

**Construction
Design Handbook**

**APPLICATION GUIDANCE FOR THE USE OF DISCONNECTOR
AUXILIARY CONTACTS IN PROTECTION SCHEMES**

DH 27

Issue 1

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Documents

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1. PURPOSE

This design handbook offers guidance to CDUs in the use of disconnector auxiliary contacts in protection schemes for all light current replacement, new build and asset replacement work. It is not intended to direct CDUs to a particular solution.

The scope is primarily in the use of disconnector auxiliary switches to select protection schemes or to isolate tripping.

It does not cover the automatic opening of disconnectors for transformer isolation purposes or disconnectors in AC wiring.

This handbook also intends to clarify areas where National Grid requirements may be unclear.

2. REFERENCES

PS(T)010, Application and Setting of Protection.

PS(T)055, Application & Setting of Systems that Perform Synchronising, DAR, Automatic Transformer Isolation and Ferroresonance Quenching.

TGN(E)205, Application & Setting of Systems that Perform Synchronising, DAR, Automatic Transformer Isolation and Ferroresonance Quenching.

TS 2.19, Ancillary Light Current Equipment.

3. RESPONSIBILITIES

3.1 Construction Delivery Units (CDU)

It is the CDU's responsibility to produce a design fully compliant to National Grid's technical specifications. This document is intended to give guidance on the implementation and application of these technical specifications.

3.2 National Grid

It is National Grid's responsibility to ensure the CDU is aware of all the relevant technical standards and to review the design for compliance with these standards and the Substation Design Specification requirements.

4. REQUIREMENTS

4.1 General Requirements

Disconnector status is used in protection schemes to select protection functions, to provide information to logic functions either hardwired or in software, to isolate tripping, or to provide local indication.

Where modern numeric protections require disconnector transformer status inputs, then in all cases, both normally open and normally closed contacts should be provided as digital inputs. This should facilitate Don't Believe It (DBI) implementation.

For most currently available disconnectors, no magnetic bolt provisions exist and careful choice of correct contacts is required. In most instances, this will require that the auxiliary contacts do not operate until the primary contacts are fully opened or closed. Referring to TS 3.2.2, Disconnectors and Earth Switches, the correct auxiliary switch contacts are Type (iv) for open indications and Type (vi) for closed indications.

When disconnectors are fitted with magnetic bolt interlocks these should be engineered in series with the two disconnector normally open (NO) and normally closed (NC) auxiliary switch contacts for all applications.