
TECHNICAL HANDBOOK

smartflower POP



Some of the topics are to be found in separate documents.

01 Technical Datasheet

(separate document)

02 Loading & Packing

Delivery / Transportation Conditions

03 Installation

04 Commissioning

05 User Manual

(separate document)

06 Final Handover

General Notes

The technical handbook embraces a set of product related documents in their latest release versions applicable to the product.

All information (e.g. product dimensions, electrical specifications, operation procedures, etc.) provided within this document and the documents referred are part of the technical handbook and are assumed to be

correct and subject to modifications due to technical progress.

Typesetting and printing errors reserved.

Please see overview of related documents below and refer to linked documents for details.

PRODUCT RELATED DOCUMENTS









| SYSTEM HANDOVER PROCEDURE | RELATED SEPARATE DOC. | CONTENT |
|--|--|---|
| Technical Datasheet  | Smart in Technic and Detail  | product dimensions electrical interfaces country specific regulations |
| Loading & Packing  | This document chapter 2 | truck & transportation information packaging information Loading & unloading requirements |
| Installation  | This document chapter 3 | unpacking unloading mechanical installation |
| Commissioning  | This document chapter 4 | electrical connections settings initial operation |
| User Manual  | Operating Manual  | handover of user manual operation & safety instructions |
| Final Handover | Certificate of Acceptance  | system check operation & safety instructions customer's signature |

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Technical Datasheet



You will find the technical datasheet as a separate document.

Note that the technical datasheet is to be seen as part of the technical handbook even it is an external document.

Loading & Packing

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Delivery/transportation conditions

- i** The product is delivered with covers mounted. Foot area for forklift is left open. Foot cover is stored inside the product's housing.

DO'S AND DONT'S

YES



NO



YES



NO



- i** Total product height including packaging material: 2.65 m

FORKLIFT DRIVERS CAUTION WHEN UNLOADING



Lifter-forks have to stay parallel to openings. Do NOT touch the overhanging sidewall cover in order to avoid scratches. Keep distance during loading or unloading as shown in the picture.



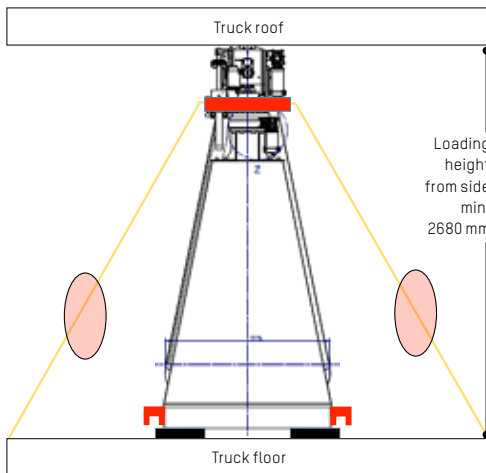
Truck/transportation conditions

- i** Loading ONLY from aside position possible!
(facing truck from lateral direction)

Required truck loading platform clearance from sideward position: min 2.68 m
(important note: product height including packaging material is 2.65 m!)

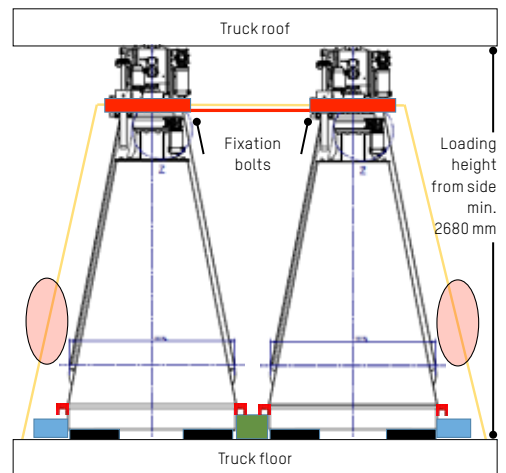
- !** Fixation with anti-slide protection is mandatory!

LOADING REQUIREMENTS



- Belt position
- Transportation guide
- Fit 4 pcs anti slide each product
- Additional protection for belt tensioner
- Anti-collision spacer

single product



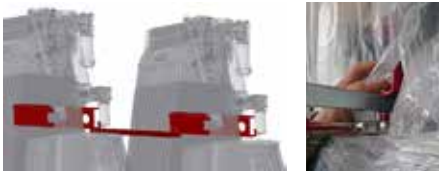
- Belt position
- Transportation guide
- 2 pcs wooden bars (5x8x900) outside
- Fit 1pc woodenstick (10x10x900) between Pop's
- Fit 4 pcs anti slide each product
- Additional protection for belt tensioner
- Anti-collision spacer

two products side by side

Double function of transportation guide

During transportation the red-colored transportation guide is used for fixing the product.

- i** For fixing the product use the transportation guide and fix the bolts between.



HOW TO REMOVE THE TRANSPORTATION GUIDE?

- i** Transportation guide is fixed by 2 screws, please remove and replace those screws again.



UNLOADING INFORMATION

Before unloading, first remove the belt plus the transportation guide – screw/bolts.



2ND USECASE OF TRANSPORTATION GUIDE INFORMATION

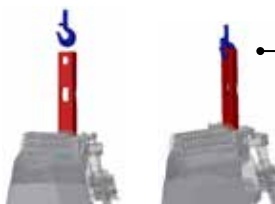
- i** For installation by crane, the red transportation guide serves as hook to lift the product.

Fix the red guide in upright position with the 2 screws (premounted) for lifting!



2 screws premounted

For lifting up by crane the big hole is used for the hook.



big hole for the hook

i Important notes

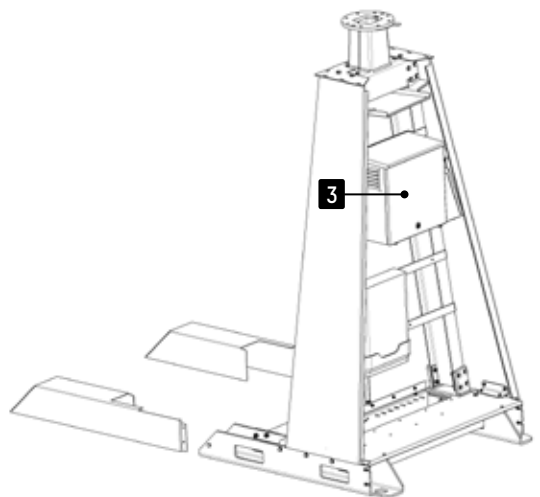
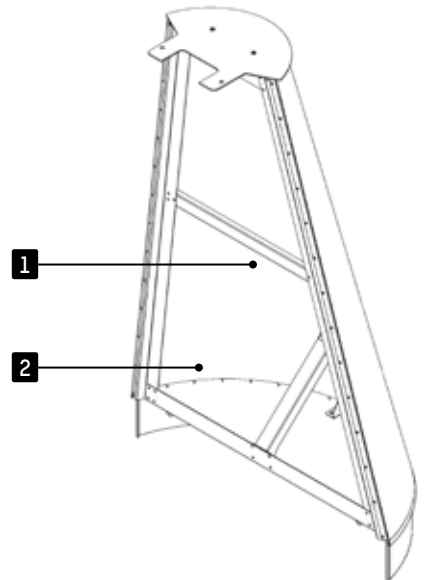
- Take care with belt tensioner to not scratch the product covers!
- Forklift-driver has to be careful to NOT touch the sidewall covers!
- Keep distance during unloading!
- Before unloading the product, an optical check for transportation damages is strongly recommended! In case of damages found, it is mandatory to report the extent of damage in written to the freight forwarder. Please ask your local dealer for the smartflower damage report template.
- The transportation guide MUST be removed latest prior to electrical installation!

Packing

All accessories are mainly fixed inside the product's rear cover.

Parts according to part list are packed and fixed inside the rear cover dome and the product's housing

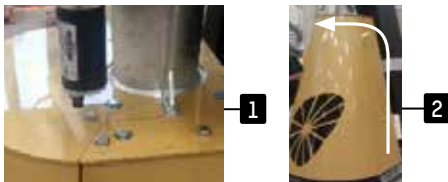
- 1** screws and bolts
product documentation
windguard
earthscrews (optional), etc.
- 2** foot covers (2x)
packed to the bottom of the dome
- 3** key for electric box inside
- 4** keys for controller cover
fixed inside near serial number plate
- 5** windguard stick
fixed with protection foil
on frontside of panel



Accessory parts

ACCESSING THE ACCESSORY PARTS – HOW TO REMOVE THE REAR COVER DOME?

- 1 open/remove 2 screws from upper cover (size 19 mm hex bolts)
- 2 lift dome first 5–10 cm up and then remove rearwards (the bottom of the cone is guided with 2 pins)



REUSABLE PARTS

The following parts are primarily used for transportation and installation purposes.

- i Please store them for cases of further installations.

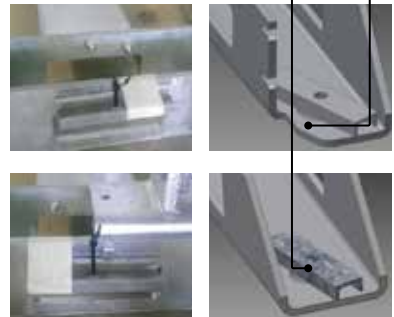
Transportation guide / crane hook



Anti-collissions spacers



Spacers are used as mounting brackets of the product with screw foundation.



Installation

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Installation

UNLOADING, CRANING AND POSITIONING

1. Pre checks

- Check 5m clearance of product's active area. Any collision anticipated **MUST** be avoided!
- Check exact positions of cable tubes for AC connection and wind sensor cabling.



- Check positions and dimensions of mounting bolts in concrete basement and horizontal alignment with water level. In case of using earth screw foundation check positions and height levels.
- Check wind sensor position (outside 5 m active area) and cabling (max 10 meter).
- In case of using a different mounting pole than included in the scope of delivery, ensure that the outer diameter is 50mm.



2. On the truck remove the plastic packing and check for transport damages (scratches and bumps on the dome, the sidecovers, solar panels frontglass and siderails).

3. Unloading

a) Unloading by using a fork lift only from aside position allowed using the dedicated fork lift supporting holes at the product's bottom



b) Unloading and positioning with crane

⚠ Important note: Use the transportation guide as crane hook!

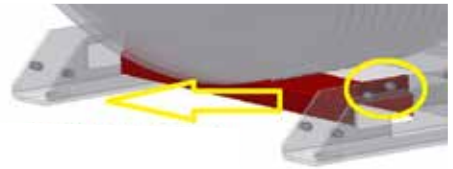
📖 Double function of transportation guide
Refer to chapter 02 – page 14

Installation

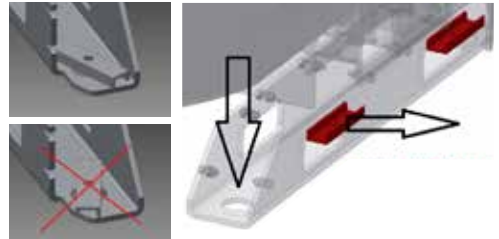
4. Craning and positioning



- ⓘ Remove forklift protection before fixing on the foundation is done otherwise when already fixed to the foundation resulting tension will not allow to remove the forklift protection any more!



- ⓘ Remove protection rails and use for foundation fixing



5. Adjustment on foundation

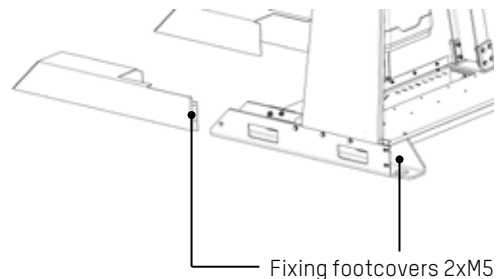
- ⓘ This example shows screw foundation. Use a water level to adjust properly!



- ⓘ Maximum distance between foundation and frame 2 mm otherwise install steel shims between



6. Install footcovers



Commissioning

| | |
|---------------------------------------|----|
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Commissioning, electrical connection

ELECTRICAL CONNECTIONS

| Cable length | cable cross-section for power supply and supply cable |
|-------------------|---|
| 15 m to 30 m | 3 x 2,5 mm ² AWG 14 |
| From 30 m onwards | the local standards must be followed |

Note: Home connection must be secured with the C16 line protection

Minimum cross-section for cabling

2.5 mm² to 30 m length is required as the minimum cross-section. The cross-sections prescribed as per the applicable standard for electricians must be adhered to.

Installing the cables

Cables must always be installed in an installation pipe that is approved for outside working. If possible, a tape with a warning via the electrical cable must also be installed. The exact requirements for this must be verified and adhered to, depending on the countries.

RISK OF DEATH



Connecting the system incorrectly to the power supply can cause current surges that can result in death. Get the electrical connections established only by an electrician with the appropriate qualification. Incorrect and incomplete earthing can cause current surges. Get the earthing done only by an electrician with the appropriate qualification. Test earthing with the suitable measuring equipment.

- i Incorrect connection of the system to the power supply can damage the system. Get the electrical connections established only by an electrician with the appropriate qualification.

Commissioning, electrical connection

CONNECT POWER CABLES IN THE DEVICE

- Connect the power cable for home connection inside the main control cabinet after cover removal.
- Use the empty PG – gland on bottom side to insert electrical connecting cable and connect it to the clamp (left end of cap rail).
- Loosen the screws and wire according to the connection plan and position identification.



- Installation of anemometer is done by connecting the anemometer-plug to the control cabinet. If it is necessary to remove the plug (i.e. due to cable mounting) it is possible to unscrew the plug, remove it and attach it again after the cable is laid properly. The pins at the plug as well as each cable end are numbered from 1 to 4.



CONNECTION ORDER AND NECESSARY SUPPLY SECURITY:

- The power line has to be laid from power attachment point (typically house site) to the product till the connector terminal inside control cabinet. First connect to the product side. Only when everything is finished here, make the connection to the line protection switch at the distribution side in the house and start the system.
- A main switch and a fuse with 16 A for 2.5 mm² must be provided in the house. Country-specific provisions must be followed.

First start-up

Attention: smartflower must be started for the first time only by personnel certified by smartflower energy technology GmbH. Commissioning by other persons automatically results in the loss of guarantee.



NOTE

During the first commissioning, the acceptance log must be filled. This is the basis for the guarantee

Checks as per the acceptance log


ATTENTION

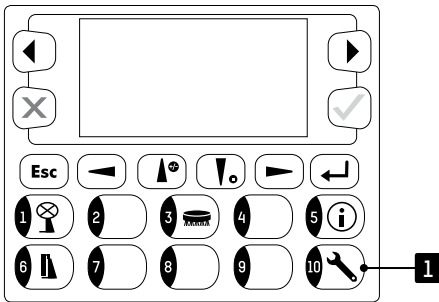
Follow the course in the acceptance log and first run all the visual checks.

Refer to “certificate of acceptance” chapter 6 Final Handover”

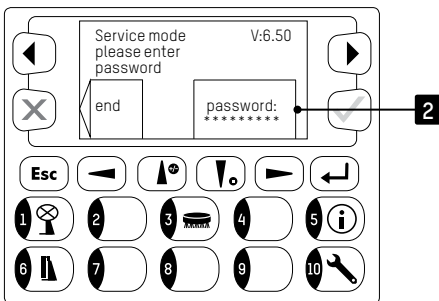
Commissioning, settings



Before commissioning for the first time, the exact position and a possible deviation for the south alignment must be updated in the system. You can configure these settings in the service mode.

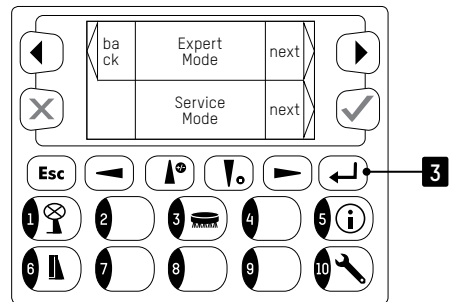
- » **1** Press the "10 – service mode"  key to access the service mode.



- » **2** You will be directed to the password screen.



- » **3** Press the "confirm"  key; the password field will be highlighted. Now you can enter the password using the keys (PWD: 7357491). For confirming the password, press the "confirm"  key again.

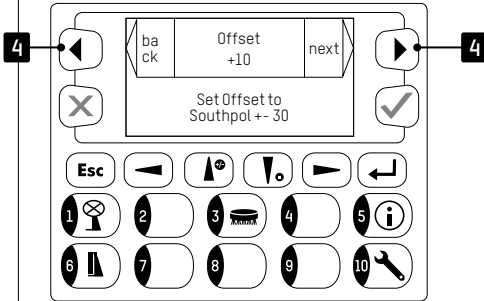


NOTE

Use the "edit" key to select the edit mode in the selected window to change the settings. Depending on the setting option, you can either enter a number (you can select special characters using up/down keys) or select the relevant option using up or down keys.

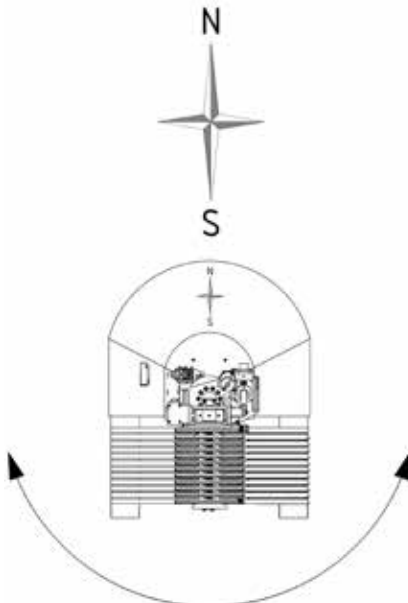
Commissioning, settings

» 4 Use "next" and "back" keys to navigate through individual menu items.



In the offset screen, you can enter a deviation, which is maximum of +/- 30 degrees, of smartflower from the south alignment.

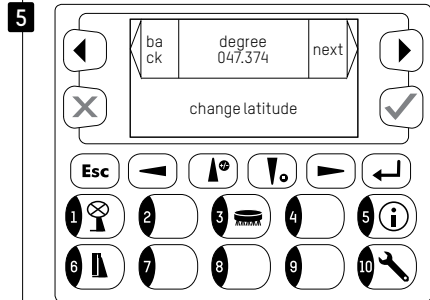
These deviations must be taken into account as shown in the figure.



ATTENTION

The correct input of longitude and latitude is absolutely essential for the correct sun tracking.

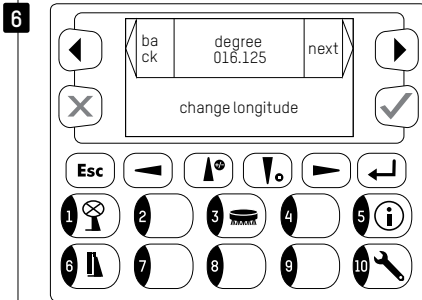
» 5 In the next screen, you must enter the correct latitude for optimum sun tracking. Example: Pinkafeld – latitude 47.374



» 6 Activate the selection using the "confirm" key and then enter "0", "4", "7" using corresponding keys. Use the "up arrow" key to enter a decimal point "."; Then use corresponding keys to enter "3", "7", "4" (use the "down arrow" key to enter negative coordinates)

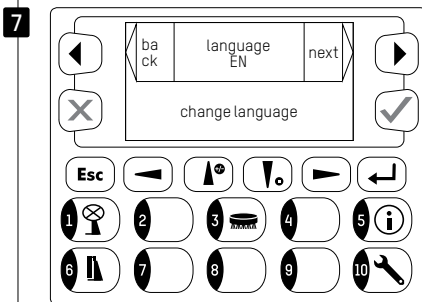
Commissioning, settings

- » **5** In the next screen, you must enter the correct longitude for optimum sun tracking. Example: Pinkafeld – longitude 16.125

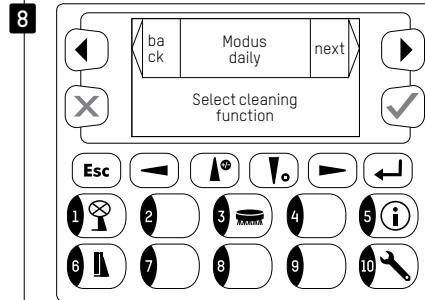


- » **6** Activate the selection using the "confirm" (confirm) key and then enter "0", "1", "6" using corresponding keys. Use the "up arrow" (up arrow) key to enter a decimal point "."; Then use corresponding keys to enter "1", "2", "5" (use the "down arrow" (down arrow) key to enter negative coordinates).

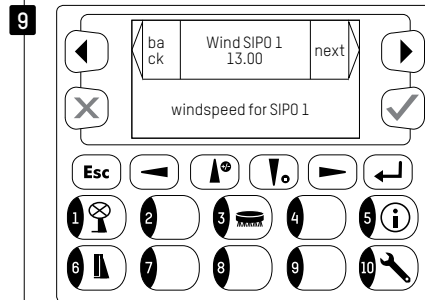
- » **7** The next setting allows changing the language.



- » **8** The following screen allows to setup the cleaning function frequency (daily, 1/ week, 1/month, never)

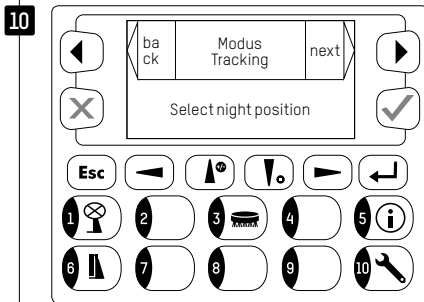


- » **9** In the next screen you can adjust the limit wind speed in which the system will move into SIP01 in m/s.

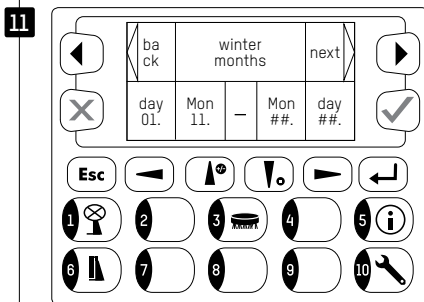


Commissioning, settings

- » **10** The next settings is used to program the position in which the unit stays during the night (tracking/SIP01/SIP02/season)




- » **11** If season mode is selected the last screen allows you to define a date frame in which the system moves into SIP02 instead of SIP01 to avoid problems with heavy snow



- » **12** Set date and time. Note that time is ALWAYS in UTC time, NOT local time zone!

User Manual

 You will find the user manual as a separate document.

Note that the user manual is to be seen as part of the technical handbook even it is an external document.

Final Handover

| | |
|------------------------------|----|
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Certificate of Acceptance

To be filled out together with the customer!

Serial number:

SF-

Date:

Place:

Type: SF Colour: RAL:

Orientation

The system is oriented to the south

System differs from southern orientation:

GPS coordinates:

Customer

Mr. / Ms. First name / Surname

Tel./Email

Street

Country

Postal code

Place

Service technician

First name

Surname

Company

Final Handover

The final handover follows the document “Certificate of Acceptance / smartflower” which is subject to go through together with the customer during installation by authorized service personnel within the smartflower dealer network.

The handover procedure is performed mutually with the customer.

Having completed the handover procedure the written agreement by the customer’s signature confirms

- correct delivery of the product,
- proper installation of the product,
- handover of the product, and
- having received and understood adequate training in operating the product within the user’s sole responsibility.

The following topics are covered and verified during the handover process by authorized service personnel.

For details refer to the document “Certificate of Acceptance / smartflower”.

Note that the referred document is to be seen as part of the technical handbook

TOPICS COVERED AND VERIFIED

customer & service partner details



installation location and orientation



serial number and product features delivered



foundation and anchorage



external visual check



mounting of wind guard



electrical connection to mains



system control and configuration



inverter configuration



full system test



handover of system manual



user operation briefing



operator security instructions



handover of system access keys/information



customer’s signature





EU Declaration of Compliance

The manufacturer

smartflower energy technology GmbH
Europastraße 1, 7540 Güssing, Austria
Telephone: +43 5 9010-29410
Fax: +43 5 9010-29411
www.smartflower.com

herewith declares that the following product:

Product name: smartflower™
Type designation: SFPOP A 01
Serial number: **SF-POP 01 14 Y 0001**
Year of manufacture: 2014

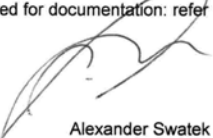
complies with all relevant regulations of the **Machinery Directive (2006/42/EG)**.
Furthermore, the machine complies with all regulations of the **Directive for electromagnetic compatibility (2004/108/EG)**.

The following harmonised standards have been applied:

- DIN EN ISO 12100 - Safety of machinery - General principles for design - Risk assessment and risk reduction
- DIN EN 60204-1 - Safety of machinery - Electrical equipment of machines - Part 1: General requirements
- EG_Niederspannungsrichtlinie (Low Voltage Directive) 2006/95/EC
- EN 61010-1 - Safety requirements for electrical equipment for measurement, control and laboratory use

Name of the person authorised for documentation: **Alexander Swatek**
Address of the person authorised for documentation: refer to the manufacturer's address

Güssing, September 2014,


Alexander Swatek
Managing Director under Trade Law