



MARINE DIVISION

Certificate number: 23180/A0 BV

File number: ACE10/721/2

Product code: 2658H

*This certificate is not valid when presented without the full attached schedule composed of 7 sections*

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## TYPE APPROVAL CERTIFICATE

*This certificate is issued to*

**Littelfuse SELCO A/S**

Roskilde - DENMARK

*for the type of product*

**GENERATOR CONTROL AND PROTECTION UNITS**

Type: C6200 FlexGen.

**Requirements:**

Bureau Veritas Rules for the Classification of Steel Ships

*This certificate is issued to attest that BUREAU VERITAS did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.*

**This certificate will expire on: 06 Feb 2017****For BUREAU VERITAS,**

At BV FREDERICIA, on 06 Feb 2012,

Jesper BRAAGAARD



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with BUREAU VERITAS. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of BUREAU VERITAS Marine Division available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against BUREAU VERITAS for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

## THE SCHEDULE OF APPROVAL

### 1. **PRODUCT DESCRIPTION:**

The Littlefuse SELCO C6200 Generator Controller FlexGen Module provides protection functions for three phases systems.

#### 1.1 - **Specification:**

<b>Supply Voltage</b>	10-36 V DC
<b>Generator Voltage</b>	63V to 690V directly connected, up to 32kV via transformers
<b>Rated Frequency</b>	50Hz or 60Hz
<b>Generator max. current</b>	Up to 30000A via 1A or 5A CT
<b>Max. Contact load</b>	230VAC /2A & 30VDC / 2A
<b>External Communication</b>	RS485 Modbus RTU
<b>Operating Temperature</b>	-20°C / +70°C
<b>Number of programmable digital inputs</b>	10
<b>Number of programmable digital outputs</b>	10
<b>Number of programmable analogue outputs</b>	2

Function	Model		
	FlexGen Basic	FlexGen Compact	FlexGen Advanced
3 phase true RMS measurement	•	•	•
Frequency Control	•	•	•
Automatic synchronization	•	•	•
Active Load Sharing	•	•	•
Voltage Control/Voltage matching		•	•
Reactive load sharing		•	•
Reverse Power protection	•	•	•
Excitation loss protection		•	•
RoCof protection (df/dt)		•	•
Vector Shift Protection		•	•
Over current protection (I >) and Over load protection (P >)			•
Short circuit protection (I >>)			•
Over voltage (U >)	•	•	•
Under voltage (U <)	•	•	•
Over frequency (F >)	•	•	•
Under frequency (F <)	•	•	•
Dead bus monitoring /black out limiter	•	•	•
External circuit breaker trip		•	•
Engine error trip			•
Preferential load trip (PM)			•
Load depending start/stop (PM)			•
Large consumer control (PM)			•
Dynamic grid-parallel operation control		•	•
Analogue I/O		•	•
MODBUS RTU (RS485 interface)	•	•	•

#### 1.2 - **Firmware Version**

**Firmware Version:** 1.1.16

**2. DOCUMENTS AND DRAWINGS:**

Firmware release history C6200 dated 07/Jul./2010 - 100422 Version 1.1.16.  
ISO 9001 certificate UK issued 29/May/2009.  
Product Description C6200  
RMRS Certificate C6200 issued 12/May/2010.  
C6200 FlexGen Generator Controller Configuration Manual by SELCO dated 29/Jun./2010.  
C6200 FlexGen Generator Controller Installations Manual by SELCO dated 29/Jun./2010.  
FlexGen Catalogue  
Software Quality Plan Revision 2011.12.02  
Quality Manual Doc N°109 to 114.

**3. TEST REPORTS:**

C6200 and C6250 Test Report by DELTA dated 19/Jun./2008.

**4. APPLICATION / LIMITATION:**

4.1 - BUREAU VERITAS Rules for the Classification of Steel Ships.  
4.2 - Approval valid for ships intended to be granted with the following additional class notations: **AUT-UMS,AUT-CCS, AUT-PORT and AUT-IMS.**  
4.3 - BUREAU VERITAS Environmental Category, **EC Code: 31.**  
4.4 - The equipment fulfils the EMC requirements for installation in General power Distribution Zones.  
4.5 - In case of AUT notations issuance, machinery protection required by the Rules and based on data processing techniques are to be duplicated by another and different system.  
4.6 - Each application and configuration is to be submitted to the Society's examination prior to fitting on board.  
4.7 - The equipment, once installed on board ship, is to be tested in accordance with the above referred Regulations under the supervision of a Society's Surveyor.  
4.8 - Only Hardware and Software and/or Firmware successfully tested together in compliance with the regulations as referred to in page one, according to the declaration of the manufacturer are covered by this certificate.

**5. PRODUCTION SURVEY REQUIREMENTS:**

5.1 - The equipment is to be manufactured, examined and tested by **Littelfuse SELCO A/S - DENMARK** in accordance with the type described in this certificate and Bureau Veritas Rules for the Classification of Steel Ships.  
5.2 - Production sites are to be recognized by Bureau Veritas as per NR320 for HBV products. To this end **Littelfuse SELCO A/S - DENMARK** has to make the necessary arrangements for a Society's Surveyor to perform visits and product audits at the production sites.  
5.3 - **Littelfuse SELCO A/S - DENMARK** has declared to Bureau Veritas that the type of product described in this certificate is manufactured at the following production site:

**Littelfuse SELCO A/S - DENMARK**  
**Betonvej 10**  
**DK-4000 Roskilde**  
**DENMARK**

**6. MARKING OF PRODUCT:**

6.1 - Maker's name or trade mark, Serial number of the units, Equipment type number or model identification under which it was type-tested.  
6.2 - The title and version of each software element included in the installed software system shall be either marked or displayed on command on the equipment.  
6.4 - When the marking and the title and version of the software are displayed only on the display, such information shall also be included in the equipment manual.

**7. OTHERS:**

This approval is given on the understanding that the Society reserves the right to require check tests to be carried out on the equipment at any time and that **Littelfuse SELCO A/S - DENMARK** will accept full responsibility for informing shipbuilders, shipowners or their sub-contractors of the proper methods of use and general maintenance of the equipment and the conditions of this approval.

\*\*\* END OF CERTIFICATE \*\*\*