Appendix 1 – Documentation

Technical regulation 3.2.1  
for power plants up to and including 11 kW

(Plant category A1)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | | Published UK edition | | 22.06.2016 | | 29.06.2016 | 29.06.2016 | 29.06.2016 | DATE |
| KDJ | | FBN | BJA | APJ | NAME |
| REV. | | DESCRIPTION | | PREPARED | | CHECKED | REVIEWED | APPROVED |  |
|  | |  | | 15/01353-92 | | | | | |
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Revision view

|  |  |  |  |
| --- | --- | --- | --- |
| **Section no.** | **Text** | **Revision** | **Date** |
|  |  |  |  |
|  | In future, the revision number of 'Appendix 1 - Documentation' will follow the revision number of the technical regulation. (UK edition of the entire regulation has doc. 15/01353-94).  Editorial corrections made. | 2 | 30.06.2016 |
|  | Not published | 1 | - |
|  | Appendix 1 – Documentation section of TF 3.2.1 has been prepared in a separate document. (The complete technical regulation TF 3.2.1 has doc. 15/01353-1). | 0 | 30.06.2016 |

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Appendix 1 Documentation

Appendix 1 specifies the documentation requirements for *plant category* A1.See section B1.1. or B1.2. depending on whether *plant components* are included in the *positive list*.

The documentation, as specified in section 8, must be sent electronically to the *electricity supply undertaking*.

The technical documentation must contain configuration parameters and configuration data applicable to the *plant* at the time of commissioning.

All subsections in the appendix must be filled in for the *plant* in question.

If information changes after the time of commissioning, updated documentation must be submitted as required in section 2.2.

A template for Appendix 1 is available on the website [www.energinet.dk](http://www.energinet.dk).

* 1. Appendix 1 for plant category A1 not listed on the positive list

The documentation form must be filled in with data for the *plant* valid at the time of commissioning and sent to the *electricity supply undertaking.*

* + 1. Identification

|  |  |
| --- | --- |
| *Plant* | Description of the *plant*: |
| GSRN number |  |
| *Plant owner* name and address |  |
| *Plant owner* tel. no. |  |
| *Plant owner* e-mail |  |
| Type/model |  |
| *Voltage (nominal)* |  |
| *Rated power* (data sheet) |  |

* + 1. Power quality

For each power quality parameter, indicate how the result was achieved.

* + - 1. Voltage changes

|  |  |
| --- | --- |
| Are the voltage changes for the entire *plant* below the limit values?  Where to find documentation that this requirement has been met? | Yes  No |

* + - 1. DC content

|  |  |
| --- | --- |
| Does the DC content at normal operation exceed 0.5% of the nominal current?  Where to find documentation that this requirement has been met? | Yes  No |

* + - 1. Asymmetry

|  |  |
| --- | --- |
| Does the asymmetry at normal operation and during faults exceed 16 A?  Where to find documentation that this requirement has been met? | Yes  No |
| If the *plant* is made up of single-phase *electricity-generating units*, have you taken measures to ensure that the above limit is not exceeded?  Where to find documentation that this requirement has been met? | Yes  No |

* + - 1. Flicker

|  |  |
| --- | --- |
| Is the *flicker* contribution for the entire *plant* below the limit value?  Where to find documentation that this requirement has been met? | Yes  No |

* + - 1. Harmonic distortions

|  |  |
| --- | --- |
| Are all *harmonic distortions* for the entire *plant* below the limit values?  Where to find documentation that this requirement has been met? | Yes  No |

* + 1. Connection and synchronisation

|  |  |
| --- | --- |
| Can the *plant* be started and generate power continuously within the *normal production* range, limited only by the protective settings?  Where to find documentation that this requirement has been met? | Yes  No |
| Do connection and synchronisation occur three minutes, at the earliest, after voltage and frequency have come within the *normal* *production* range?  Where to find documentation that this requirement has been met? | Yes  No |

* + 1. Active power control at overfrequency

|  |  |
| --- | --- |
| Is the *plant* equipped with a *frequency response* function?  Is the function activated?  Where to find documentation that these requirements have been met? | Yes  No  Yes  No |

* + 1. Absolute power constraint function

|  |  |
| --- | --- |
| Is the *plant* equipped with an a*bsolute power constraint* function*?*  Is the function activated?  Where to find documentation that these requirements have been met? | Yes  No  Yes  No |

* + 1. Ramp rate constraint function

|  |  |
| --- | --- |
| Is the *plant* equipped with a *ramp rate constraint* function?  Is the function activated?  Where to find documentation that these requirements have been met? | Yes  No  Yes  No |

* + 1. Reactive power control

|  |  |
| --- | --- |
| Reactive power can be controlled by means of | *Q control*  *Power Factor control*  Automatic *Power Factor control* |

* + - 1. Q control

|  |  |
| --- | --- |
| Is the control function activated with a set point of \_\_\_\_\_ VAr?  (Value may not differ from 0 VAr unless agreed with the *electricity supply undertaking*).  Where to find documentation that this requirement has been met? | Yes  No |

* + - 1. Power Factor control

|  |  |
| --- | --- |
| Is the control function deactivated?  Where to find documentation that this requirement has been met? | Yes  No |

* + - 1. Automatic Power Factor control

|  |  |
| --- | --- |
| Is the control function deactivated?  Where to find documentation that this requirement has been met? | Yes  No |

* + 1. Protection against electricity system faults
       1. Relay settings

In the table below, indicate the values at the time of commissioning.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Protective function** | **Symbol** | **Setting** | | **Trip time** | |
| Overvoltage (step 2) | U>> |  | V |  | ms |
| Overvoltage (step 1) | U> |  | V |  | s |
| Undervoltage (step 1) | U< |  | V |  | s |
| Undervoltage (step 2) | U<< |  | V |  | ms |
| Overfrequency | *f>* |  | Hz |  | ms |
| Underfrequency | *f<* |  | Hz |  | ms |
| Change of frequency | *df/dt* |  | Hz/s |  | ms |

* + - 1. Central protection

|  |  |
| --- | --- |
| Has a central protection unit been installed?  Where is it located?  Where to find documentation that these requirements have been met? | Yes  No  *PCI*  *POC* |
| Has consumption been connected after the protection unit?  Where to find documentation that this requirement has been met? | Yes  No |

* + 1. Signature

|  |  |
| --- | --- |
| Date of commissioning |  |
| Company |  |
| Person responsible for commissioning |  |
| Signature |  |

* 1. Appendix 1 for plant category A1 listed on the positive list

The documentation form must be filled in with data for the *plant* at the time of commissioning and sent to the *electricity supply undertaking*.

* + 1. Identification

|  |  |
| --- | --- |
| *Plant* | Description of the *plant*: |
| GSRN number |  |
| *Plant owner* name and address |  |
| *Plant owner* tel. no. |  |
| *Plant owner* e-mail |  |
| Type/model |  |
| *Voltage (nominal)* |  |
| *Rated power* (data sheet) |  |

* + 1. Active power control at overfrequency

|  |  |
| --- | --- |
| Is the *plant* equipped with a *frequency response* function?  Is the function activated? | Yes  No  Yes  No |

* + 1. Absolute power constraint function

|  |  |
| --- | --- |
| Is the *plant* equipped with an *absolute power constraint* function?  Is the function activated? | Yes  No  Yes  No |

* + 1. Reactive power control

|  |  |
| --- | --- |
| Reactive power can be controlled by means of | *Q control*  *Power Factor control*  Automatic *Power Factor control* |

* + - 1. Q control

|  |  |
| --- | --- |
| Is the control function activated with a set point of \_\_\_\_\_ VAr?  (Value may not differ from 0 VAr unless agreed with the *electricity supply undertaking*). | Yes  No |

* + - 1. Power Factor control

|  |  |
| --- | --- |
| Is the control function deactivated? | Yes  No |

* + - 1. Automatic Power Factor control

|  |  |
| --- | --- |
| Is the control function deactivated? | Yes  No |

* + 1. Protection against electricity system faults
       1. Relay settings

In the table below, indicate the values at the time of commissioning.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Protective function** | **Symbol** | **Setting** | | **Trip time** | |
| Overvoltage (step 2) | U>> |  | V |  | ms |
| Overvoltage (step 1) | U> |  | V |  | s |
| Undervoltage (step 1) | U< |  | V |  | s |
| Undervoltage (step 2) | U<< |  | V |  | ms |
| Overfrequency | *f>* |  | Hz |  | ms |
| Underfrequency | *f<* |  | Hz |  | ms |
| Change of frequency | *df/dt* |  | Hz/s |  | ms |

* + - 1. Central protection

|  |  |
| --- | --- |
| Has a central protection unit been installed?  Where is it located? | Yes  No  *PCI*  *POC* |
| Has consumption been connected after the protection unit? | Yes  No |

* + 1. Signature

|  |  |
| --- | --- |
| Date of commissioning |  |
| Company |  |
| Person responsible for commissioning |  |
| Signature |  |