Approved Interface Protection Relays

1. PURPOSE AND SCOPE

This document provides a list of Approved Interface Protection Relays (IPR) for embedded generation systems to comply with the IEC Standards and ANSI/IEC device functions as outlined in STNW1174, STNW1175, STNW3511 and STNW3515. Specific settings for the required functions are not considered in this document, please refer to the relevant standard for this detail.

Suppliers who wish to have an item approved for use that is not currently on the approved product list may make a written application to the following email addresses:

tech.enquiries@ergon.com.au or tech.enquiries@energex.com.au

The list provided is based on the IPR certified compliance to the following standards:

- IEC 60255-1 Common requirements;
- IEC 60255-26 EMC requirements;
- IEC 60255-27 Product safety requirements;
- IEC 60255-127 Functions requirements for over/under voltage protection; and
- IEC 60255-181 Functional requirements for frequency protection.

2. DEFINITIONS, ABBREVIATIONS AND ACRONYMS

Term	Definition
IPR	Interface Protection Relay
NVD	Neutral Voltage Displacement
RPEQ	Registered Professional Engineer of Queensland

3. REFERENCES

3.1. Controlled Documents

Document Number	Document Name	Document Type
STNW1174	Standard for Low Voltage EG Connections - 3055320	Standard
STNW1175	Standard for High Voltage EG Connections - 2946177	Standard
STNW3511	Dynamic Standard for Low Voltage EG Connections - 3427416	Standard
STNW3515	Standard for LV EG Connections to Isolated Networks - 27979754	Standard

4. INTERFACE PROTECTION RELAY REQUIREMENTS

It is the obligation of the Registered Professional Engineer of Queensland (RPEQ) designing the EG System to select a IPR that will support the correct device functions required for the design and ensure the correct settings are able to be enabled.

Level 1 approved relays for use in STNW1174, STNW1175, STNW3511 and STNW3515 applications are for Inverter Energy Systems compliant to IEC 62116 for anti-islanding. The eligibility of these relays is based on acceptance of the certified compliance to relevant standards and

functional compatibility of ANSI device functions 27, 59, 81U, 81O and 81R in a single device that can be set to the recommended initial settings for systems with full export. Function 32 or a Power Export Limit (PEL) function is required for partial- or non-export systems that does not utilise the “soft limit” capability within the inverters as defined in AS/NZS 4777.2. The Power Export Limit Function may be achieved with a 4 quadrant power meter, or external CT input feeding a PLC or inverter controller to ramp inverter output power.

Table 1 - High Priority Functions - Level 1

Item	Protection Functional Description	ANSI/IEEE Standard C37.2 Code
1	Under voltage (UV)	27P
2	Over voltage (OV)	59P
3	Under frequency (UF)	81U
4	Over frequency (OF)	81O
5	Rate of change of frequency (ROCOF) #	81R
6	Directional power (for export limiting)	32 (can be a separate device)

ROCOF is mandatory for IES and rotating machine systems.

Level 2 approved relays are for rotating machine generation that is parallel with the network for purposes other than bumpless transfer or for periodic load testing. These relays all meet the Level 1 requirements and include the function 59N (or 59G) required for export systems greater than 24 hours per annum making them eligible as a IPR for rotating machine EG Systems. Alternative relays or combinations of relays can be used that satisfy protection requirements.

Table 2 - Level 2 Function

Item	Protection Functional Description	ANSI/IEEE Standard C37.2 Code
7	Neutral voltage displacement (NVD)*	59N (59G)
8	Auxiliary supply scheme or relay fail	--

* Neutral voltage displacement is used to detect earth faults on the delta side of the transformer

Table 3 lists approved general protection relays that have been reviewed that perform the required ANSI code device functions and that meet the stipulated IEC standards as listed in STNW1174, STNW1175, STNW3511 and STNW3515. The sources are listed along with the endorsement date for each relay. Some of the relay compliance to standards may not necessarily refer to third party testing certification.

Table 3 - Approved Relay List

Manufacturer	Model	Approval		Endorsed Date
		Level 1	Level 2	
ABB	CM-UFD.M33	Yes	No	24/03/2021
ABB	CM-UFD.M33M	Yes	No	26/04/2022
ABB	REG615	Yes	Yes	09/02/2024
ABB	REF615	Yes	Yes	10/05/2024
ComAp	MainsPRO	Yes	No	07/01/2021
ComAp	InteliGen 1000	Yes	No	31/03/2023
ComAp	InteliMains 1010	Yes	No	31/03/2023
ComAp	InteliNeo 6000	Yes	No	31/03/2023
ComAp	Intelipro	Yes	Yes	26/02/2021
ComAp	InteliSys Controller	Yes	No	24/03/2021
ComAp	InteliSys Hybrid Controller	Yes	No	24/03/2021
ComAp	InteliMains Controller	Yes	No	24/03/2021
Noja Power	RC20 Controller (REL-20-4G)	Yes	Yes	08/07/2024
Schneider	Easergy P5	Yes	Yes	20/04/2021
SEL	SEL-751	Yes	Yes	30/05/2023
Woodward	easYprotec-1410	Yes	No	16/04/2020
Woodward	MFR300	Yes	No	16/04/2020
Woodward SEG	MRA4	Yes	Yes	28/04/2023
Woodward SEG	MRU4 HighPROTEC	Yes	Yes	20/04/2021
Woodward SEG	MCA4 HighPROTEC	Yes	Yes	11/01/2022

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Manufacturer	Model	Approval		Endorsed Date
		Level 1	Level 2	
Woodward SEG	XUFD	Yes	No	31/07/2023