

# The FRONIUS IG and Integrated Disconnects



**Fronius USA, LLC**  
**Solar Electronics Division**



**POWERING YOUR FUTURE**

# The Integrated DC Disconnect and the NEC



- DC Disconnect
  - Fully rated and UL approved 25A/40A DC Disconnect
  - Meets all NEC equipment requirements for DC disconnect
  - No additional DC disconnect required in most applications



Fronius IG Training

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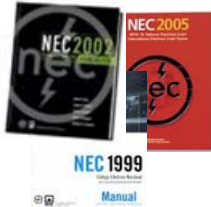
Sicherungsautomaten, Baureihe S 280 UC-K  
für Gleich- und Wechselstrom

UL 1077, File No. E 76126

CSA C22.2 No. 235, Report No. LR 98793-9

## The Integrated DC Disconnect and the NEC cont.

- DC Disconnect is NEC Compliant When:
  - Easily accessible
  - Between 3 and 6 ½ feet off ground
  - No conductors going through home are accessible
  - Local codes do not specifically call for one - AHJ
  - Labeled appropriately (as with any DC Disconnect)
    - Labels Available with the Fronius IG starting February 2006



### PHOTOVOLTAIC DISCONNECT

- WARNING -

Electric Shock Hazard.

Do not touch terminals.  
Terminals on both line and load  
side may be energized in open  
position.



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### PHOTOVOLTAIC DISCONNECT

- WARNING -

Electric Shock Hazard.

Do not touch terminals. Terminals on both line  
and load side may be energized in open position.



### WARNING

DC terminals on array side may  
be energized even when  
disconnect is in open-circuit  
position. Check voltage at  
terminals before removing  
connections. Unplug modules to  
completely remove unit. See  
manual for more information.

DC DISCONNECT  
UNDER LID

# The Integrated AC Disconnect



- AC Disconnect
  - Fully rated and UL approved 16A/32A DC Disconnect
- The Local Utility
  - The local utility defines this requirement
  - The majority of utility companies do NOT require an external disconnect
    - Currently PG&E requires the external AC disconnect
  - Consult with your local utility company to determine if an external AC disconnect is required.



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Sicherungsautomaten, Baureihe S 260-C

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# UL Listings

FRONIUS IG 2000, IG 3000 and IG-2500-LV UL File # E235411



**Northbrook Division**  
333 Pfingsten Road  
Northbrook, IL 60062-2096 USA  
www.ul.com  
tel: 1 847 272 8800  
fax: 1 847 272 8129  
Customer service: 1 877 854 3577

## NOTICE OF AUTHORIZATION TO APPLY THE UL MARK

2004-01-26

Mr. Josef Feichtinger  
Fronius International GmbH  
Gunter Fronius Str 1  
4600 Wels-Thalheim Austria

Fax number: feichtinger.josef@fronius.com

Reference: File E235411 Project 03CA41414

Product(s): USL/CNL- Models IG 2000, IG 3000 and IG 2500 - LV

Dear Mr. Feichtinger,

UL's investigation of your product has been completed under the above project number and the subject product was determined to comply with the applicable requirements.

This letter temporarily supplements the UL Follow-Up Services Procedure and serves as authorization to apply the UL Listing Mark only at the factory under UL's Follow-Up Service Program to the subject product(s), which is (are) constructed as described below:

According to the attached Report/Description

To provide the manufacturer with the intended authorization to use the UL Mark, the addressee must send a copy of this Notice and all attached material to each manufacturing location as indicated on an attachment to this letter.

This authorization is effective from the date of this Notice and only for products at the indicated manufacturing locations. Records in the Follow-Up Services Procedure covering the product are now being prepared and will be sent to the indicated manufacturing locations in the near future. Please note that Follow-Up Services Procedures are sent to the manufacturers only unless the Applicant specifically requests this document.

Products that bear the UL Mark shall be identical to those that were evaluated by UL and found to comply with UL's requirements. If changes in construction are discovered, appropriate action will be taken for products not in conformance with UL's requirements and continued use of the UL Mark may be withdrawn.

Sincerely,

Walter T Jurek  
Engineering Assoc Lead  
Department: 3014CNBK  
Tel: 847-664-2834  
Fax: 837-313-2834  
E-mail: Walter.T.Jurek@us.ul.com

Reviewed by:

Timothy P. Zgonena  
Principal Engineer  
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Tel: 847-664-3052  
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E-mail Timothy. P.Zgonena@us.ul.com

An independent organization working for a safer world with integrity, precision and knowledge.



FRONIUS IG 4000, 5100, 4500-LV UL File # E235411



**Northbrook Division**  
333 Pflingsten Road  
Northbrook, IL 60062-2096 USA  
www.ul.com  
tel: 1 847 272 8800  
fax: 1 847 272 8129  
Customer service: 1 877 854 3577

**NOTICE OF AUTHORIZATION TO APPLY THE UL MARK**

2004-12-15

Mr. Josef Feichtinger  
Fronius International GmbH  
Gunter Fronius Str 1  
4600 Wels-Thalheim Austria

Fax number: 43-7242 / 47825

E-mail: feichtinger.josef@fronius.com

Reference: File E235411 Project 04NK24087 P.O. Number J FEICHTINGER

Product: USL/CNL- INVERTER MODELS IG 4000, 5100, 4500-LV

Dear Mr. Feichtinger,

UL's investigation of your product has been completed under the above project number and the subject product was determined to comply with the applicable requirements.

This letter temporarily supplements the UL Follow-Up Services Procedure and serves as authorization to apply the UL Listing Mark only at the factory under UL's Follow-Up Service Program to the subject product, which is constructed as described below:

Identical to the subject model, which was submitted to UL for this investigation. The UL Records covering the product will be in the Follow-Up Services Procedure, File E235411, Volume 1.

This authorization applies only to the address on this letter.

This authorization is effective from the date of this Notice and only for products at the indicated manufacturing locations. Records in the Follow-Up Services Procedure covering the product are now being prepared and will be sent to the indicated manufacturing locations in the near future. Please note that Follow-Up Services Procedures are sent to the manufacturers only unless the Applicant specifically requests this document.

Products that bear the UL Mark shall be identical to those that were evaluated by UL and found to comply with UL's requirements. If changes in construction are discovered, appropriate action will be taken for products not in conformance with UL's requirements and continued use of the UL Mark may be withdrawn.

Sincerely,

Christopher Flueckiger  
Project Engineer  
Department: 3014CNBK

Tel: 847-864-2864

Fax: 847-313-2864

E-mail: christopher.flueckiger@us.ul.com

Reviewed by:

Timothy P. Zagona  
Principle Engineer  
Distributed Energy Resources Equipment and  
Systems  
Northbrook Office 3615DSNK

As an independent organization working for a safer world with integrity, precision and knowledge.



## ABB Internal Disconnects **UL File # E76126**

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### Sicherungsautomaten, Baureihe S 260-C

UL 1077, File No. E 76126

CSA C22.2 No. 235, Report No. LR 98793-9











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### Sicherungsautomaten, Baureihe S 280 UC-K für Gleich- und Wechselstrom

UL 1077, File No. E 76126

CSA C22.2 No. 235, Report No. LR 98793-9



Anwendungsbereiche	S 200 S 440	S 260 S 270	S 280	S 220	S 500	S 610	S 700 WT 63
Industrienetze  690 V ~ 1000 V ~				S 220	S 500 S 500 HV	S 610	S 700 WT 63
Motorschutz Trafo 	S 200-K S 440-K	S 270-K	S 280-K	S 220-K	S 500-K	S 610-K	S 700-K
 USV 250 V ~ bis  Photovoltaik 1200 V ~			S 280 UC		S 500 UC		
Halbleiter- schutz  Steuer- strom- kreise 24 V DC	S 220-Z S 440-Z	S 270-Z	S 280-Z				
Hohe Selektivität 							S 700
Trenner- und Hauptschalter- Eigenschaften 			S 280	S 220	S 500	S 610	S 700
Export USA, Kanada  1077  480 V ~  489 240 V ~	S 200	S 260 S 270	S 280 S 280 UC S 280 UX	S 220	S 500		