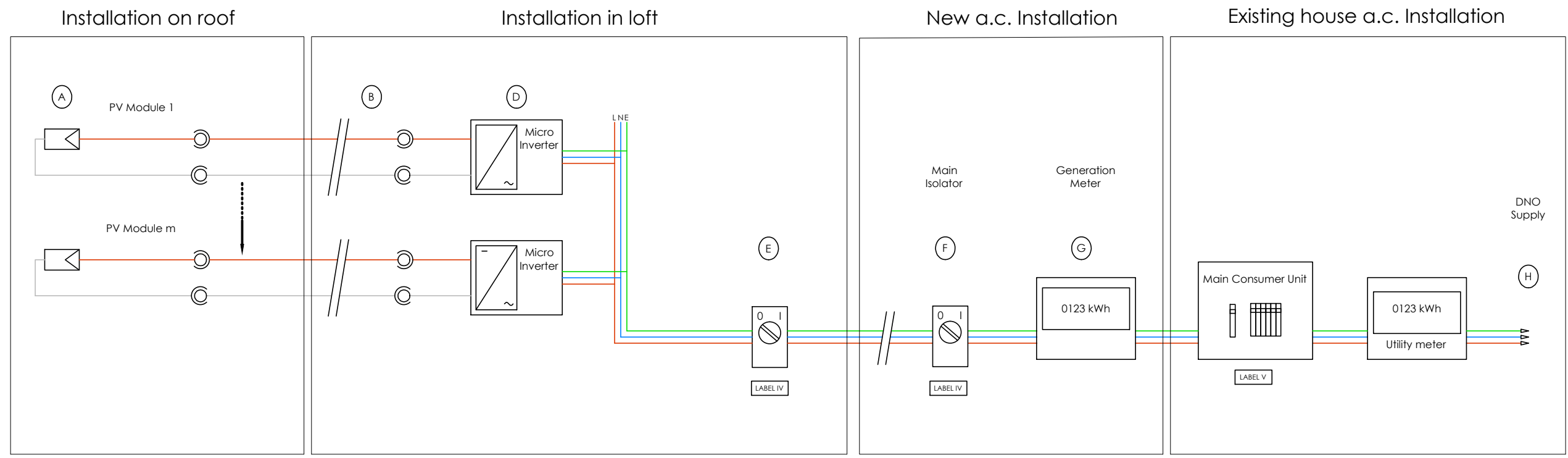
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TITLE
Viridian Clearline PV Wiring
Diagram - Multiple Micro
Inverter - Single Phase

DRAWN AHS	CHECKED KTT
DRAWING NUMBER 30 002	SHEET 2 of 4
OUTPUT CURRENT Below 16A/Phase	REVISION -
DATE 20.03.12	SCALE



A Single PV module
Voltage rating 90.7V for PV30
60.5V for PV20
45.3V for PV15
Current rating 10.4 A

B Connectors must be d.c. rated. They should be touch safe to a standard of ingress protection not less than IP 21, Class II and shrouded. Provided by Viridian Solar.

N.B. ENSURE THAT MALE AND FEMALE CONNECTORS ARE FULLY AND SECURELY JOINED.

D The inverter must be treated as standard electrical apparatus and earthed as per BS 7671 if Class 1. It must carry a Type Test certificate to the requirements of Engineering Recommendation G83/1 or comply with all other parts of ER G83/1.
Inverter settings:-
• Over Voltage 264V
• Under Volatage 207V
• Over Frequency 50.5Hz
• Under Frequency 47HZ

E A manual a.c. isolator must be provided located in an accessible position within the Customer's installation as in G83/1, which is:-
• in accordance with BS 60947-3
• must switch all live and neutral conductors.
• must be securable in the OFF position only. It must be simple to secure using a standard padlock- device that require a separate removable adaptor or special key to enable them to be secured are not acceptable.
• must clearly show the ON and OFF positions

F A main isolator must be provided located in an accessible position within the Customer's installation as in G83/1, which is:-
• in accordance with BS 60947-3
• must switch all live and neutral conductors.
• must be securable in the OFF position only.
• must clearly show the ON and OFF positions

G Single phase generation meter should be installed to display/record energy delivered by the PV system (kWh). In addition it is highly recommended for instantaneous power output (kW) to be displayed. A kWh meter approved by OFGEM is recommended as it may facilitate payment on ROCs and other Electricity company scheme payments.

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• Single installation covered by G83/1 - notification at or before day of commissioning followed by G83/1 paperwork (G83/1 appendix 3) within 30 days.
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D.C. Cable
Cables must be rated, as a minimum, to the voltage and current ratings derived from the PV array. Standard de-rating factors must also be applied (BS 7671). Cables should be sized such that overall voltage drop at stc between the array and the inverter is <3%. Provided by Viridian Solar

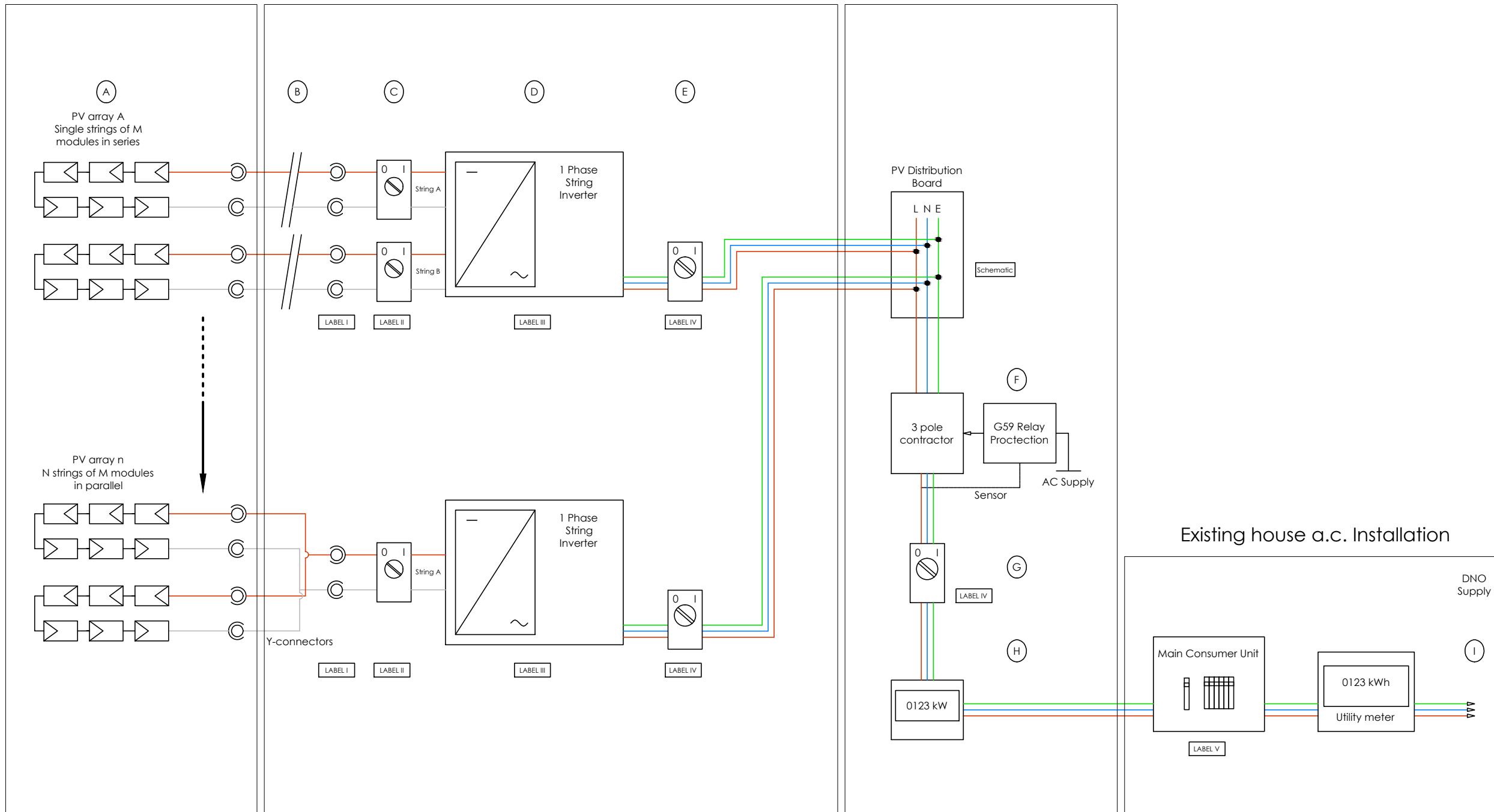
A.C Cable
A.C. cables are to be specified and installed in accordance with BS 7671. The a.c. cable connecting the inverter(s) to the consumer unit should be oversized to minimise voltage drop. A 1% drop or less is recommended.

Lightning Protection
Where there is a perceived increase in risk of direct strike as a consequence of the installation of the PV system, specialists in lightning protection should be consulted with a view to installing a separate lightning protection system in accordance with BS 6651.

Installation on roof

Installation in loft

New a.c. Installation



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- III - Inverter - Isolate a.c. and d.c. before carrying out work
- IV - PV System main a.c. isolator
- V - Do not work on this equipment until it is isolated from both mains and on-site generation supplies

Notes:

A Electrical rating for PV arrays (d.c. side)

Voltage rating M x 90.7V for PV30 (Max M = 11)
 M x 60.5V for PV20 (Max M = 16)
 M x 45.3V for PV15 (Max M = 22)

Current rating N x 10.4 A

B Connectors must be d.c. rated. They should be touch safe to a standard of ingress protection not less than IP 21, Class II and shrouded. Provided by Viridian Solar.

N.B. ENSURE THAT MALE AND FEMALE CONNECTORS ARE FULLY AND SECURELY JOINED.

C The d.c. isolator must be double pole and rated for the system voltage and current maxima as calculated from the PV array. It should be load-break rated. Provided by Viridian Solar.

D The inverter must be treated as standard electrical apparatus and earthed as per BS 7671 if Class 1. It must carry a Type Test certificate to the requirements of Engineering Recommendation G83/1 or comply with all other parts of ER G83/1.

Inverter settings:-

- Over Voltage 264V
- Under Voltage 207V
- Over Frequency 50.5Hz
- Under Frequency 47HZ

E A manual a.c. isolator must be provided located in an accessible position within the Customer's installation as in G83/1, which is:-

- in accordance with BS 60947-3
- must switch all live and neutral conductors.
- must be securable in the OFF position only. It must be simple to secure using a standard padlock- device that require a separate removable adaptor or special key to enable them to be secured are not acceptable.
- must clearly show the ON and OFF positions

F G59 Protection relay may be required by DNO to protect against voltage change - under and over 240V, frequency change - under and over 50Hz and vector shift - 1 deg increments. If required, this device could be supplied by Viridian Solar at extra cost.

G A main isolator must be provided located in an accessible position within the Customer's installation as in G83/1, which is:-

- in accordance with BS 60947-3
- must switch all live and neutral conductors.
- must be securable in the OFF position only.
- must clearly show the ON and OFF positions

H Generation meter should be installed to display/record energy delivered by the PV system (kWh). In addition it is highly recommended for instantaneous power output (kW) to be displayed. A kWh meter approved by OFGEM is recommended as it may facilitate payment on ROCs and other Electricity company scheme payments.

I Written approval must be gained from Distribution Network Operator (DNO) prior to works. Commissioning in conjunction with DNO engineer, or as required by DNO

D.C. Cable

Cables must be rated, as a minimum, to the voltage and current ratings derived from the PV array. Standard de-rating factors must also be applied (BS 7671). Cables should be sized such that overall voltage drop at stc between the array and the inverter is <3%. Provided by Viridian Solar

A.C Cable

A.C. cables are to be specified and installed in accordance with BS 7671. The a.c. cable connecting the inverter(s) to the consumer unit should be oversized to minimise voltage drop. A 1% drop or less is recommended.

Lightning Protection

Where there is a perceived increase in risk of direct strike as a consequence of the installation of the PV system, specialists in lightning protection should be consulted with a view to installing a separate lightning protection system in accordance with BS 6651.



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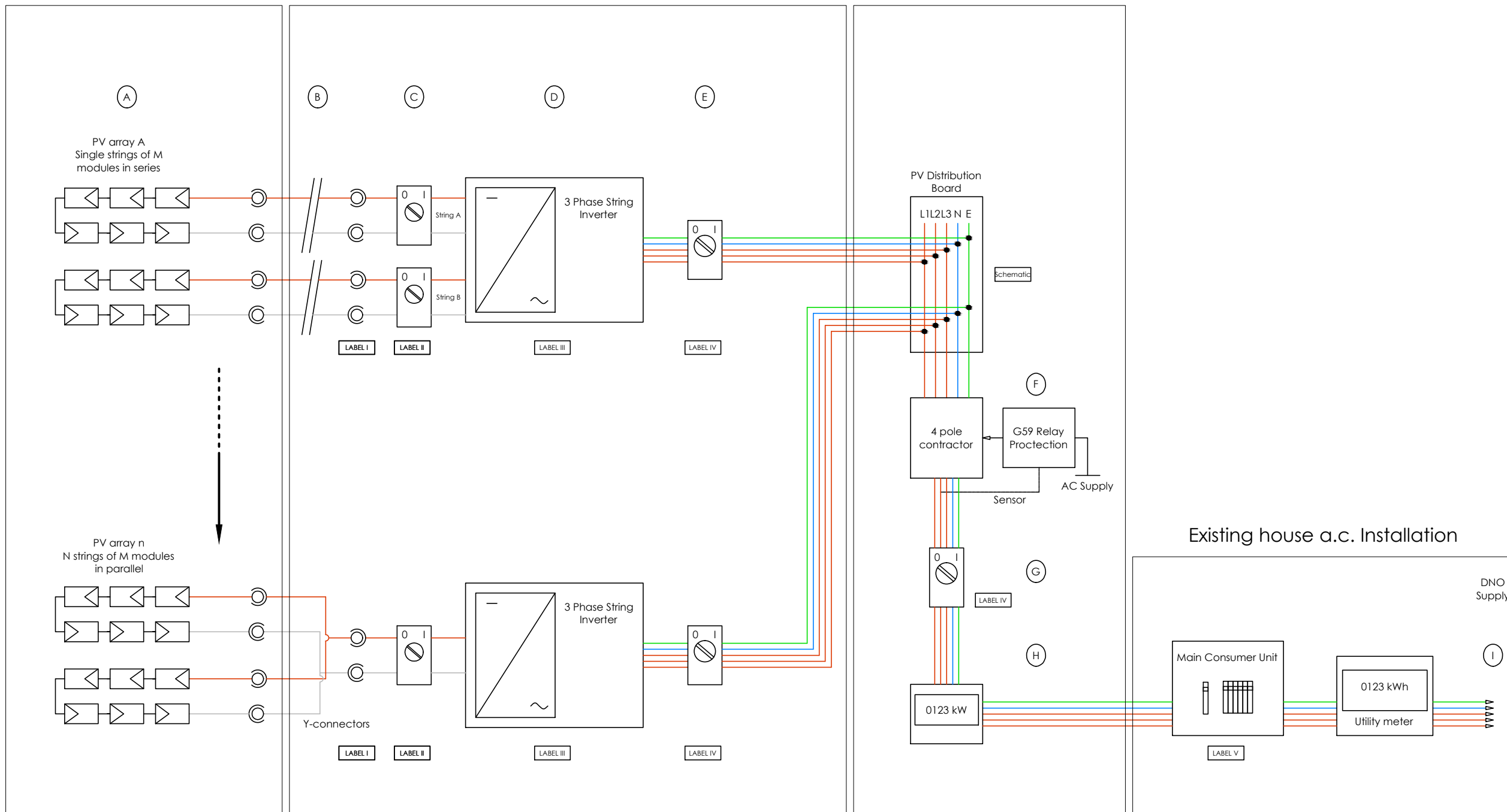
TITLE
**Viridian Clearline PV Wiring
 Diagram - Multiple String
 Inverter - Single Phase**

DRAWN AHS	CHECKED KTT
DRAWING NUMBER 30 002	SHEET 3 of 4
OUTPUT CURRENT Above 16A/Phase	REVISION -
DATE 20.03.12	SCALE

Installation on roof

Installation in loft

New a.c. Installation



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- IV - PV System main a.c. isolator
- V - Do not work on this equipment until it is isolated from both mains and on-site generation supplies

Notes:

- A Single string PV array connected in series
- Voltage rating M x 90.7V for PV30 (Max M = 11)
 M x 60.5V for PV20 (Max M = 16)
 M x 45.3V for PV15 (Max M = 22)
- Current rating N x 10.4 A

B Connectors must be d.c. rated. They should be touch safe to a standard of ingress protection not less than IP 21, Class II and shrouded. Provided by Viridian Solar.

N.B. ENSURE THAT MALE AND FEMALE CONNECTORS ARE FULLY AND SECURELY JOINED.

C The d.c. isolator must be double pole and rated for the system voltage and current maxima as calculated from the PV array. It should be load-break rated. Provided by Viridian Solar.

D The inverter must be treated as standard electrical apparatus and earthed as per BS 7671 if Class 1. It must carry a Type Test certificate to the requirements of Engineering Recommendation G83/1 or comply with all other parts of ER G83/1.
 Inverter settings:-

- Over Voltage 264V
- Under Voltage 207V
- Over Frequency 50.5Hz
- Under Frequency 47HZ

- E A manual a.c. isolator must be provided located in an accessible position within the Customer's installation as in G83/1, which is:-
- in accordance with BS 60947-3
 - must switch all live and neutral conductors.
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F G59 Protection relay may be required by DNO to protect against voltage change - under and over 240V, frequency change - under and over 50Hz and vector shift - 1 deg increments. If required, this device could be supplied by Viridian Solar at extra cost.

- G A main isolator must be provided located in an accessible position within the Customer's installation as in G83/1, which is:-
- in accordance with BS 60947-3
 - must switch all live and neutral conductors.
 - must be securable in the OFF position only.
 - must clearly show the ON and OFF positions

- H Three phase generation meter should be installed to display/record energy delivered by the PV system (kWh). In addition it is highly recommended for instantaneous power output (kW) to be displayed. A kWh meter approved by OFGEM is recommended as it may facilitate payment on ROCs and other Electricity company scheme payments.

I Written approval must be gained from Distribution Network Operator (DNO) prior to works. Commissioning in conjunction with DNO engineer, or as required by DNO

D.C. Cable

Cables must be rated, as a minimum, to the voltage and current ratings derived from the PV array. Standard de-rating factors must also be applied (BS 7671). Cables should be sized such that overall voltage drop at stc between the array and the inverter is <3%. Provided by Viridian Solar

A.C. Cable

A.C. cables are to be specified and installed in accordance with BS 7671. The a.c. cable connecting the inverter(s) to the consumer unit should be oversized to minimise voltage drop. A 1% drop or less is recommended.

Lightning Protection

Where there is a perceived increase in risk of direct strike as a consequence of the installation of the PV system, specialists in lightning protection should be consulted with a view to installing a separate lightning protection system in accordance with BS 6651.



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TITLE

Viridian Clearline PV Wiring Diagram - Multiple String Inverters - Three Phase

DRAWN AHS	CHECKED KTT
DRAWING NUMBER 30 002	SHEET 4 of 4
OUTPUT CURRENT Above 16A/Phase	REVISION -
DATE 20.03.12	SCALE