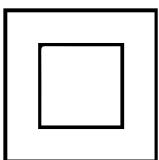


D.I.T.A.

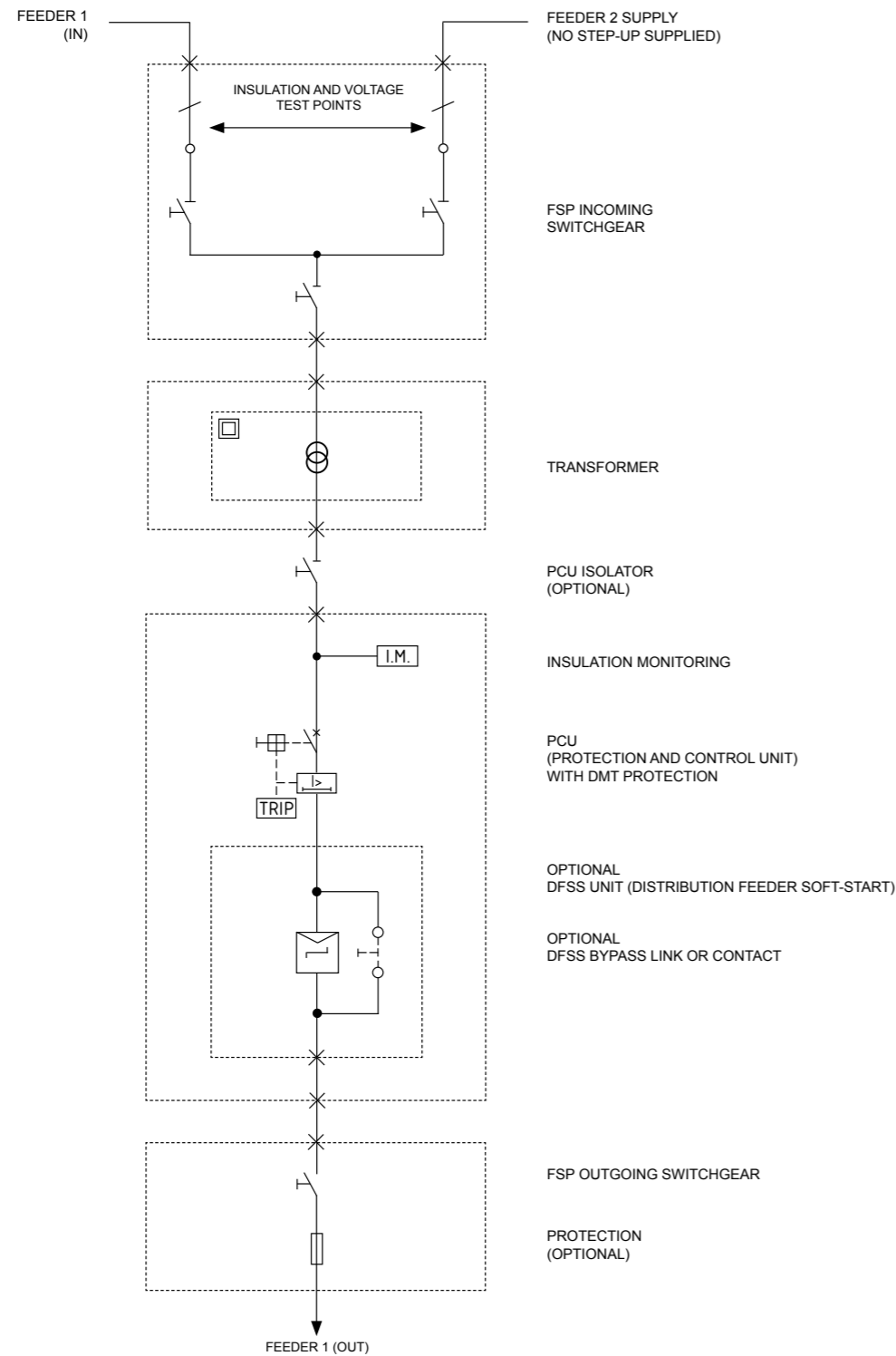
**Distribution Interface Transformer Assembly In Accordance with NR/L2/SIGELP/27419
 Full Product Acceptance - Certificate Number: PA05/06430**



Introduction

This guide outlines the configurations within which DITAs (Distribution Interface Transformer Assembly). A DITA may be used in signalling power distribution systems, where the nominal supply voltage is up to and including 650V a.c. and where the electrical systems are either TN or IT, for power ratings up to and including 40kVA.

Figure 1 (below) shows a schematic representation of a DITA.



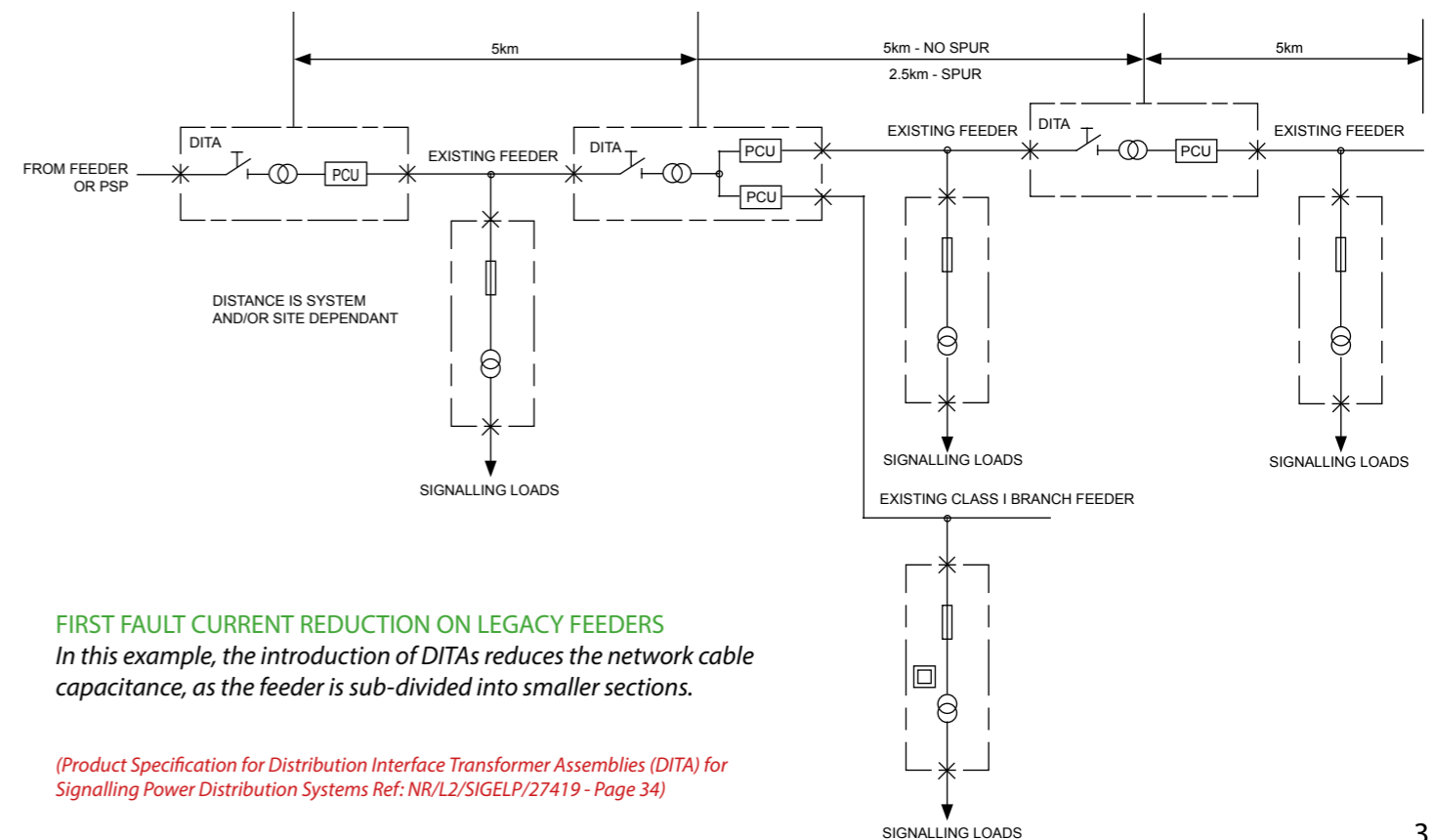
DITA System Overview

A DITA is a switchgear assembly consisting of an arrangement of interconnected modules that can be used for specific applications.

DITA Components

A DITA may consist of some or all of the following

- Switchgear - the switchgear and associated protective devices required to interface the DITA with the electrical system. The switchgear would usually be a separate assembly installed within the same housing, REB or PSP.
- Transformer - the transformer section of the DITA may contain the incoming isolating transformer(s) and the main isolating device for the DITA system. The transformer(s) may be single or three phase arrangement, depending on the system requirements. The main isolating device shall be suitable for disconnecting all sources of supply.
- PCU (Protection Control Unit) isolator - an intermediate isolator, installed between the isolating transformer and the PCU. This isolator is optional and may form part of a DITA module or the switchgear assembly. Where fitted, the PCU isolator shall isolate all sources of supply to the PCU, including auxiliaries, simultaneously.
- PCU - protection control unit containing the DMT electronic circuit protection for the DITA system, insulation monitoring, distribution feeder soft start (DFSS), DFSS bypass, alarms and auxiliary power supplies.
- DMT - electronic circuit protection within the PCU, programmable with a definite minimum time characteristic for circuit disconnection in the event of a fault.
- Insulation monitoring device - a device within the PCU to monitor the insulation integrity of the DITA output circuits.
- DFSS (distribution feeder soft start) - an electronic device within the PCU (or a separate module) for limiting the initial inrush of load current.
- DFSS bypass - the facility to be closed manually, allowing complete bypass of the DFSS module.
- DFSS alarms - for each output feeder, alarms shall be provided to indicate fault conditions.



FIRST FAULT CURRENT REDUCTION ON LEGACY FEEDERS

In this example, the introduction of DITAs reduces the network cable capacitance, as the feeder is sub-divided into smaller sections.

(Product Specification for Distribution Interface Transformer Assemblies (DITA) for Signalling Power Distribution Systems Ref: NR/L2/SIGELP/27419 - Page 34)

(Product Specification for Distribution Interface Transformer Assemblies (DITA) for Signalling Power Distribution Systems Ref: NR/L2/SIGELP/27419 - Page 8)

System Applications

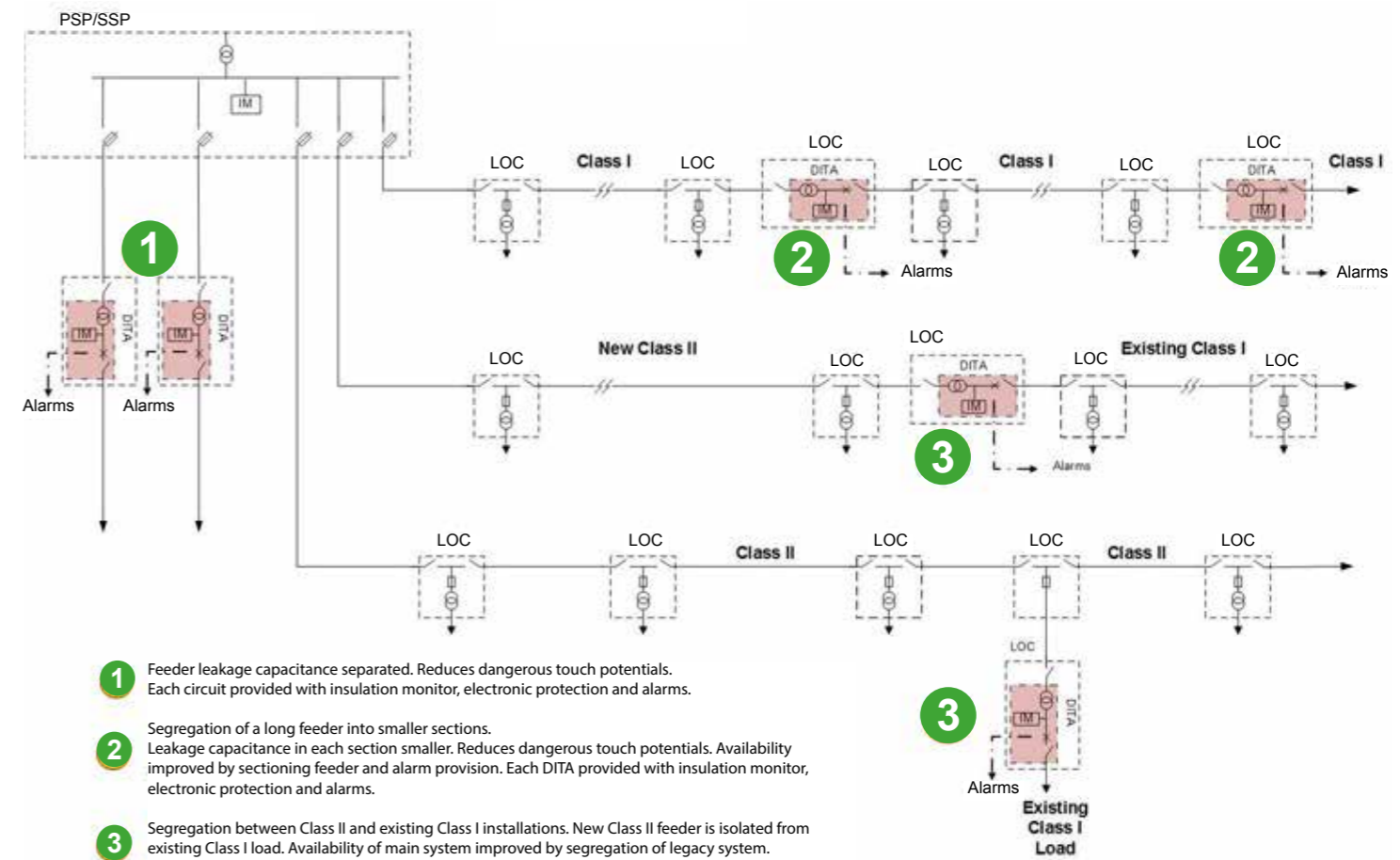
DITAs in accordance with NR/L2/SIGELP/27419 can be used in signalling power distribution systems for the following applications:

- Segregation between a Class I and a Class II installation to preserve the integrity of a Class II based feeder when interfaced with a Class I feeder. This is critical where the Class I system has been installed for a number of years and may not be compliant with the requirements of BS 7671. This would equally apply if a Class I installation was the source and a Class II installation was installed downstream.
- Segregation between feeders and spurs or branches to divide a signalling power system feeder into sections, particularly long feeders or those having multiple spurs or branches. This will also apply when segregating distribution feeders supplied by the PSP, from a single isolating transformer serving a network, to isolating transformers for each feeder.
- To step-up the voltage (voltage boost).
- First fault current reduction (FFCR) reduces capacitance by dividing an existing network into electrically smaller circuits. In legacy systems, FFCR may be used in combination with earthing to reduce the target local earth electrode values to acceptable values. This allows the network length to be reduced and hence the target earth electrode value, for each feeder, to be increased. This may be beneficial in installations where soil conditions and access arrangements make it difficult to construct earth farms. FFCR is not precluded from use in distribution systems where the retrofit of Class II assemblies and site applied supplementary (Class II) insulation are adopted.
- To minimise the flow of stray traction current between different designs of a railway traction system with different traction earthing arrangements, e.g. at the interface between an auto transformer traction system and classical a.c. traction system, between a.c. and d.c. Traction systems or between a traction power system and a non-electrified area.

Where a DITA is installed in a circuit in accordance with NR/L2/SIGELP/27419, it is a 'load' for the upstream circuit and the 'source' of the downstream circuit. As the DITA becomes the new source, circuit protection shall be installed at the output of the DITA for protection of the downstream circuit.

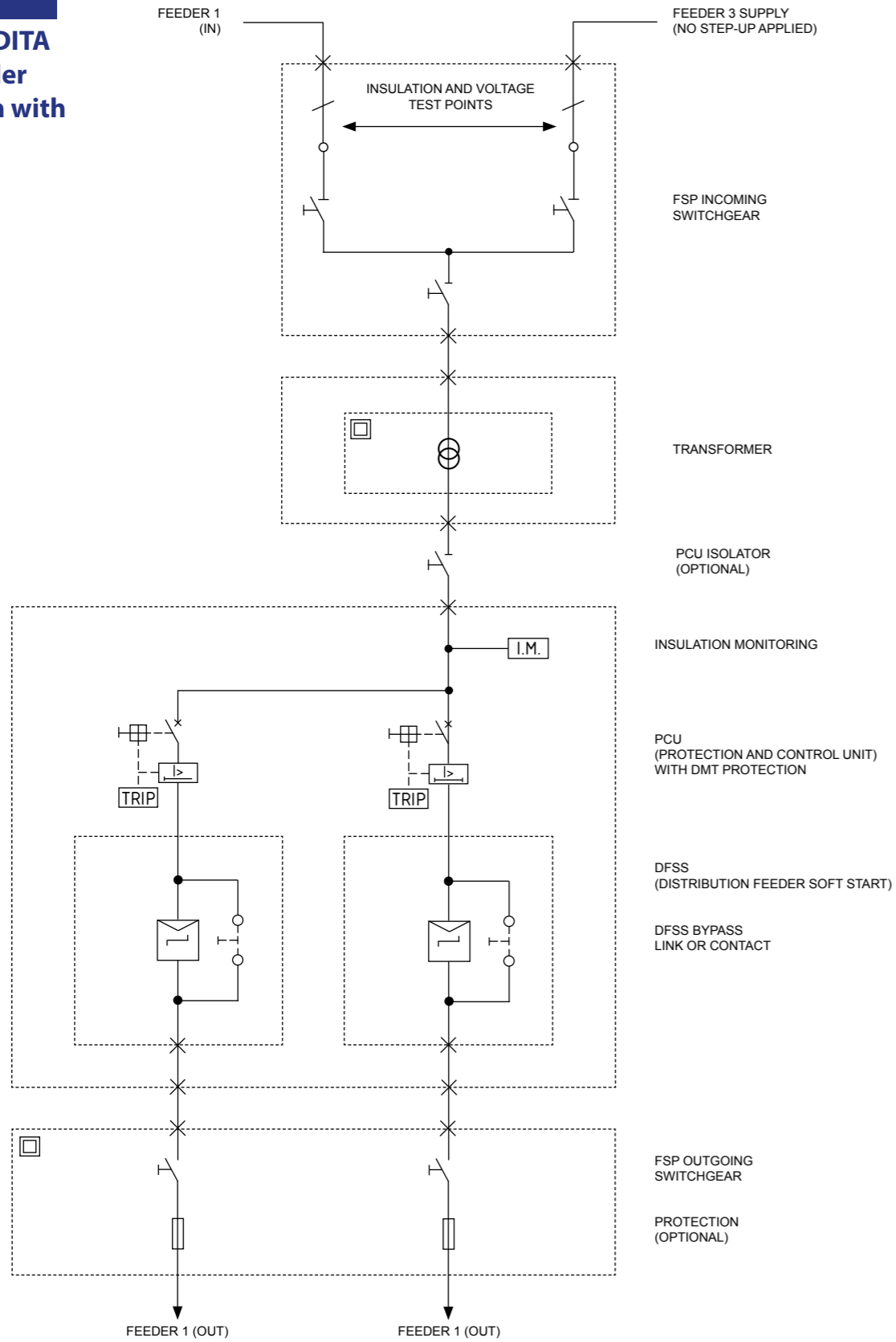
The DITA will isolate the insulation monitoring system at the PSP from the circuit downstream of the isolating transformer. Insulation monitoring shall be provided in the downstream circuit. This is to protect and monitor the status of feeders on the secondary side of the DITA. Provision of isolation in a signalling feeder prevents the source PSP insulation monitor from detecting the condition of a feeder beyond the isolating transformer. Existing installations with a Class I booster transformer acting as a 'step-up' transformer should be replaced with a Class II Hybrid / Full DITA.

Where a DITA is installed for circuit segregation, protection shall be designed to manage low prospective fault currents and high current surges from signalling equipment (transformers, point motors etc).



DITA Diagrams

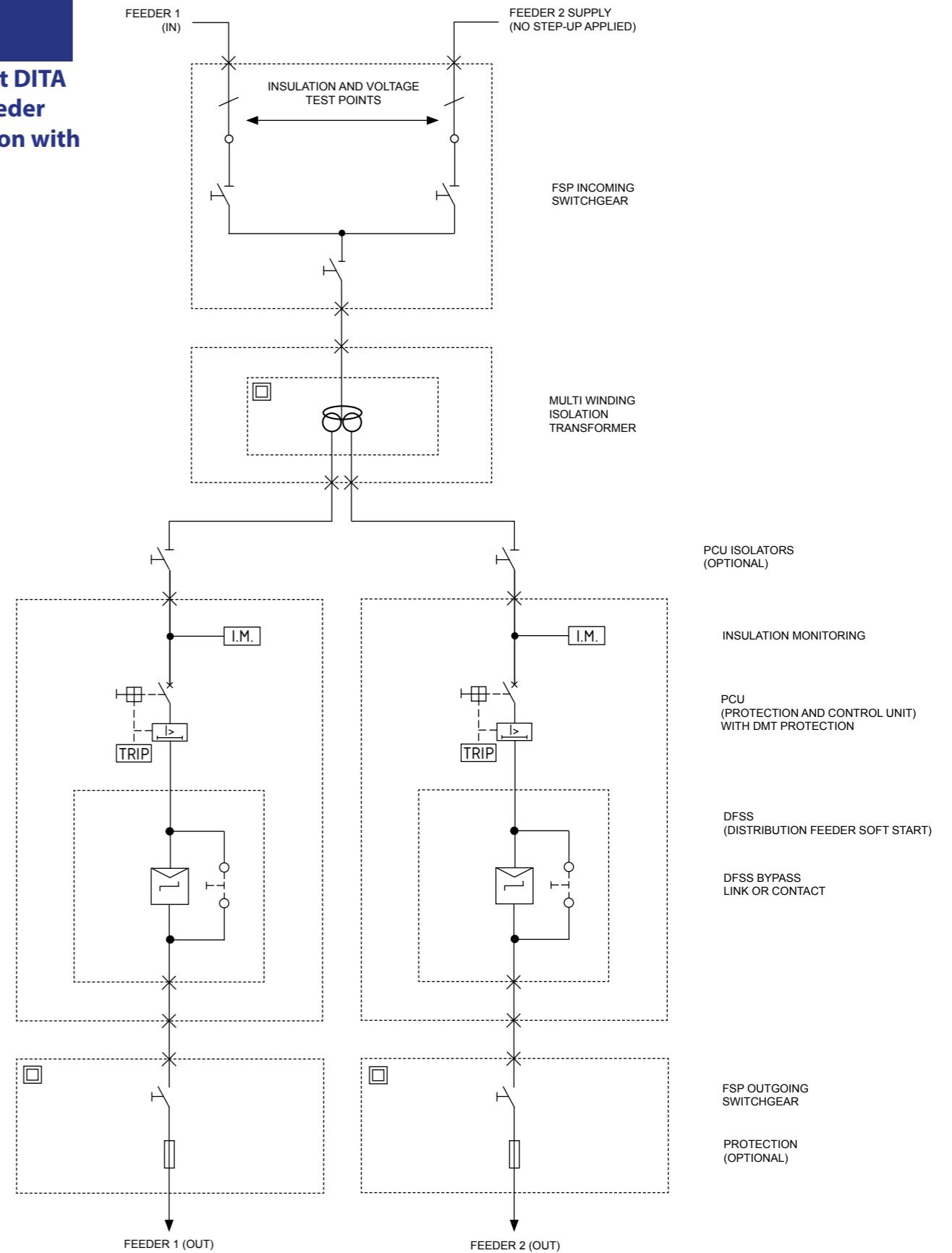
Dual output DITA in a split feeder configuration with a single IM



(Product Specification for Distribution Interface Transformer Assemblies (DITA) for Signalling Power Distribution Systems Ref: NR/L2/SIGELP/27419 - Page 28)

DITA Diagrams

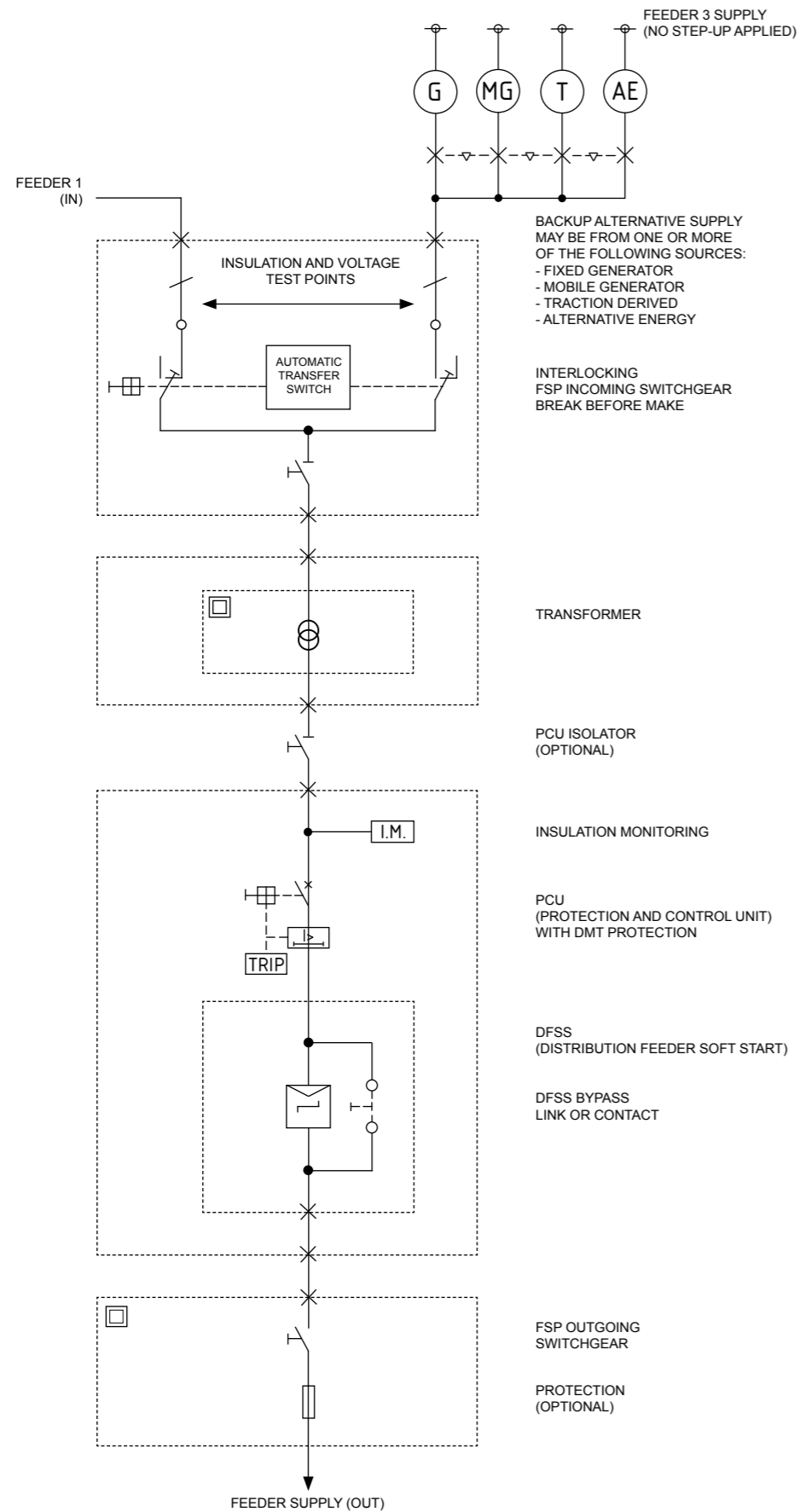
Dual output DITA in a split feeder configuration with dual IMs



(Product Specification for Distribution Interface Transformer Assemblies (DITA) for Signalling Power Distribution Systems Ref: NR/L2/SIGELP/27419 - Page 29)

DITA Diagrams

DITA arrangement with alternative energy sources and automatic transfer switch (ATS)



DITA Layouts

Class II main feeder, Class I branch feeders

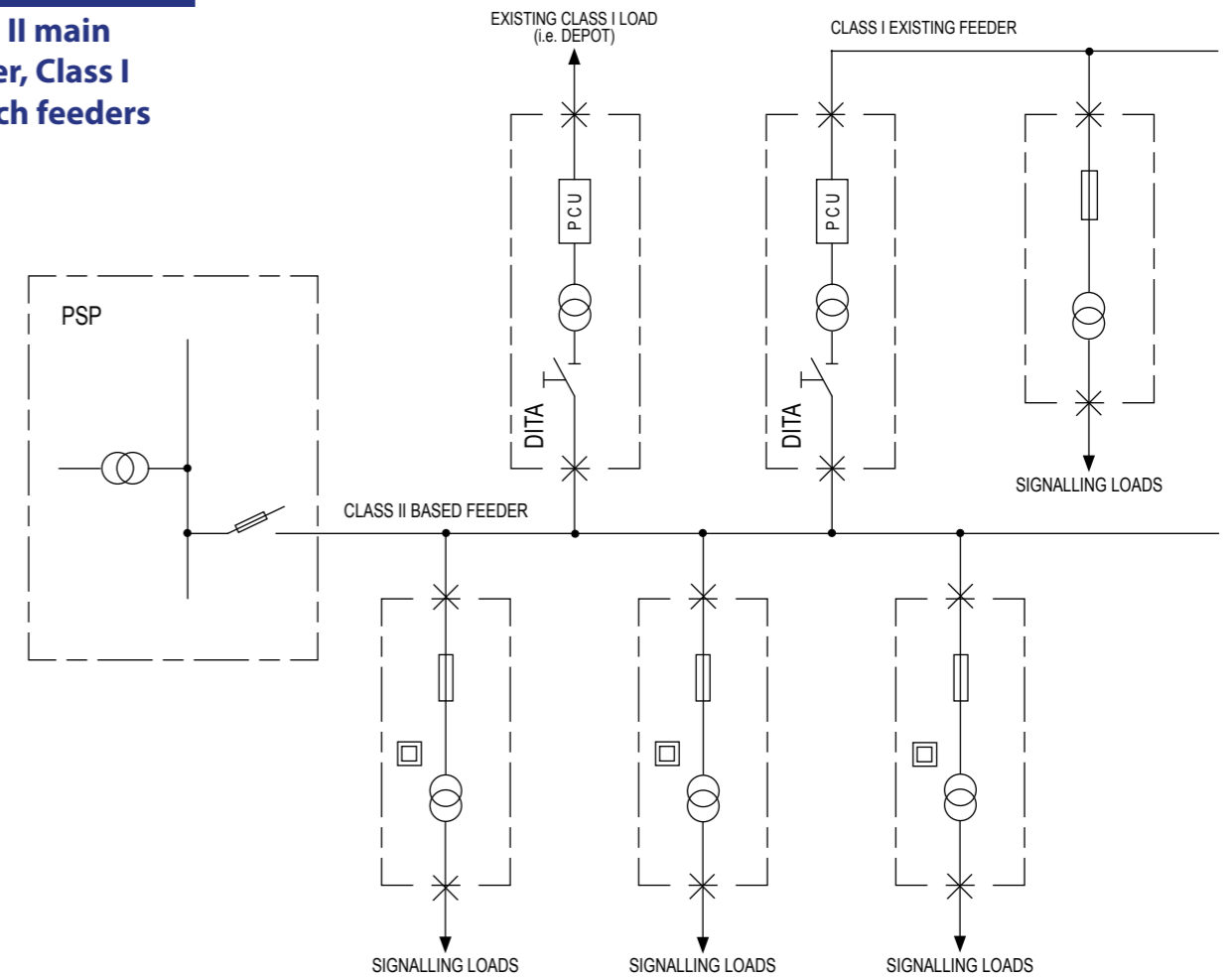


Figure 5 – DITAs used for electrical separation

The introduction of the DITAs provides isolation points enabling electrical separation of the Class II feeder from the Class I branches.

(Product Specification for Distribution Interface Transformer Assemblies (DITA) for Signalling Power Distribution Systems Ref: NR/L2/SIGELP/27419 - Page 30)

(Product Specification for Distribution Interface Transformer Assemblies (DITA) for Signalling Power Distribution Systems Ref: NR/L2/SIGELP/27419 - Page 31)

Class II feeder
adjoining an
existing Class I
feeder

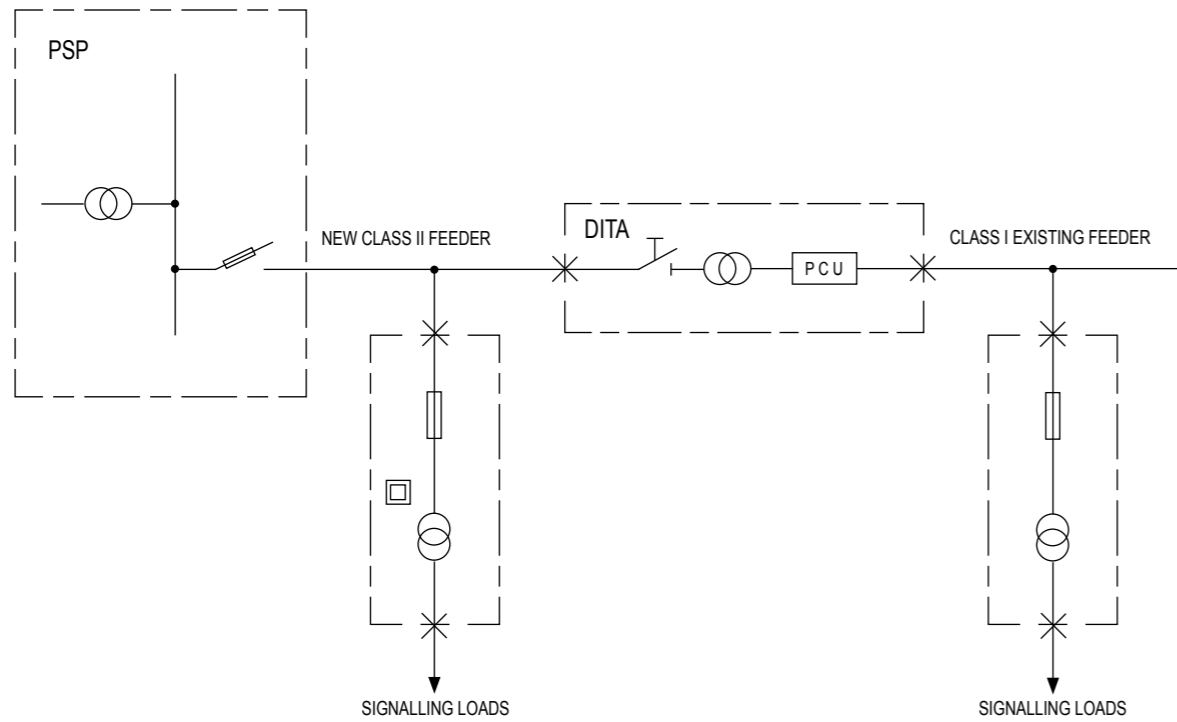


Figure 6 – DITA used to sub-divide a feeder

To partially upgrade a Class I feeder to Class II. There may be a requirement to sub-divide the feeder into Class I and Class II sections

Load segregation
on a Class II feeder

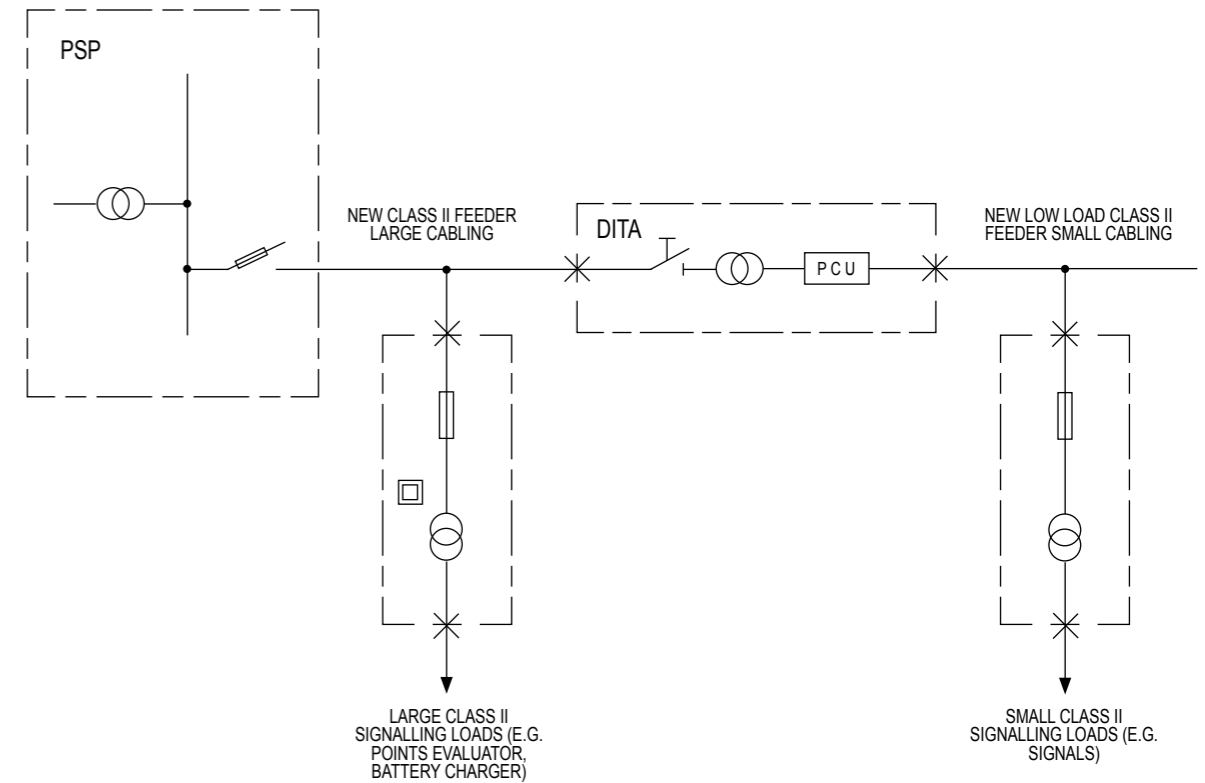


Figure 7 – DITA used to sub-divide a feeder with differing load characteristics

A Class II feeder is sub-divided using a DITA to provide load segregation and step up.

Upstream of the DITA there is a high load demand.

Downstream of the DITA there is a high load demand.

The feeder sections are sub-divided and the adjustable DMT electronic circuit protection within the DITA ensures that the prospective short-circuit current on the lower demand side is appropriately matched.

DITA Layouts

First-fault current reduction on legacy feeders

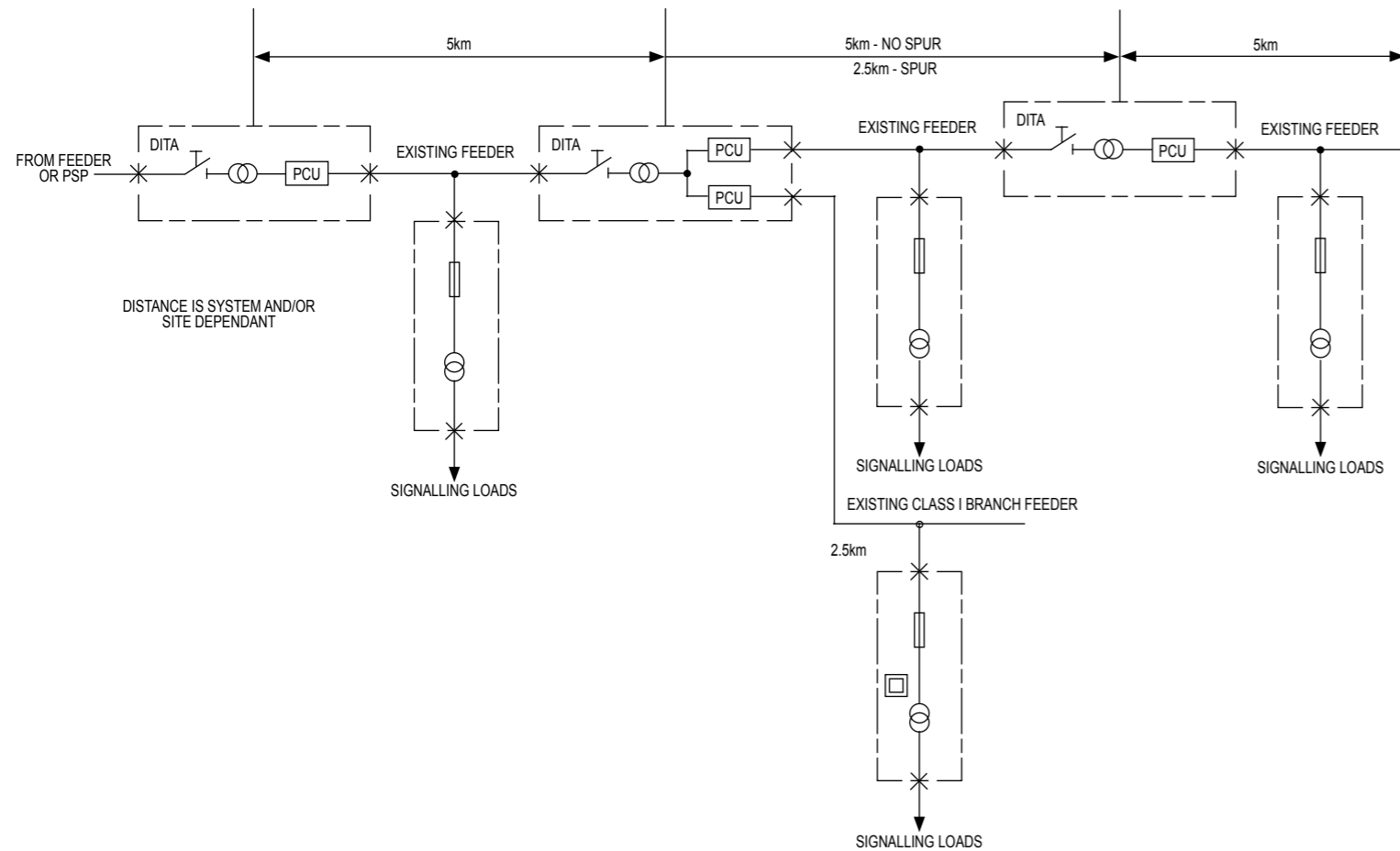


Figure 8 – DITAs used for FFCR on legacy feeders

In this example, the introduction of DITAs reduces the network cable capacitance, as the feeder is sub-divided into smaller sections.

DITA Layouts

Class I feeder with Class I and Class II branches

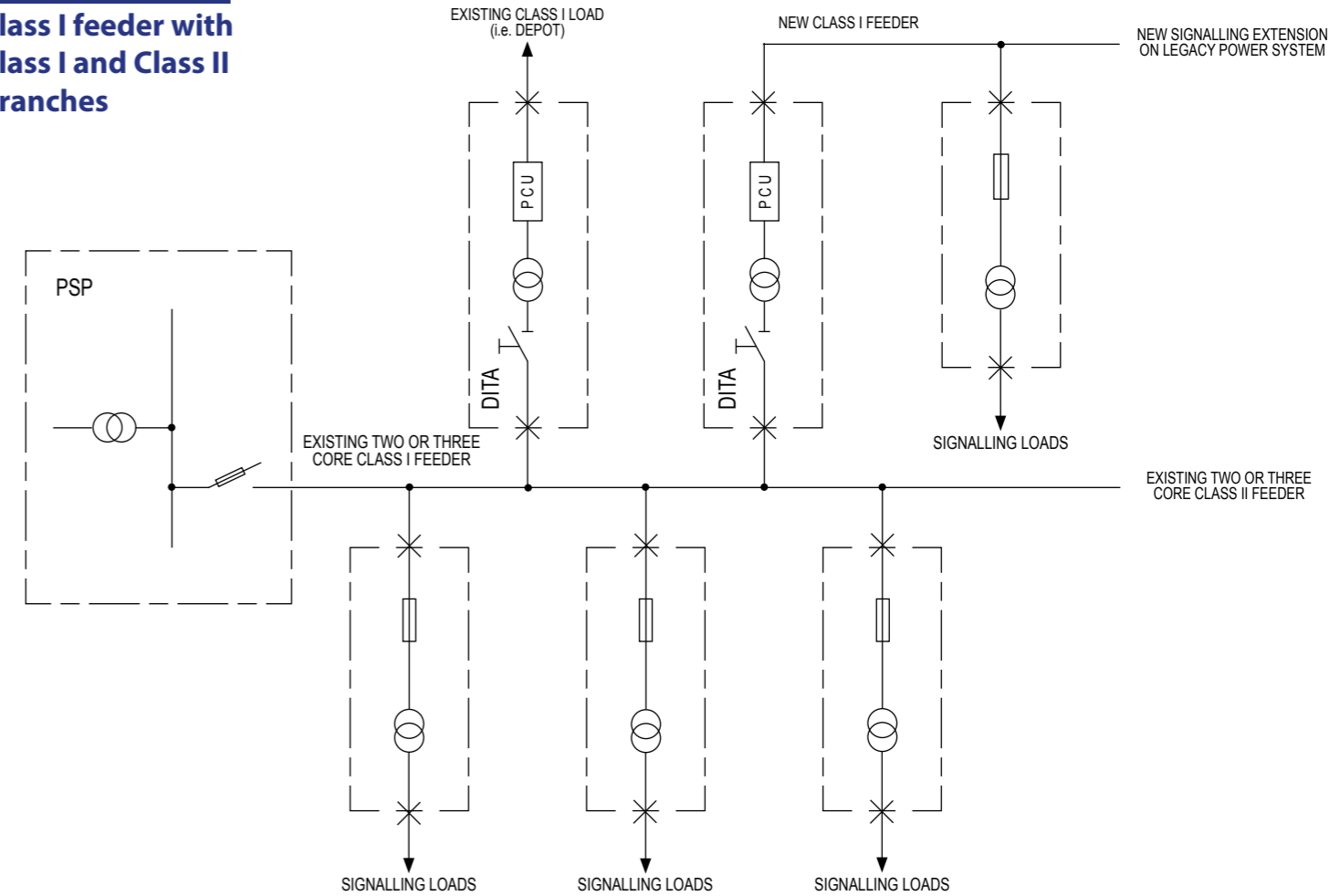


Figure 9 – DITAs used for circuit segregation on branches

Here, a Class I legacy feeder with feeder with existing Class I loads has two branches leading from it, one Class I and the other Class II.

The prospective short-circuit current for fault on the existing Class I branch load is insufficient to cause the protection to operate. The installation of the DITA with its adjustable electronic protection rectifies this problem.

The Class II branch also has insufficient prospective short-circuit current to enable the protection on the main Class I feeder to operate.

The installation of the DITA with its adjustable electronic protection rectifies this problem and additionally provides circuit segregation of the Class II branch.

DITA Case layout front
Up to 15kVA Transformer

GFRP Apparatus Case

- Class II compliance in line with NR/L2/ SIGELP/27409 Iss.2.
- IP54 Nominal
- IK10 (to BS EN 62262)
- BRS-SM 440 Dimensions
- Service life 40+ years
- EN 50125-3 Compliant

Insulation Monitoring Antenna

- To be used in conjunction with Insulation Monitoring devices. The antenna allows for GPS and cellular connectivity

Auxiliary

Class II Aux TX

- 100VA class II transformer
- For local domestic supplies including wander light and Class II heater

DITA Segregation Box (Incoming)

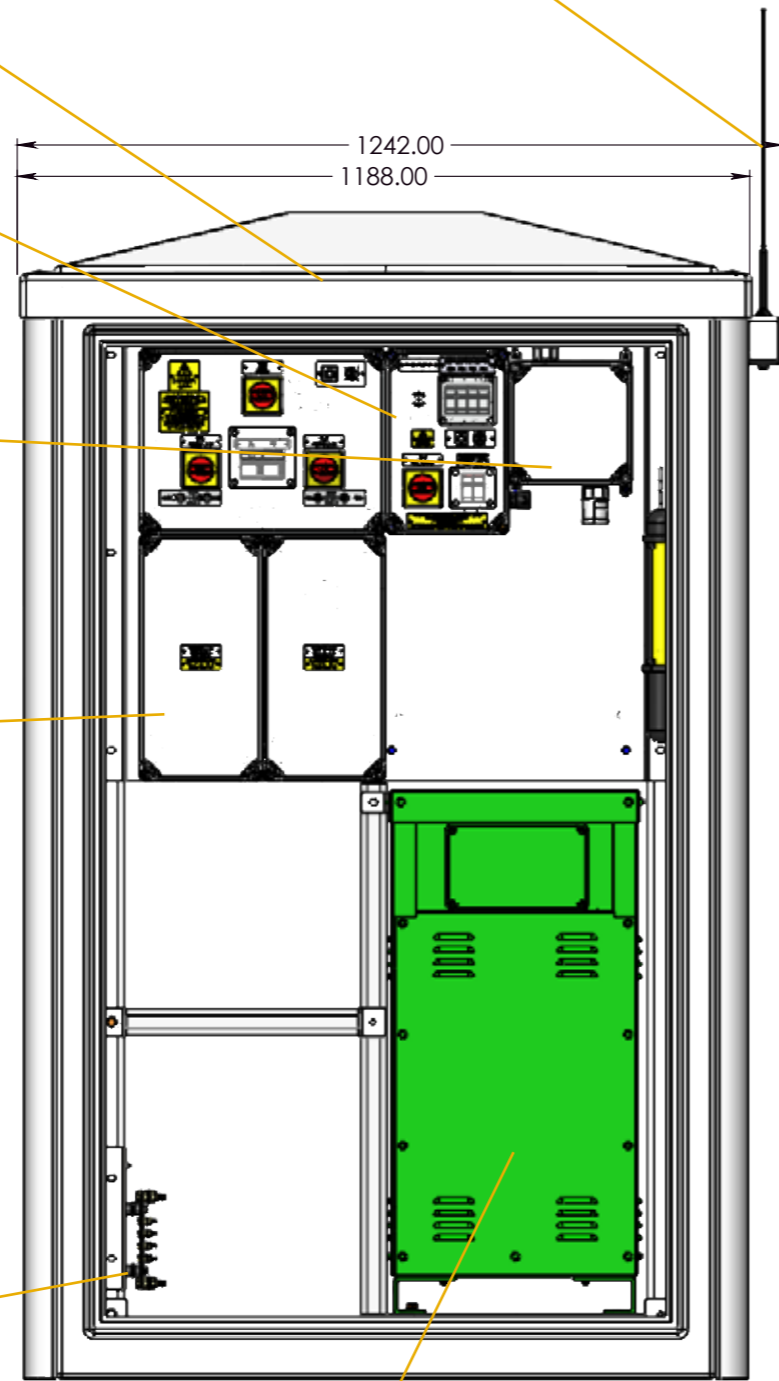
- Compatible with 2C and 4C aluminium / copper cable
- Versions available for both direct and lugged cable terminations
- 3 Core cable version available on request.

6 Way Earth Bar

- Copper earth bar for Insulation Monitoring earth reference point

DITA Transformer Booster

- Available as 5kVA, 10kVA, 15kVA
- 20kVA, 30kVA and 40kVA Supplied in separate case (See next page)
- Is currently the only full Class II DITA transformer on the market
- Dual outputs available



DITA Case layout Rear

PCU (Protection and control unit)

- The outgoing distribution unit is available complete with either one or two ABB T-Max DMT PCU or one or two Schneider Micrologix protection switches

Insulation Monitoring

- Select preferred Insulation Monitoring device. Options include the Bender RS3, iLECSYS IRDH375 & CDS Logger, Schneider XML308, XLI300, PHT1000 & CDS Logger and Viper Cable Guardian

DITA Segregation Box (Outgoing)

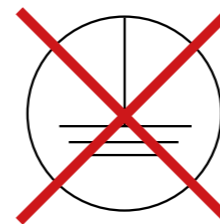
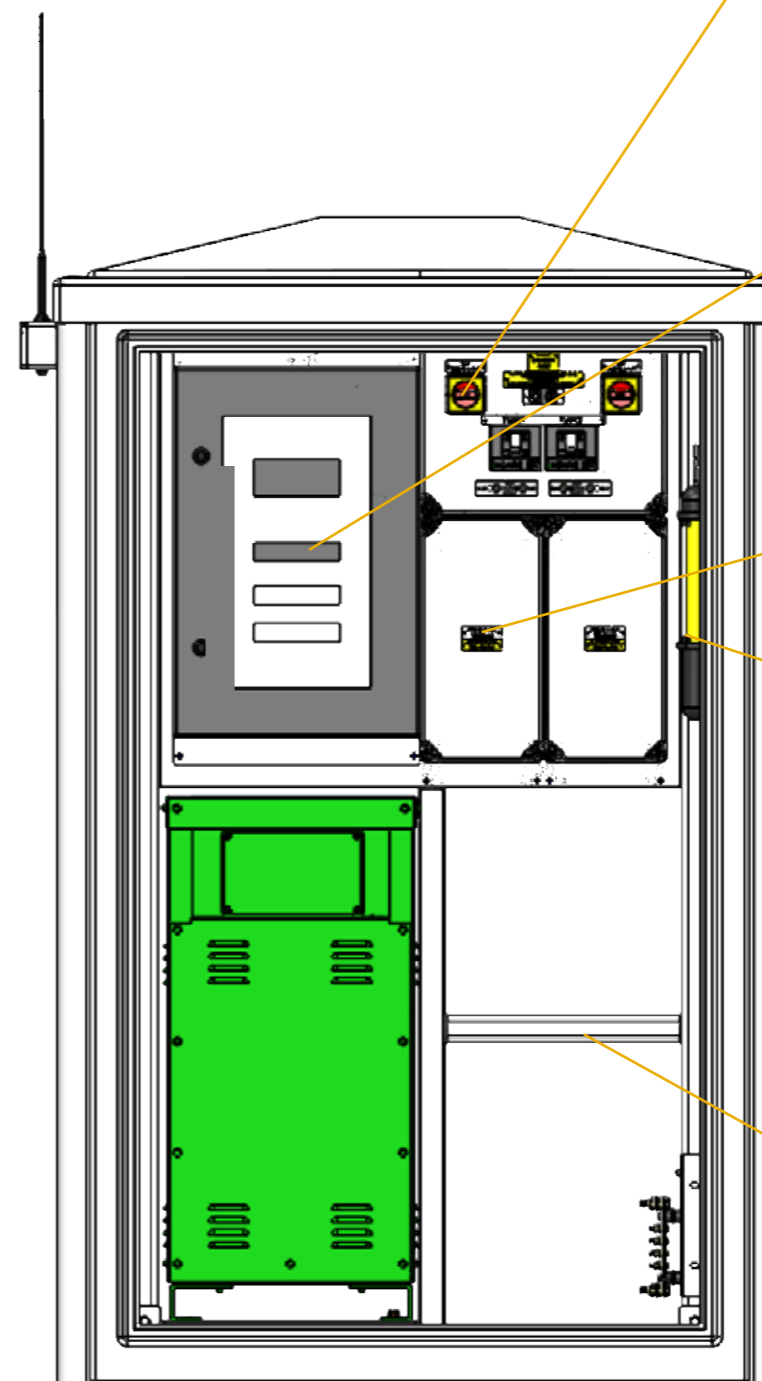
- Compatible with 2C and 4C aluminium / copper cable
- Versions available for both direct and lugged cable terminations

Class II Wander Light

- A handy Class II wander light. Light can be secured in position or can be used as a hand held portable light.

Cable Cleat Bar

- For the fitting of cable cleat clips
- Secures incoming and outgoing power cable



EARTH FREE SYSTEM

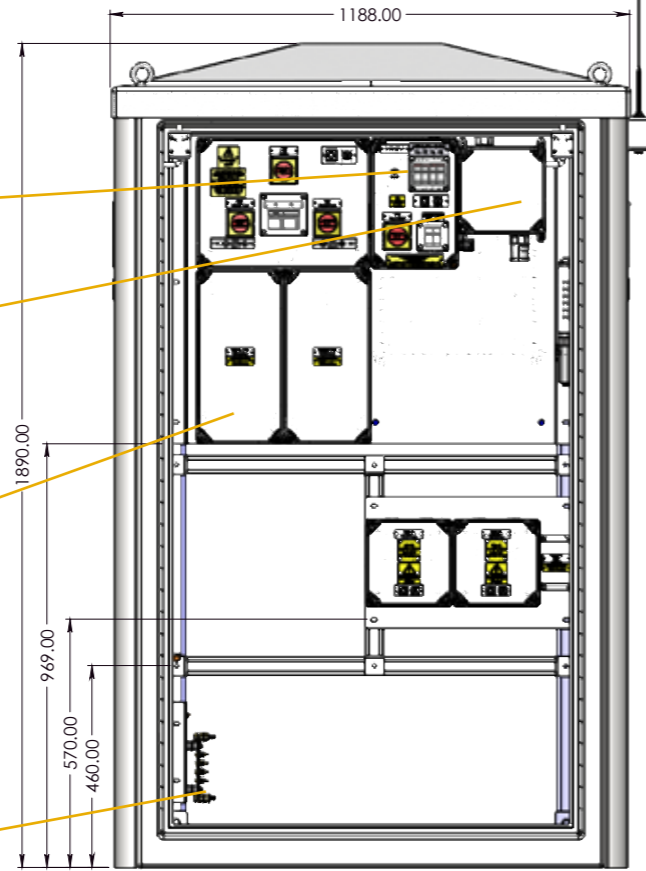
iLECSYS Rail's DITA solution is the only on the market to not require an external earth bond. This is due to the materials used. An internal earth bond is required to support the IM device.

**DITA Case
layout Power
20-40kVA
Transformer**

Insulation Monitoring Antenna

- To be used in conjunction with Insulation Monitoring devices. The antenna allows for GPS and cellular connectivity

FRONT



Auxiliary

Class II Aux TX

- 100VA class II transformer
- For local domestic supplies including wander light and Class II heater

DITA Segregation Box (Incoming)

- Compatible with 2C and 4C aluminium / copper cable
- Versions available for both direct and lugged cable terminations
- 3 Core cable version available on request.

6 Way Earth Bar

- Copper earth bar for Insulation Monitoring earth reference point

GFRP Apparatus Case

- Class II compliance in line with NR/L2/ SIGELP/27409 Iss.2.
- IP54 Nominal
- IK10 (to BS EN 62262)
- BRS-SM 440 Dimensions
- Service life 40+ years
- EN 50125-3 Compliant

Insulation Monitoring

- Select preferred Insulation Monitoring device. Options include the Bender RS3, iLECSYS IRDH375 & CDS Logger, Schneider XML308, XLI300, PHT1000 & CDS Logger and Viper Cable Guardian

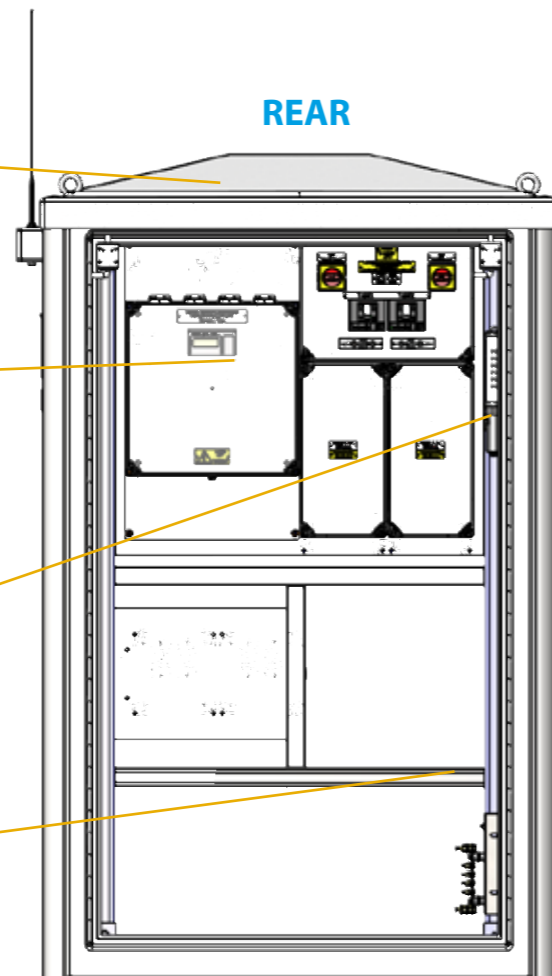
Class II Wander Light

- A handy Class II wander light. Light can be secured in position or can be used as a hand held portable light.

Cable Cleat Bar

- For the fitting of cable cleat clips
- Secures incoming and outgoing power cable

REAR



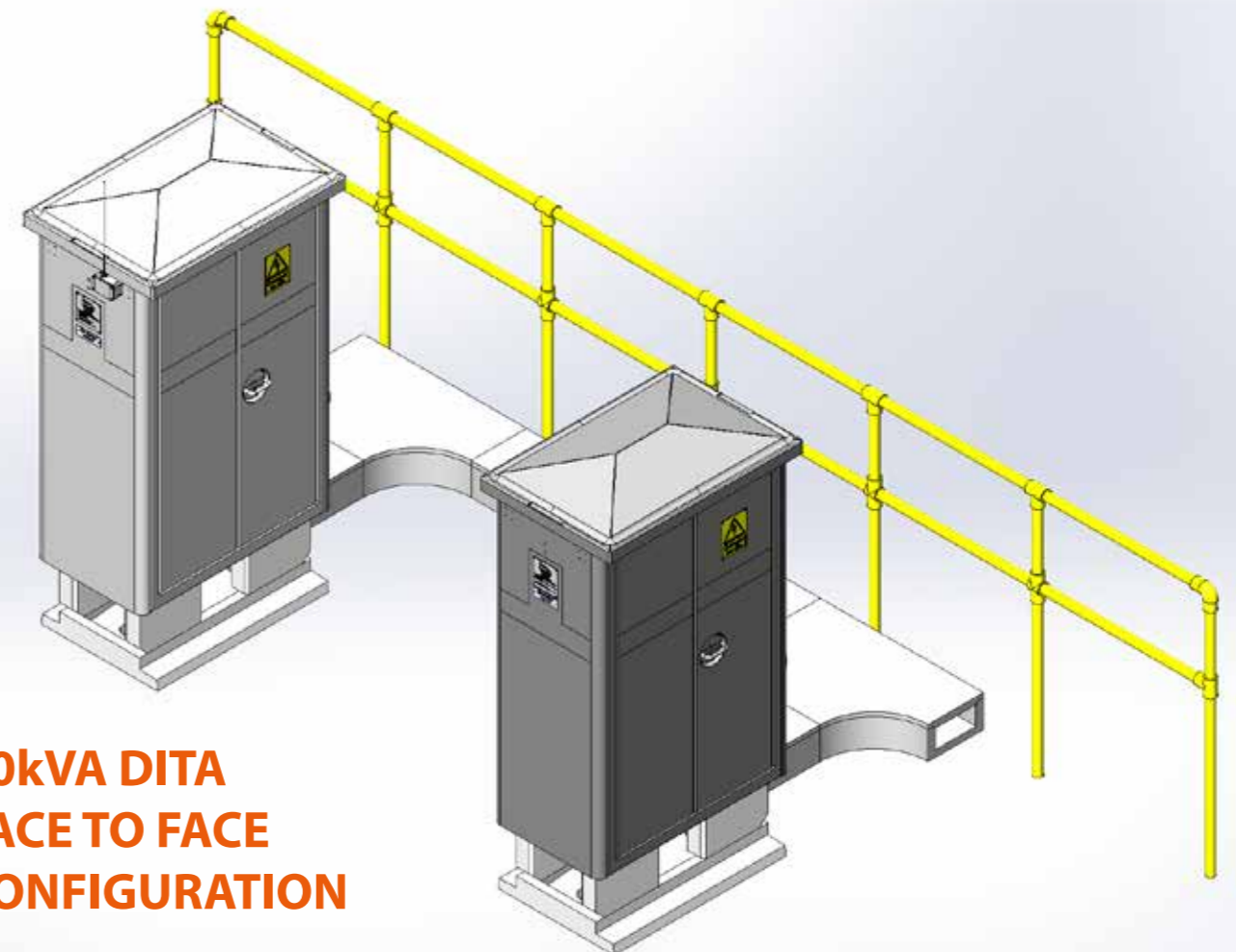
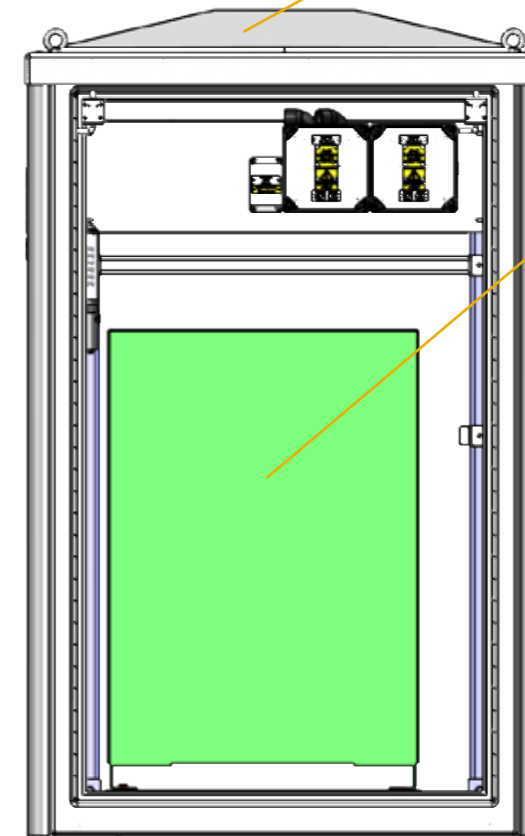
**DITA Case
Layout
Transformer**

GFRP Apparatus Case

- Class II compliance in line with NR/L2/ SIGELP/27409 Iss.2.
- IP54 Nominal
- IK10 (to BS EN 62262)
- BRS-SM 440 Dimensions
- Service life 40+ years
- EN 50125-3 Compliant

DITA Transformer Booster

- Available as 20kVA, 30kVA or 40kVA (40kVA shown)
- Is currently the only full Class II DITA transformer on the market
- Dual outputs available



**40kVA DITA
FACE TO FACE
CONFIGURATION**

SUPPLY VOLTAGE OPTIONS	
Description	Code
650V IN / 650V OUT	650
400V IN / 400V OUT	400
230V IN / 230V OUT	230

TRANSFORMER OPTIONS	
Description	Code
5kVA Single Output Winding	05S
10kVA Single Output Winding	10S
15kVA Single Output Winding	15S
20kVA Single Output Winding - TX Supplied Separately*	20S
30kVA Single Output Winding - TX Supplied Separately*	30S
40kVA Single Output Winding - TX Supplied Separately*	40S
5kVA Dual Output Winding	05D
10kVA Dual Output Winding	10D
15kVA Dual Output Winding	15D
20kVA Dual Output Winding - TX Supplied Separately*	20D
30kVA Dual Output Winding - TX Supplied Separately*	30D
40kVA Dual Output Winding - TX Supplied Separately*	40D

INPUT CONNECTION BOX OPTIONS	
Description	Code
Class I Tunnel Terminals 16-95mm ² Al/Cu	OIA
Class I Tunnel Terminals 35-120mm ² Al/Cu	OIB
Class I M10 Stud Terminals 16-120mm ² Al/Cu	OIC
Class II Tunnel Terminals 16-95mm ² Al/Cu	IIA
Class II Tunnel Terminals 35-120mm ² Al/Cu	IIB
Class II M10 Stud Terminals 16-120mm ² Al/Cu	IIC

DEFINITE MINIMUM TIME PROTECTION OPTIONS	
Description	Code
ABB TMax Ekip Dual - 10 Amp	T10
ABB TMax Ekip Dual - 25 Amp	T25
ABB TMax Ekip Dual - 63 Amp	T63
ABB TMax Ekip Dual - 100 Amp	T100
Schneider Micrologic 5.2 Dual - 40 Amp	M40
Schneider Micrologic 5.2 Dual - 100 Amp	M100

OUTGOING CONNECTION BOX OPTIONS	
Description	Code
Class I Tunnel Terminals 16-95mm ² Al/Cu	OIA
Class I Tunnel Terminals 35-120mm ² Al/Cu	OIB
Class I M10 Stud Terminals 16-120mm ² Al/Cu	OIC
Class II Tunnel Terminals 16-95mm ² Al/Cu	IIA
Class II Tunnel Terminals 35-120mm ² Al/Cu	IIB
Class II M10 Stud Terminals 16-120mm ² Al/Cu	IIC

INSULATION MONITORING OPTIONS	
Description	Code
Bender RS3/1	RS3
Bender RS4 Tier 3	RS4/3
Bender RS4 Tier 1/2	RS4/1
iLECSYS iso685 & CDS Logger Assembly	ILR
Schneider XML308, XLI300, PHT1000 & CDS Logger	SCH
Viper Cable Guardian	VIP
No Insulation Monitor (Class I or TN Applications Only)	NIM

Ordering Number



E.g. 650 - DITA - 10S - OIA - T63 - IIB - RS3

650V In / 650V out DITA assembly complete with 10kVA single output winding TX, Class I tunnel terminals for 16-95mm² Al/Cu cable, Dual 63A ABB TMax Ekip, Class II tunnel terminals for 16-120mm² Al/Cu cable and Bender RS3/1 insulation monitoring device.

DITA assemblies are available in either a full GRP or mild steel location case. If using a GRP location case then a functional earth bar is fitted for the IM device. No other earthing or bonding is required due to the non-conductive properties of the case.

**20 - 40kVA Transformers to be housed in a separate enclosure sited either adjacent or near to DITA enclosure. TX supplied in GRP location case.*

For more information or for any other configurations that are not listed please contact one of our experts on 01442 828387 or email enquiry@ilecsysrail.co.uk.

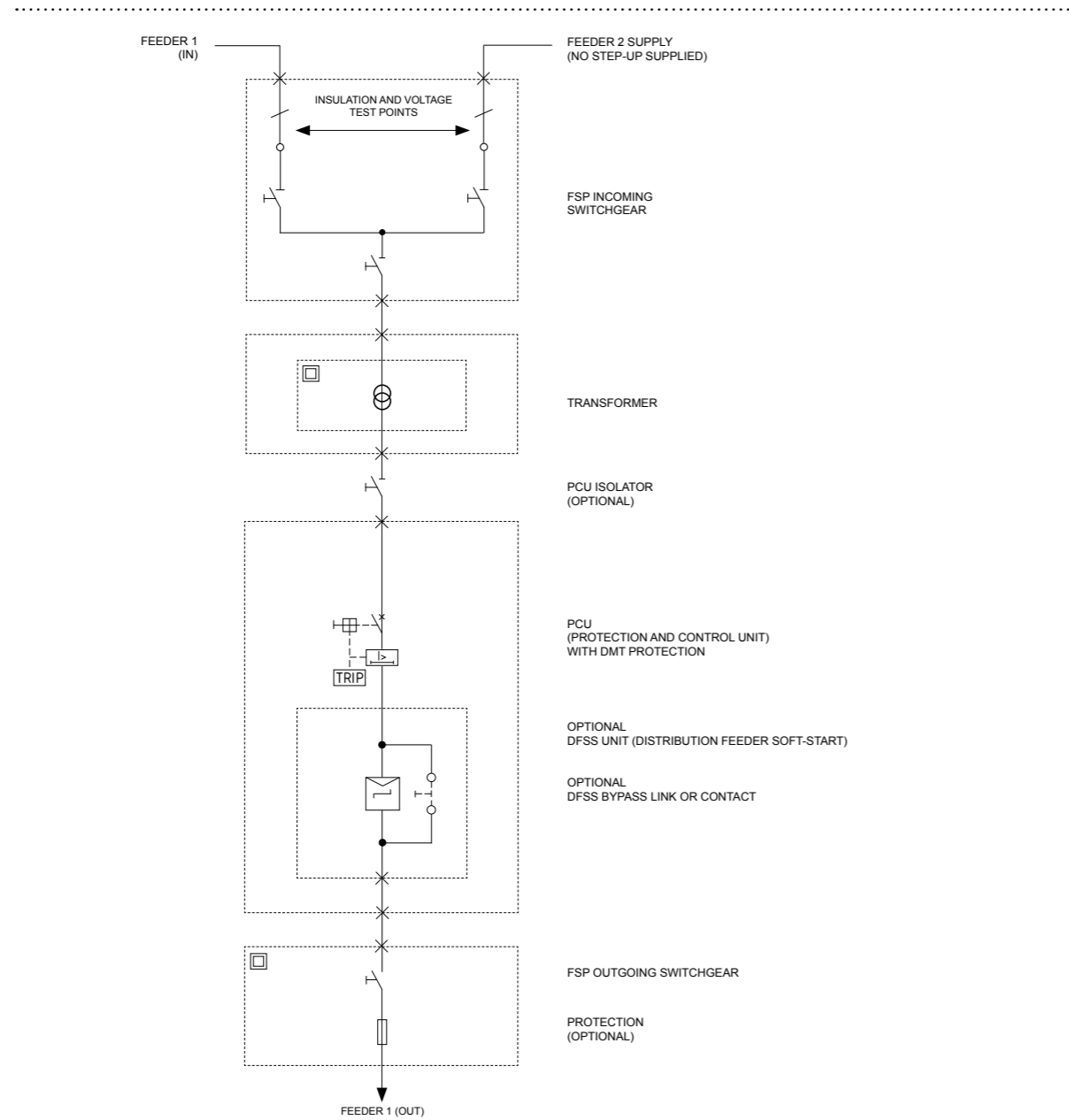
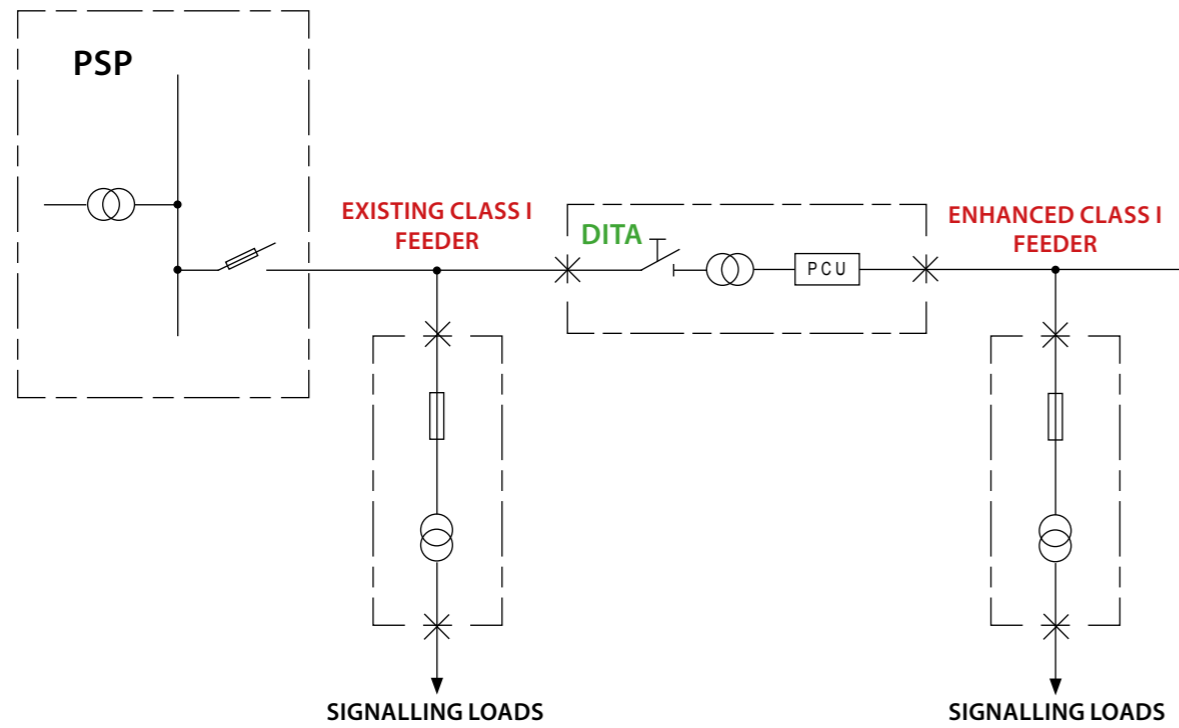
DITA Configurations

Load segregation on a Class I feeder

Single TX output

Available with tunnel or stud terminals

Class I IN
Single Class I OUT

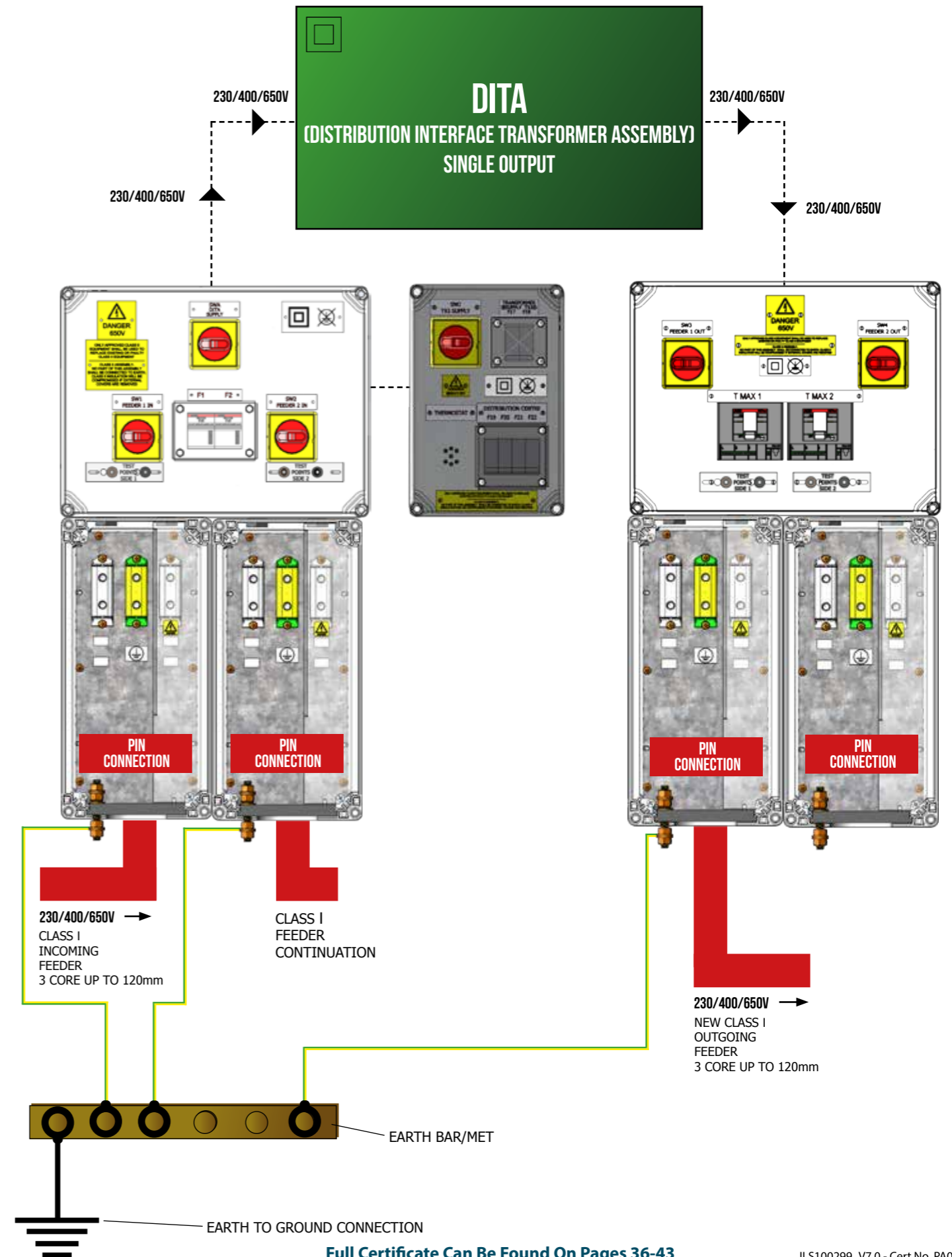


(Product Specification for Distribution Interface Transformer Assemblies (DITA) for Signalling Power Distribution Systems Ref: NR/L2/SIGELP/27419 - Page 8)

DITA

(DISTRIBUTION INTERFACE TRANSFORMER ASSEMBLY)

CLASS I IN > SINGLE CLASS I OUT



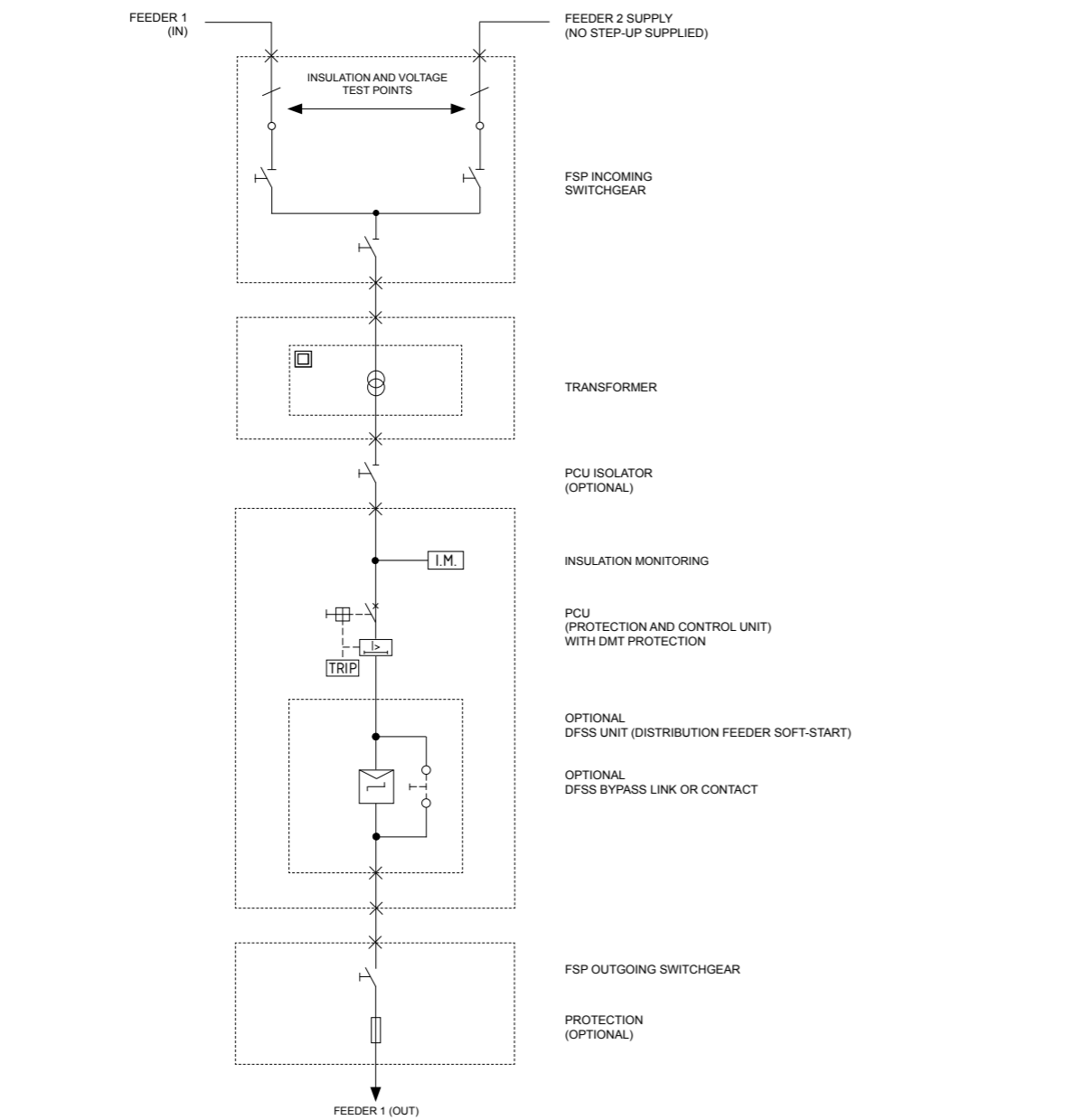
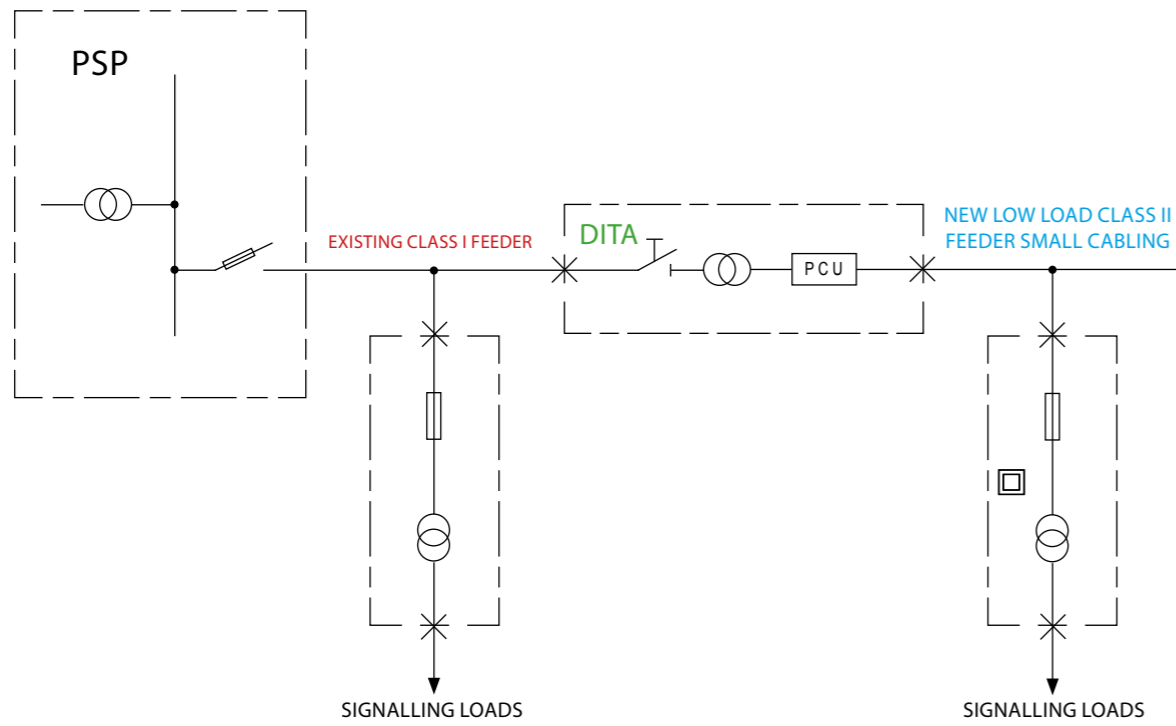
DITA Configurations

Class I feeder adjoining a new Class II feeder

Single TX output

Available with tunnel or stud terminals

Class I IN
Single Class II OUT



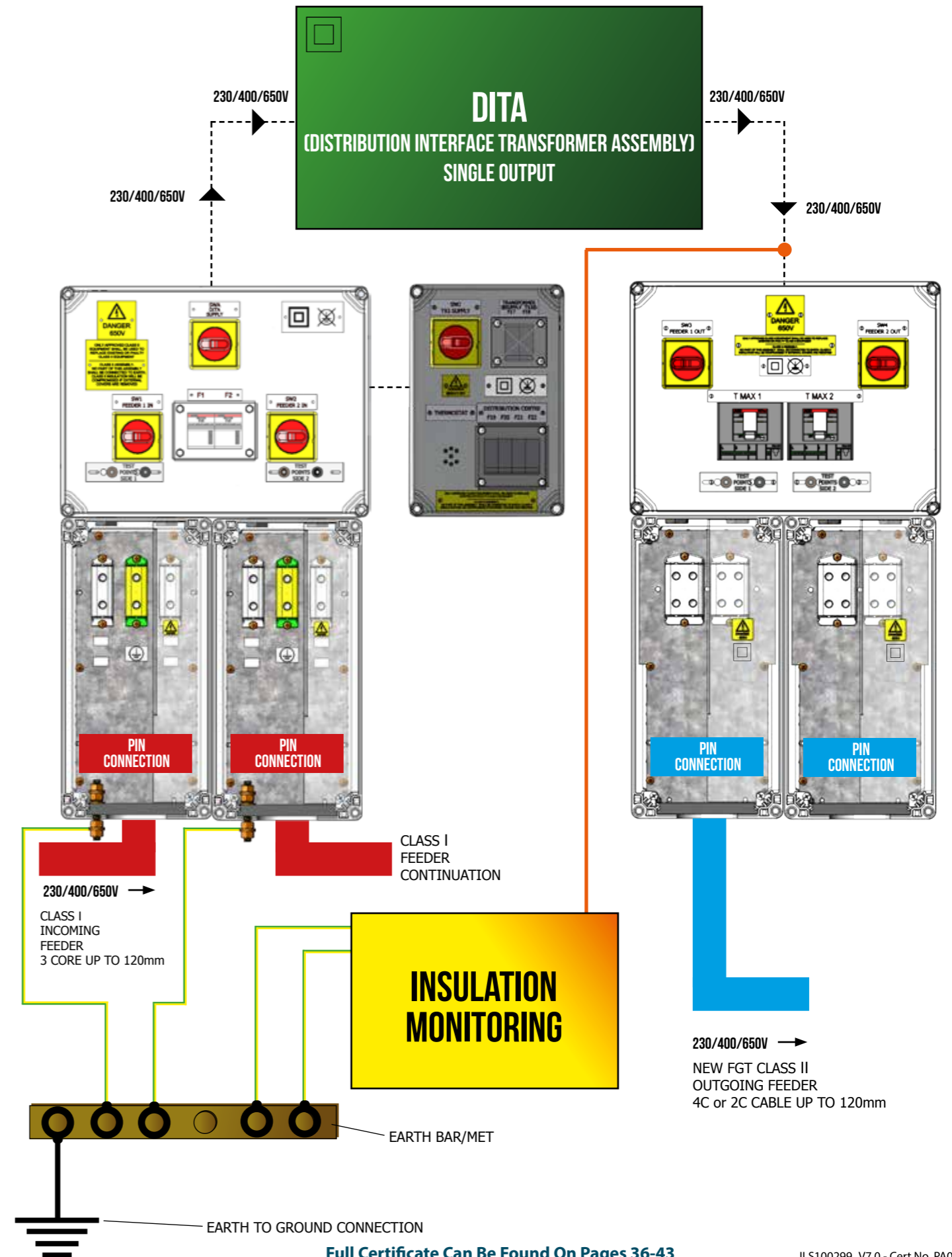
(Product Specification for Distribution Interface Transformer Assemblies (DITA) for Signalling Power Distribution Systems Ref: NR/L2/SIGELP/27419 - Page 8)

Full Certificate Can Be Found On Pages 36-43

DITA

(DISTRIBUTION INTERFACE TRANSFORMER ASSEMBLY)

CLASS I IN > SINGLE CLASS II OUT



Full Certificate Can Be Found On Pages 36-43

ILS100299_V7.0 - Cert No. PA05/06430

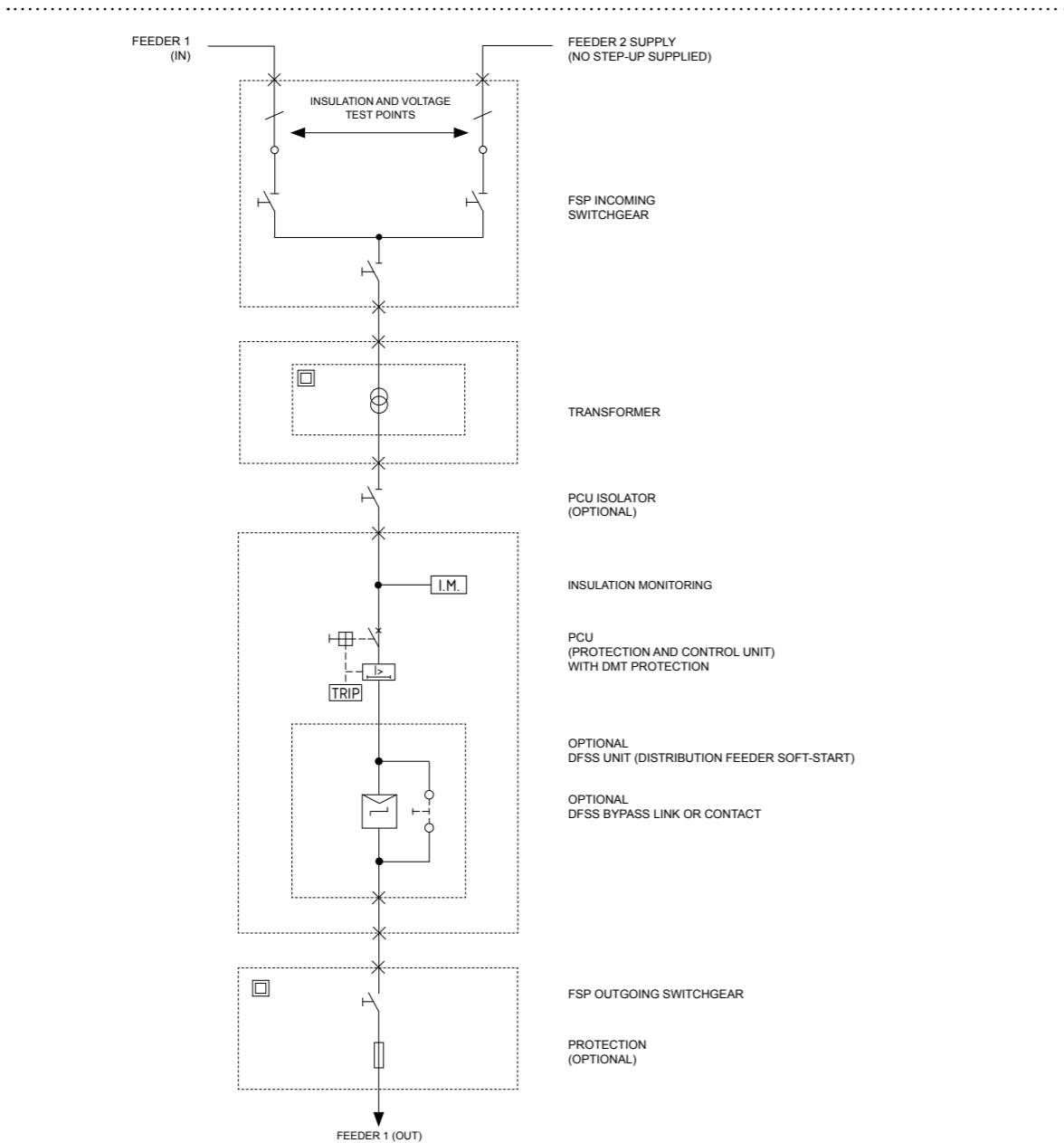
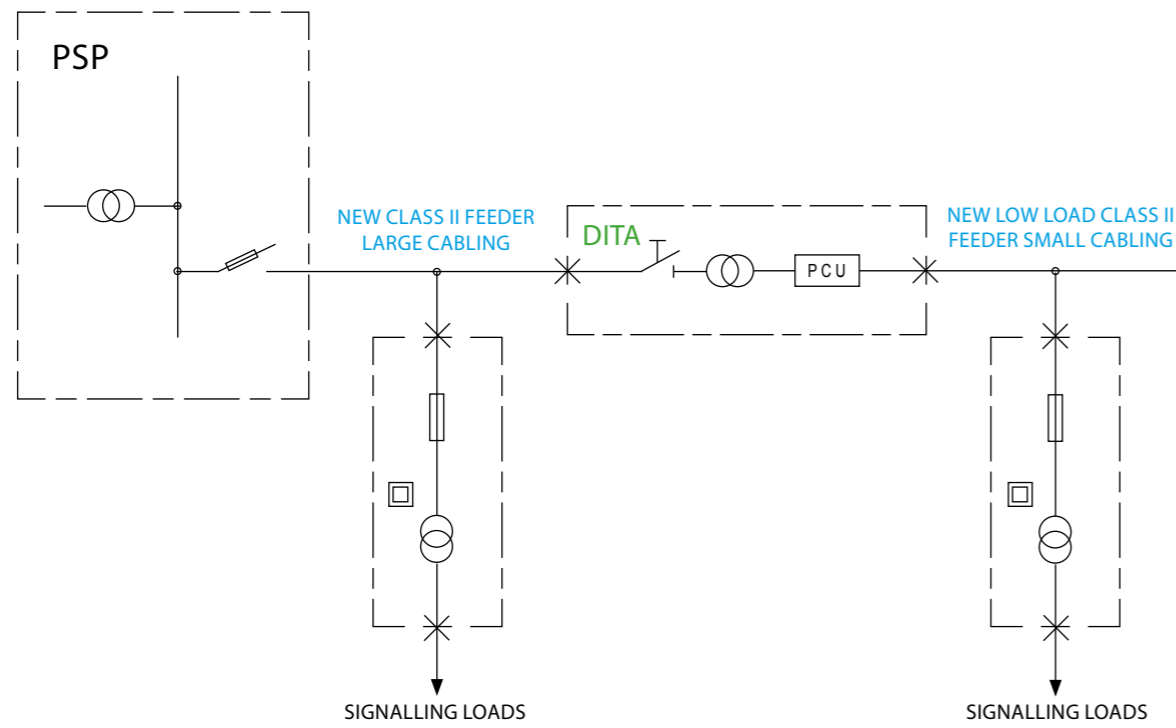
DITA Configurations

Existing/new large cable Class II feeder adjoining a new small cable Class II feeder

Single TX output

Available with tunnel or stud terminals

Class II IN
Single Class II OUT

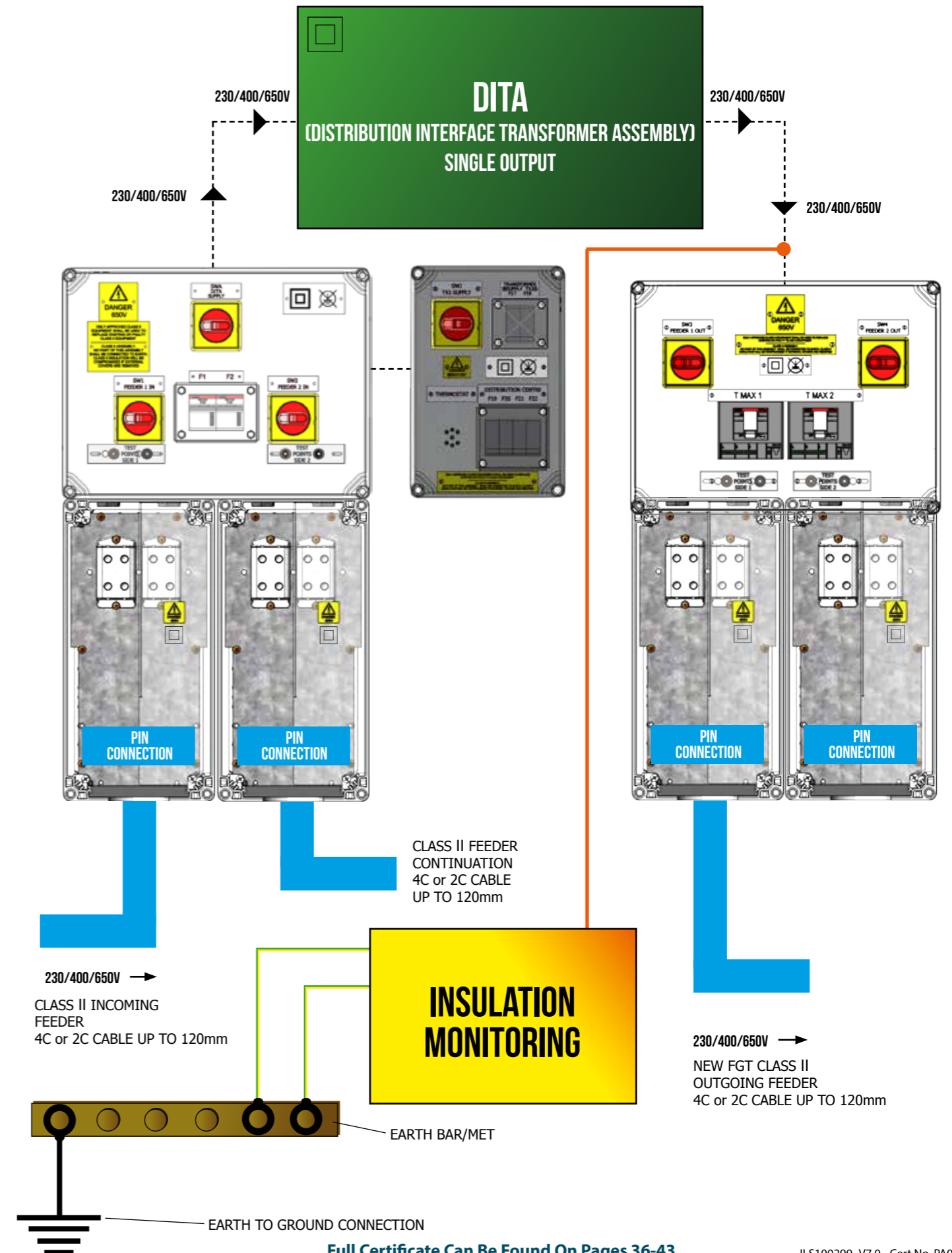


(Product Specification for Distribution Interface Transformer Assemblies (DITA) for Signalling Power Distribution Systems Ref: NR/L2/SIGELP/27419 - Page 8)

DITA

(DISTRIBUTION INTERFACE TRANSFORMER ASSEMBLY)

CLASS II IN > SINGLE CLASS II OUT



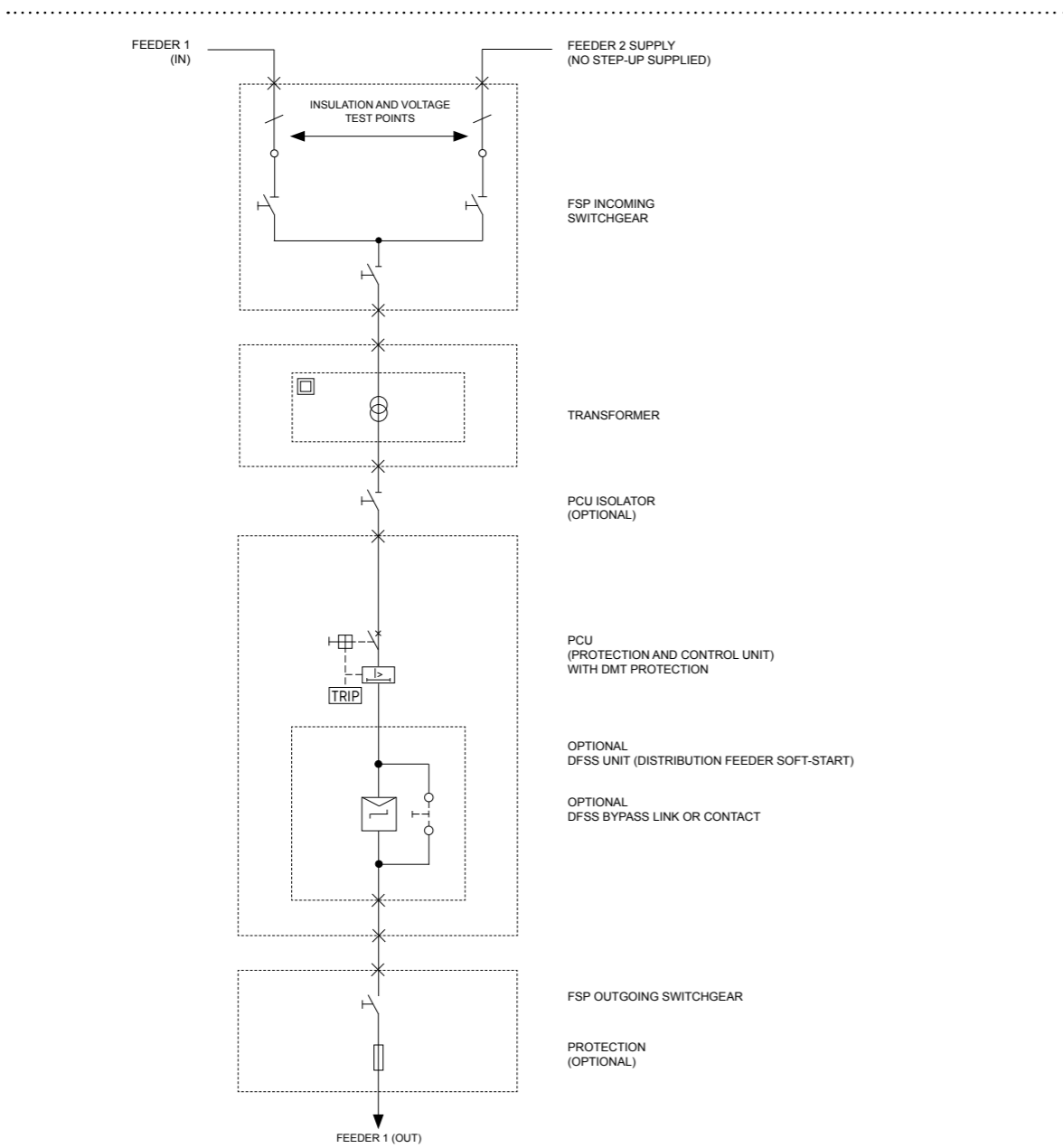
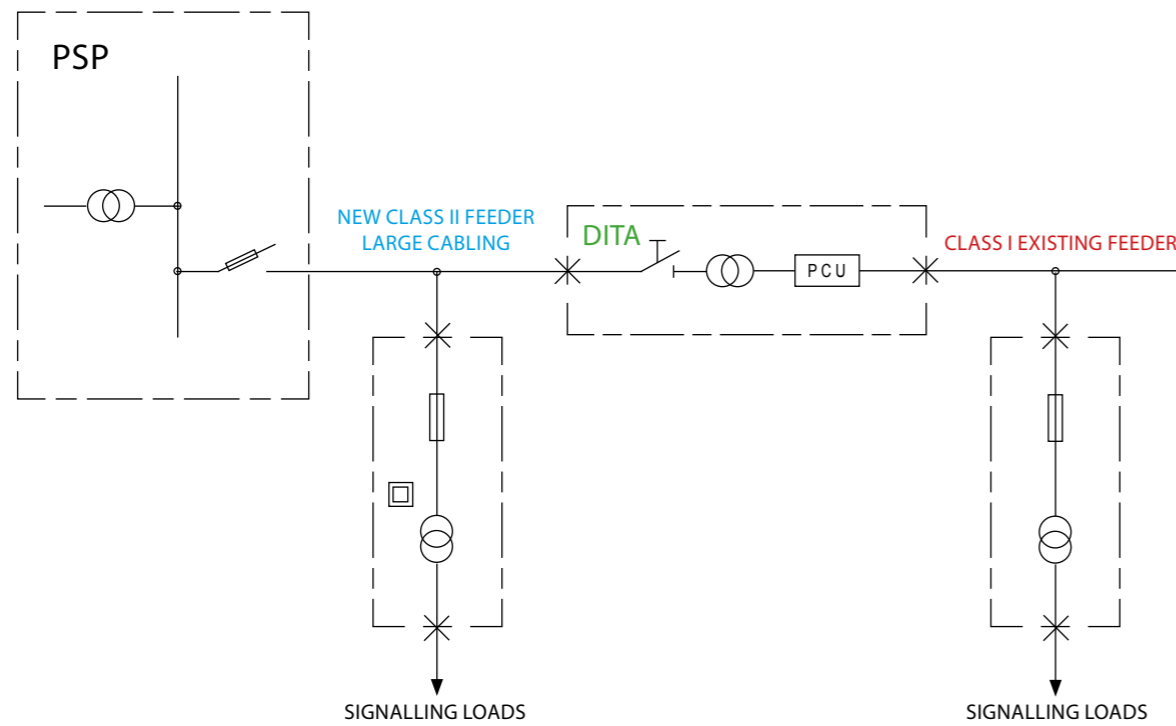
DITA Configurations

Class II feeder adjoining an existing Class I feeder

Single TX output

Available with tunnel or stud terminals

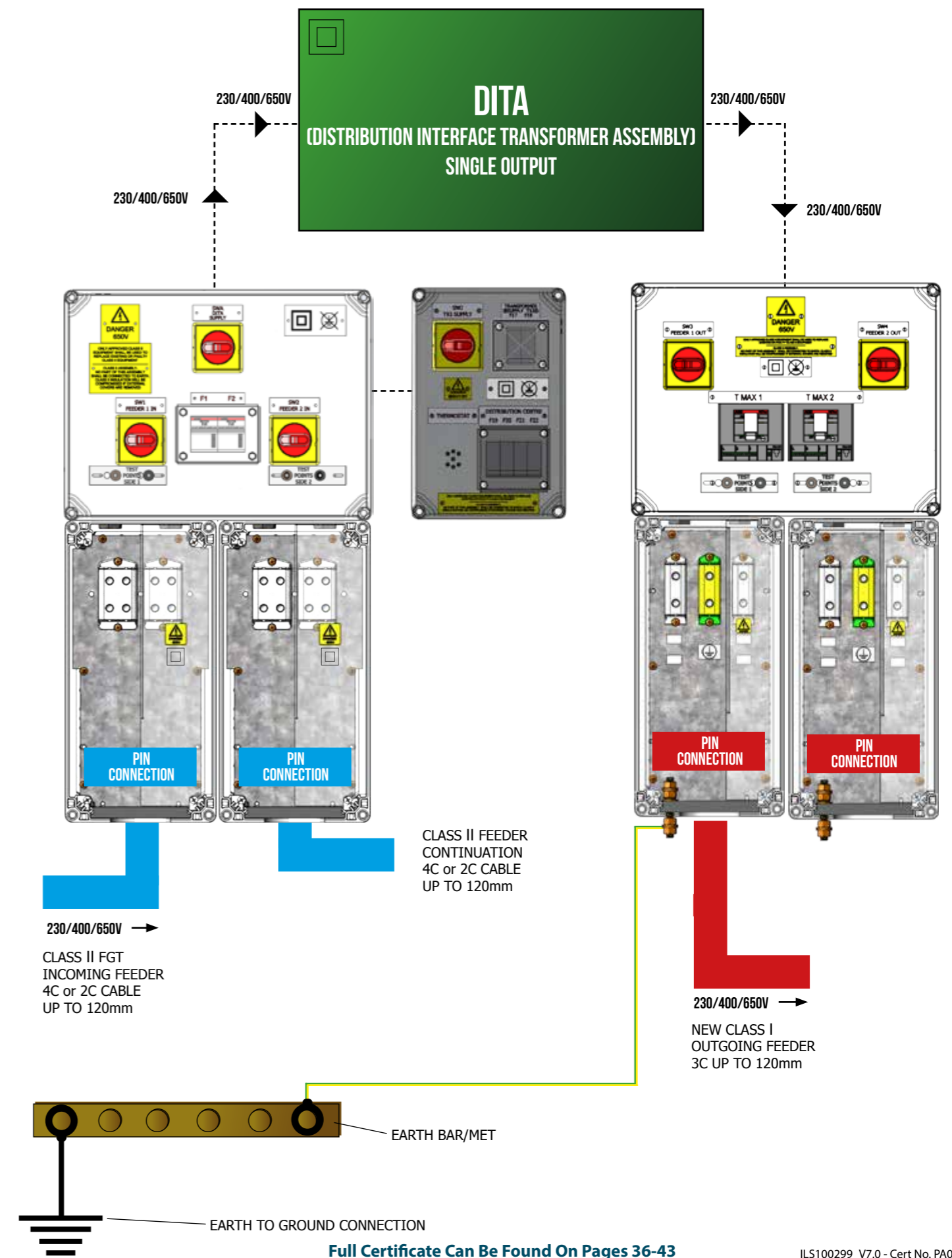
Class II IN
Single Class I OUT



DITA

(DISTRIBUTION INTERFACE TRANSFORMER ASSEMBLY)

CLASS II IN > SINGLE CLASS I OUT



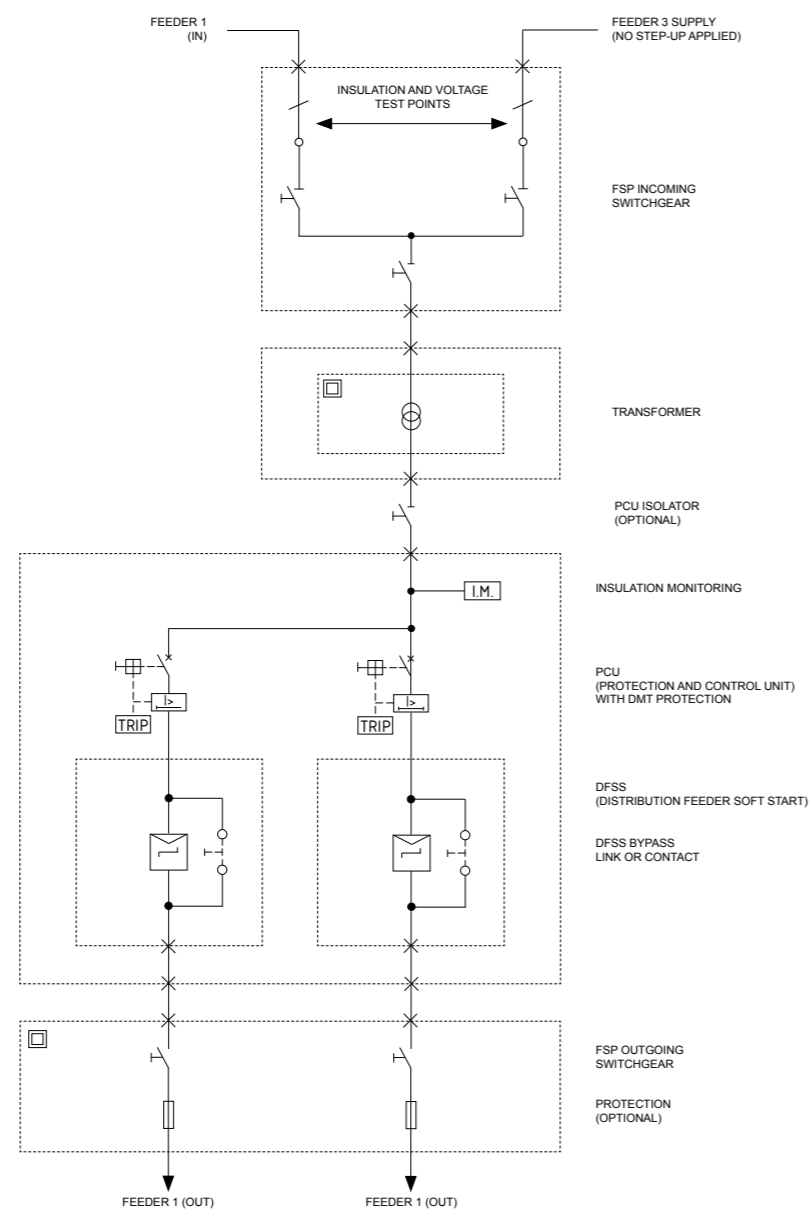
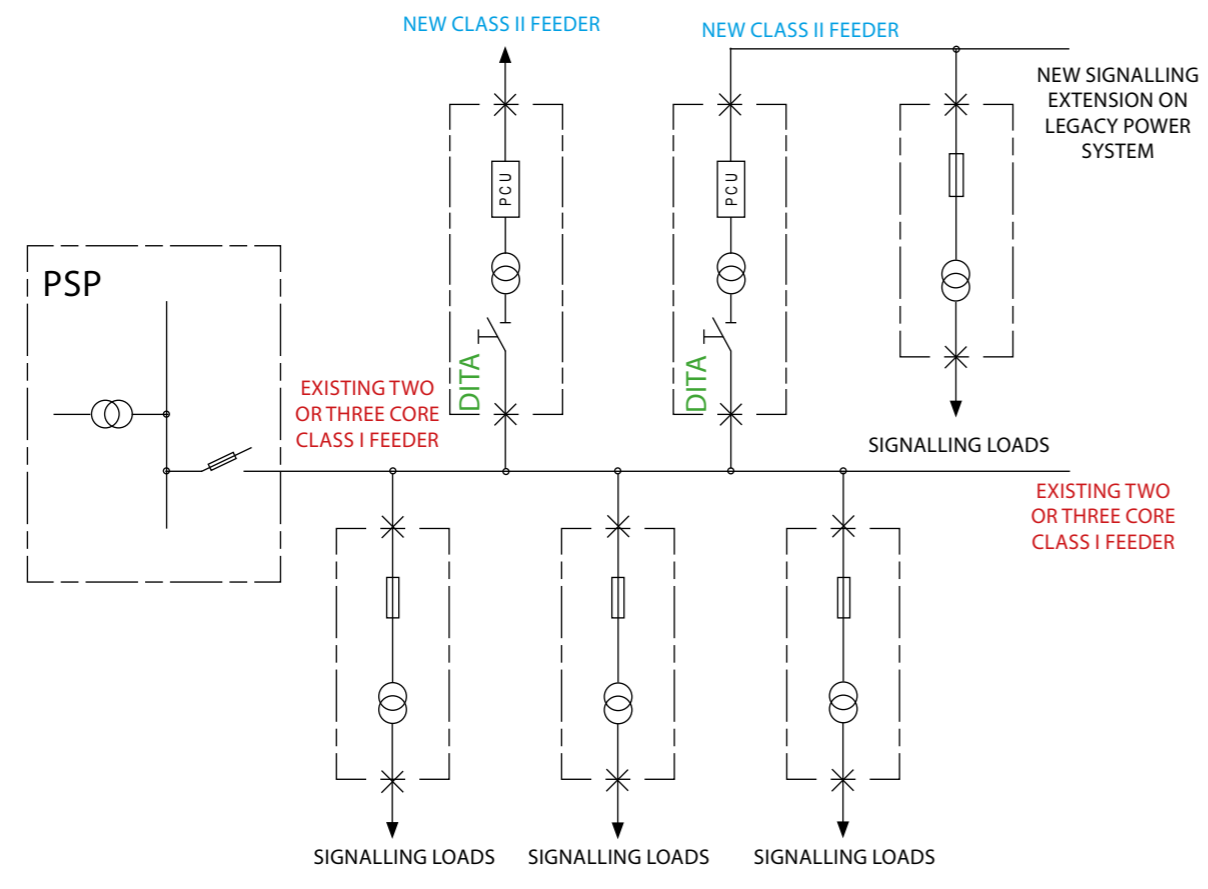
DITA Configurations

Class I feeder with two Class II feeder branches

Single TX output

Available with tunnel or stud terminals

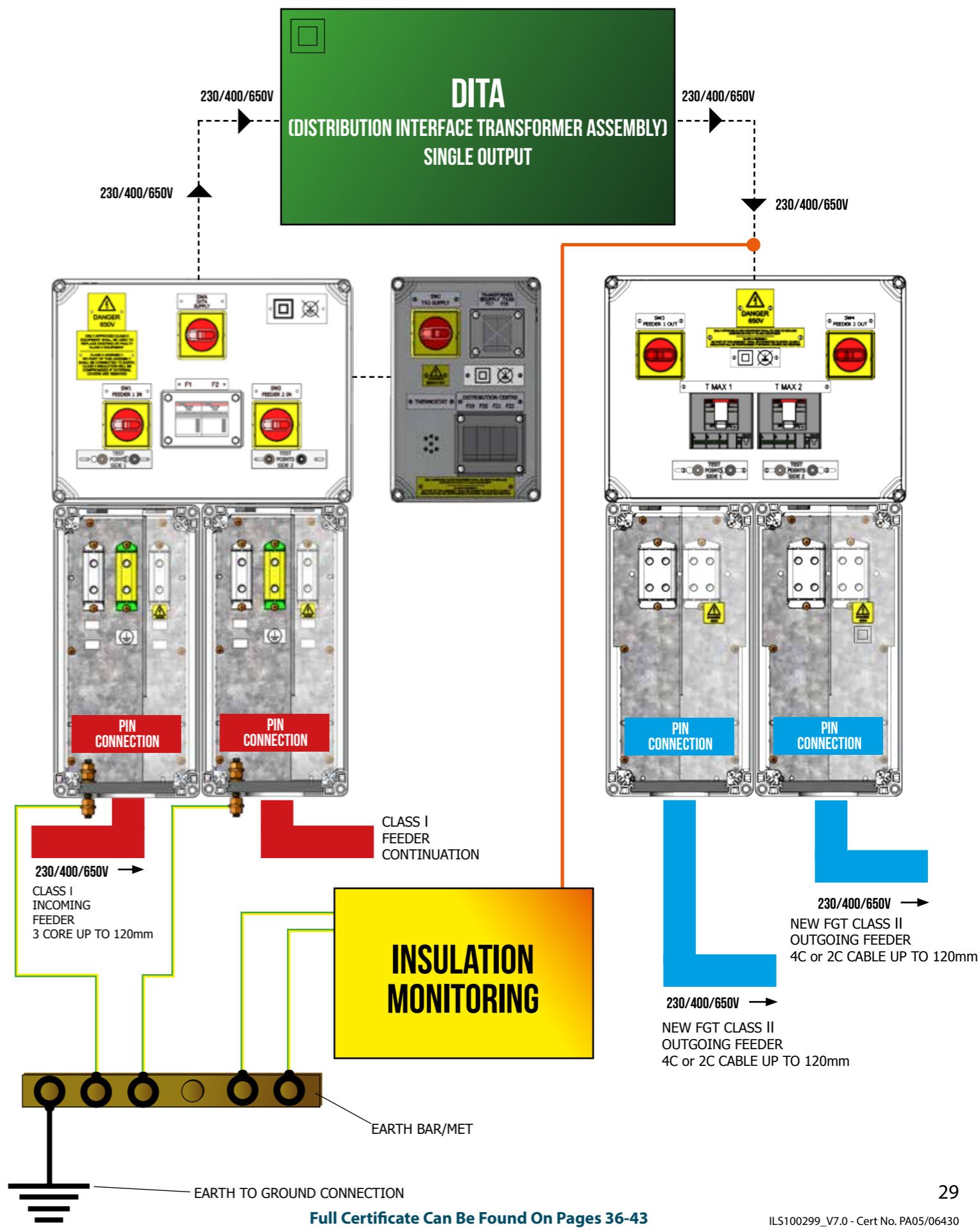
**Class I IN
Single Split Class II OUT**



(Product Specification for Distribution Interface Transformer Assemblies (DITA) for Signalling Power Distribution Systems Ref: NR/L2/SIGELP/27419 - Page 28)

Full Certificate Can Be Found On Pages 36-43

DITA
(DISTRIBUTION INTERFACE TRANSFORMER ASSEMBLY)
CLASS I IN > 2 X CLASS II OUT (SPLIT)



Full Certificate Can Be Found On Pages 36-43

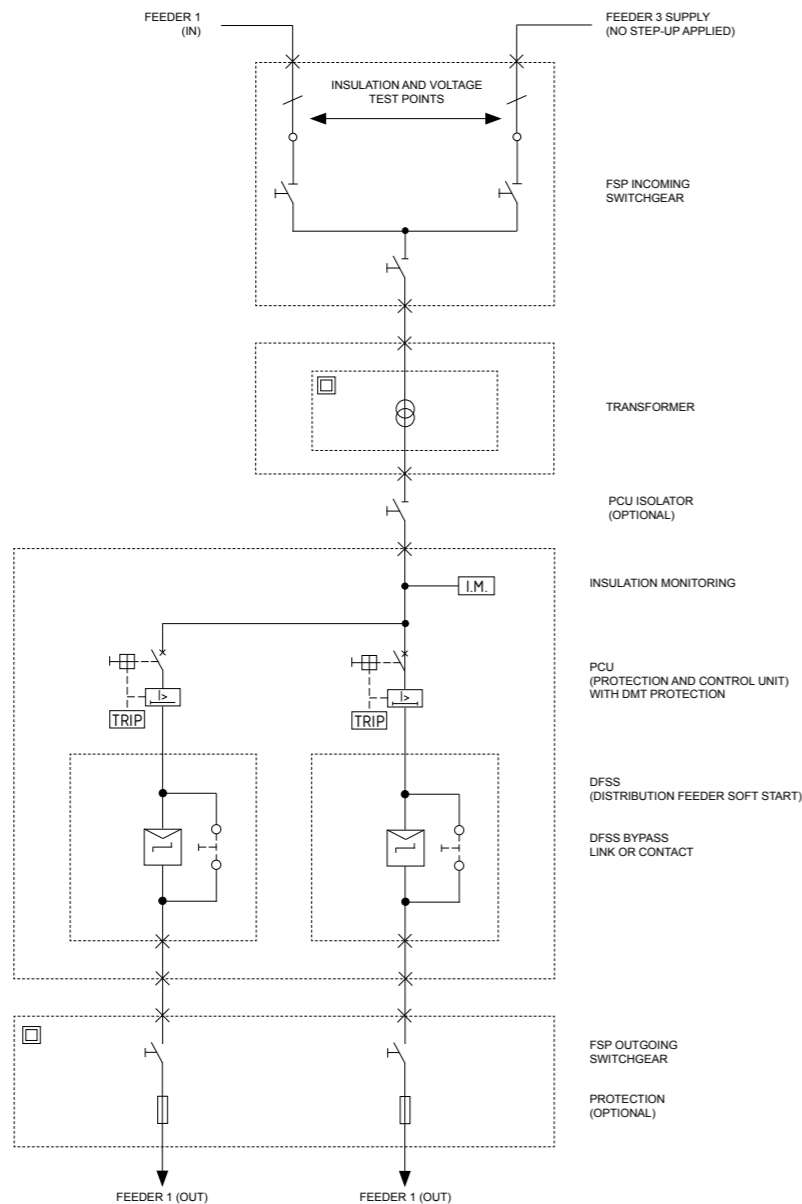
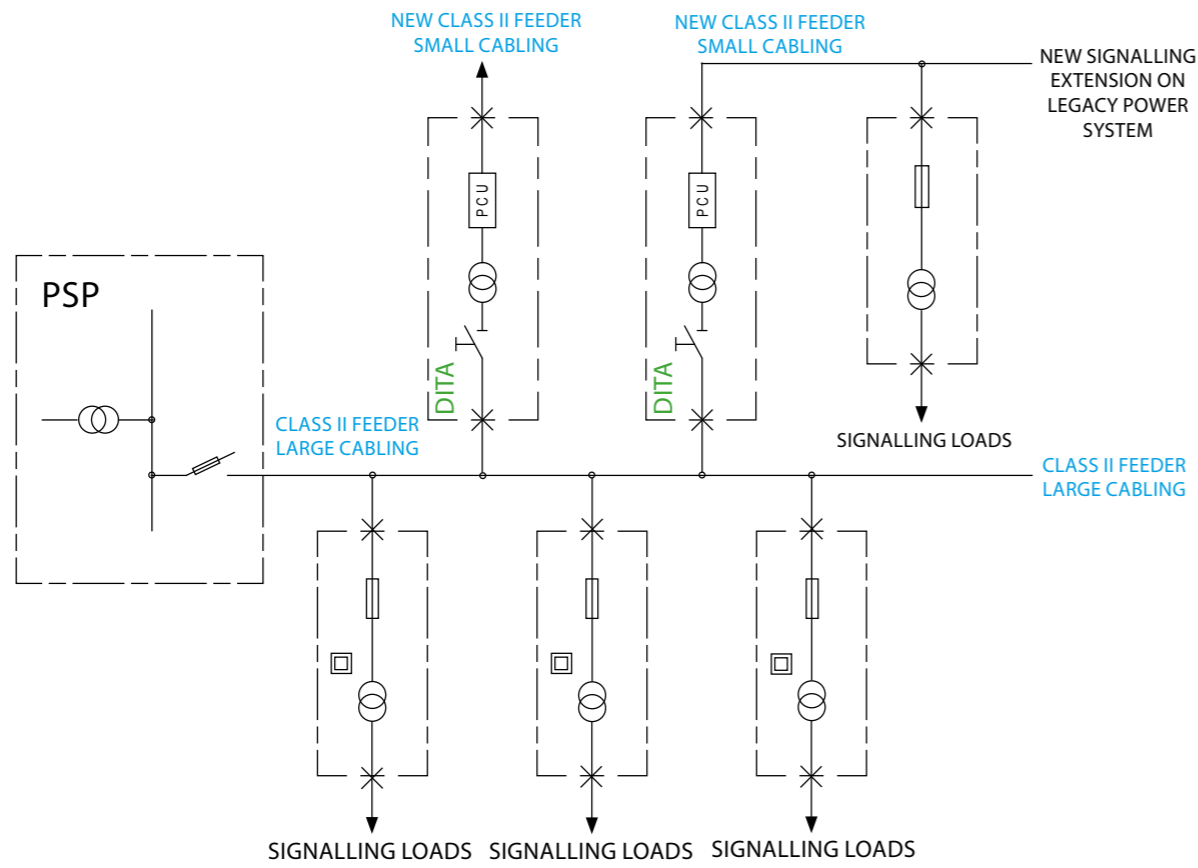
DITA Configurations

Existing large cable Class II feeder adjoining two new small cable Class II feeders

Single TX output

Available with tunnel or stud terminals

Class II IN
2 x Split Class II OUT



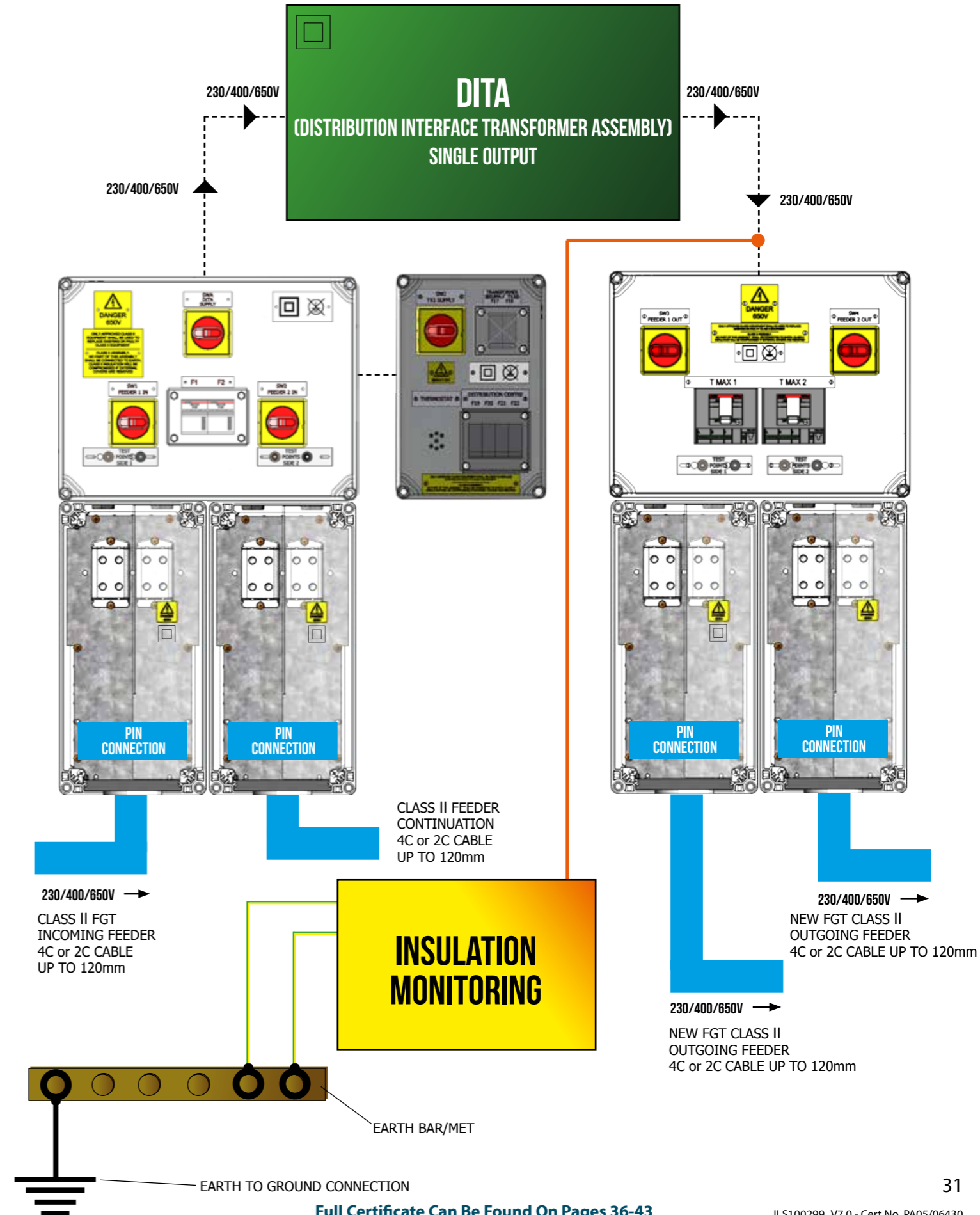
(Product Specification for Distribution Interface Transformer Assemblies (DITA) for Signalling Power Distribution Systems Ref: NR/L2/SIGELP/27419 - Page 28)

Full Certificate Can Be Found On Pages 36-43

DITA

(DISTRIBUTION INTERFACE TRANSFORMER ASSEMBLY)

CLASS II IN > 2 X CLASS II OUT (SPLIT)



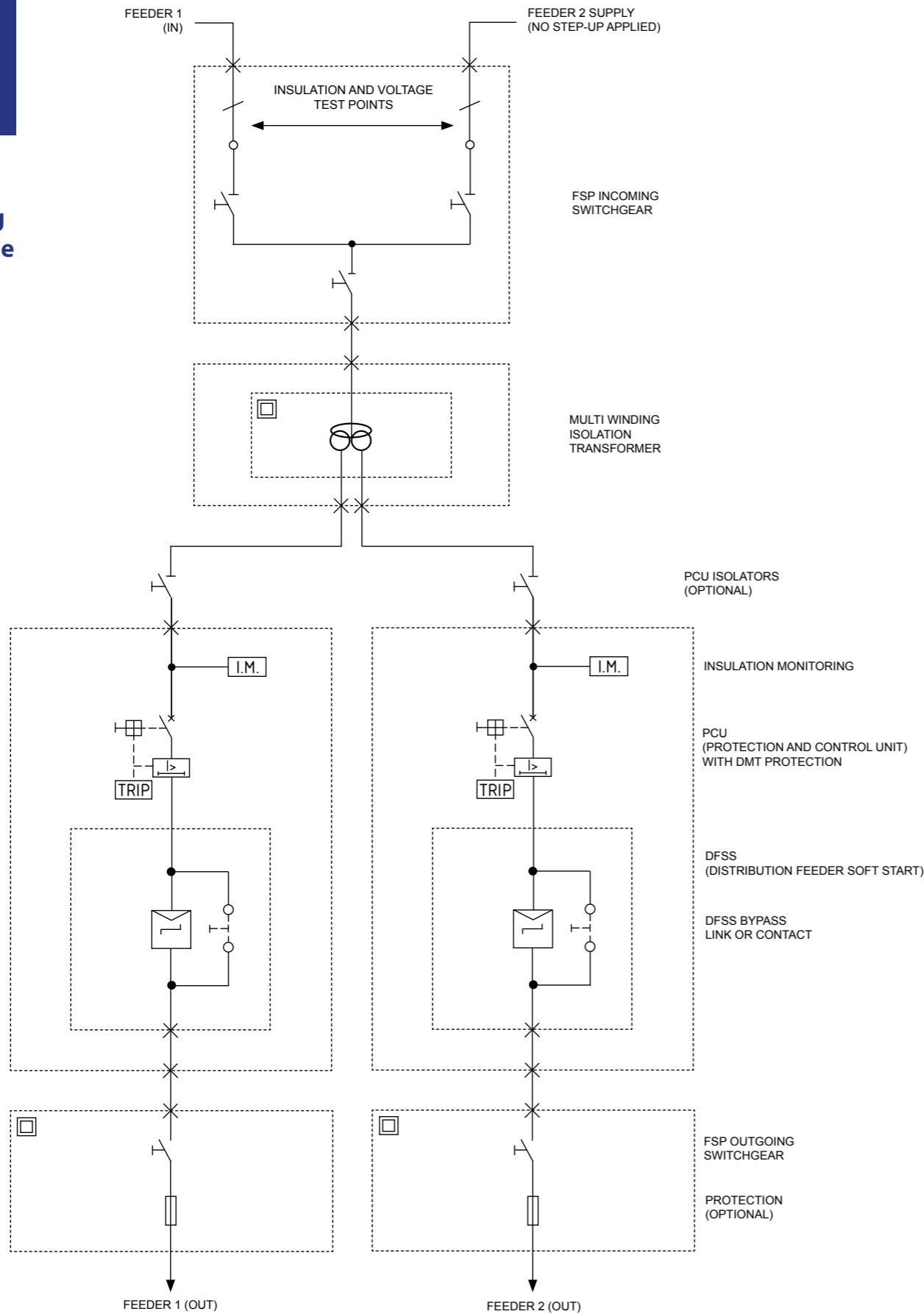
DITA Configurations

Existing large cable Class II feeder adjoining a new small cable Class II feeder

Dual TX output

Available with tunnel or stud terminals

Class II IN
2 x Dual Class II OUT

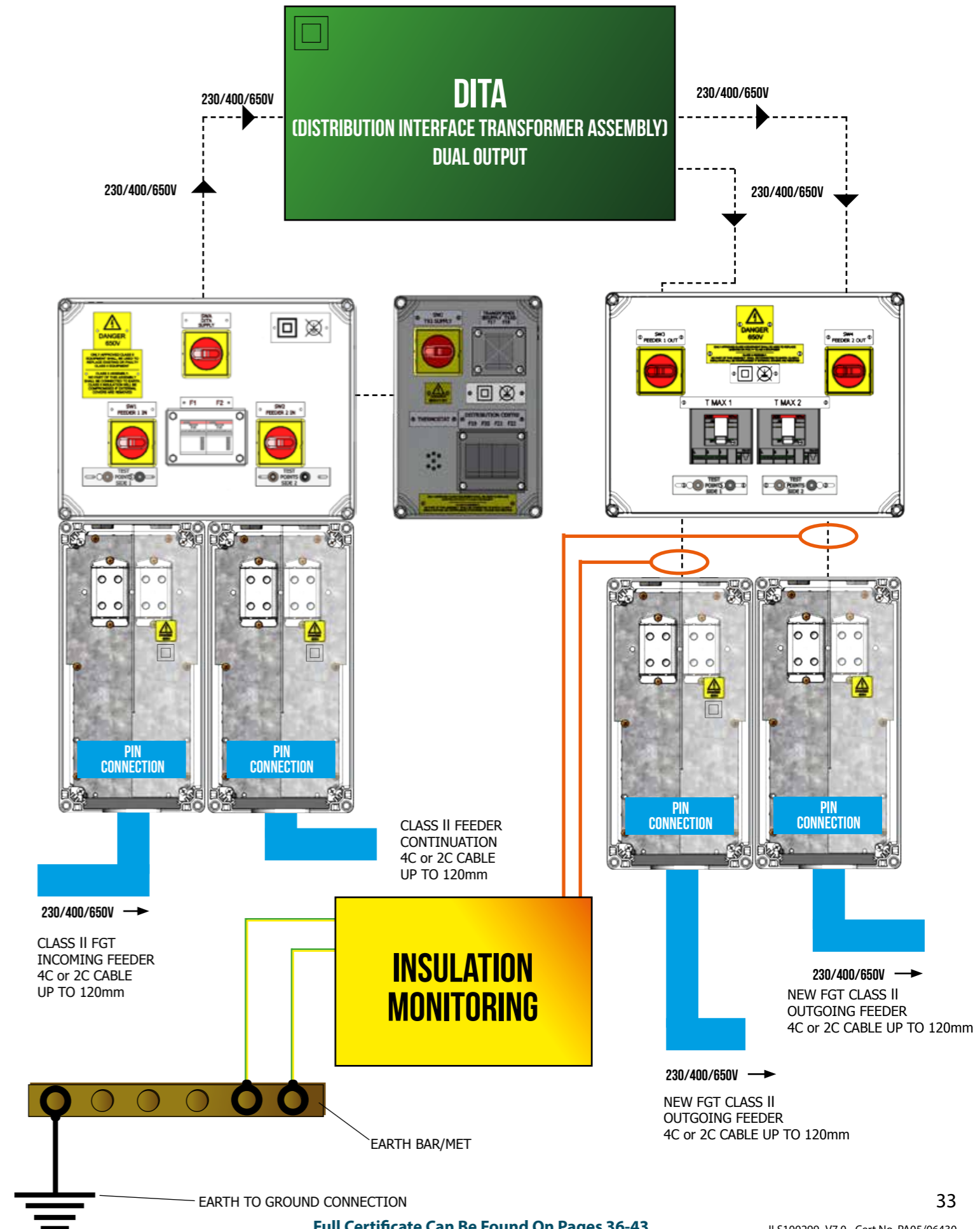


(Product Specification for Distribution Interface Transformer Assemblies (DITA) for Signalling Power Distribution Systems Ref: NR/L2/SIGELP/27419 - Page 29)

DITA

(DISTRIBUTION INTERFACE TRANSFORMER ASSEMBLY)

CLASS II IN > 2 X CLASS II OUT (DUAL)



Full Certificate Can Be Found On Pages 36-43

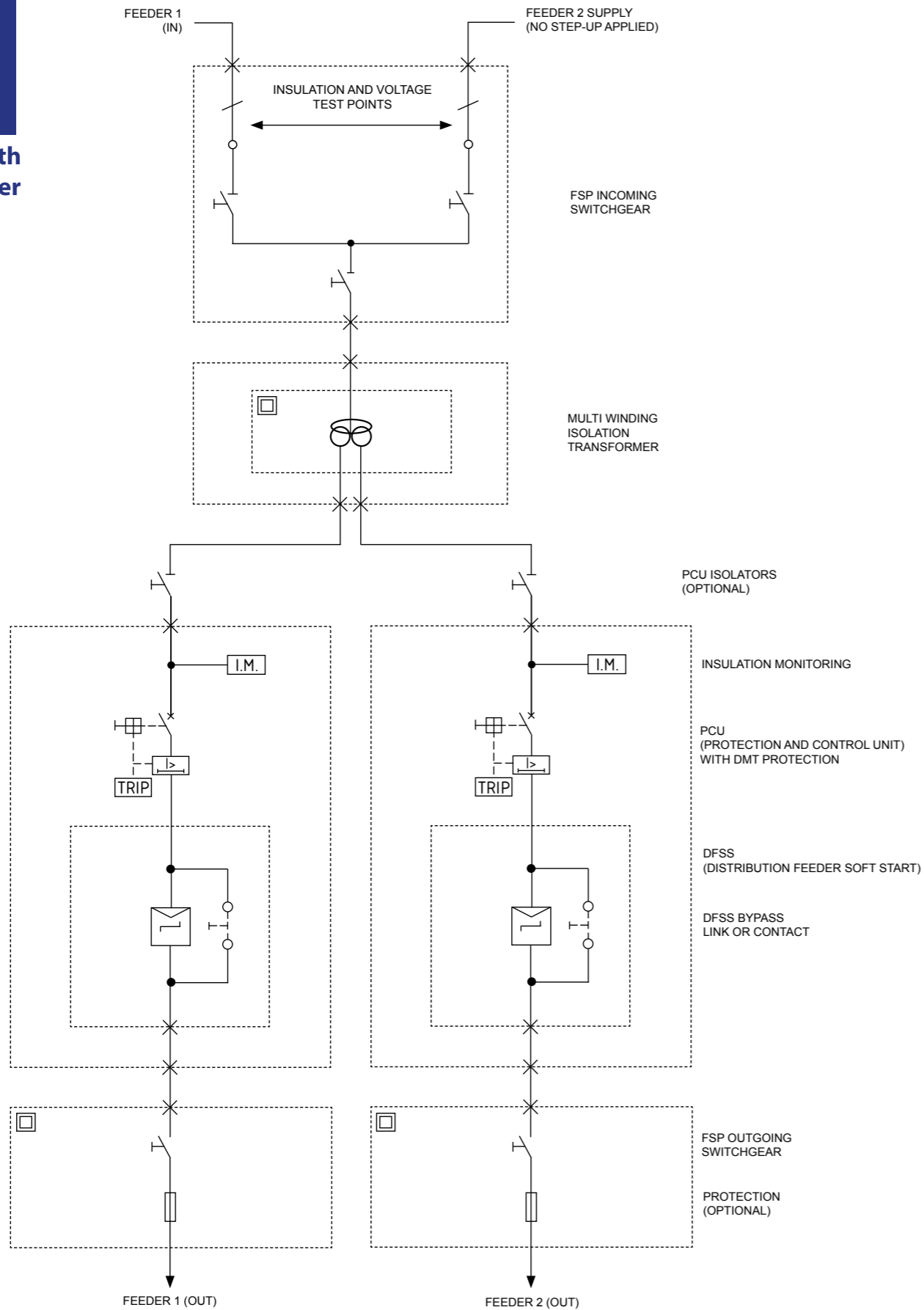
DITA Configurations

Class I feeder with two Class II feeder branches

Dual TX output

Available with tunnel or stud terminals

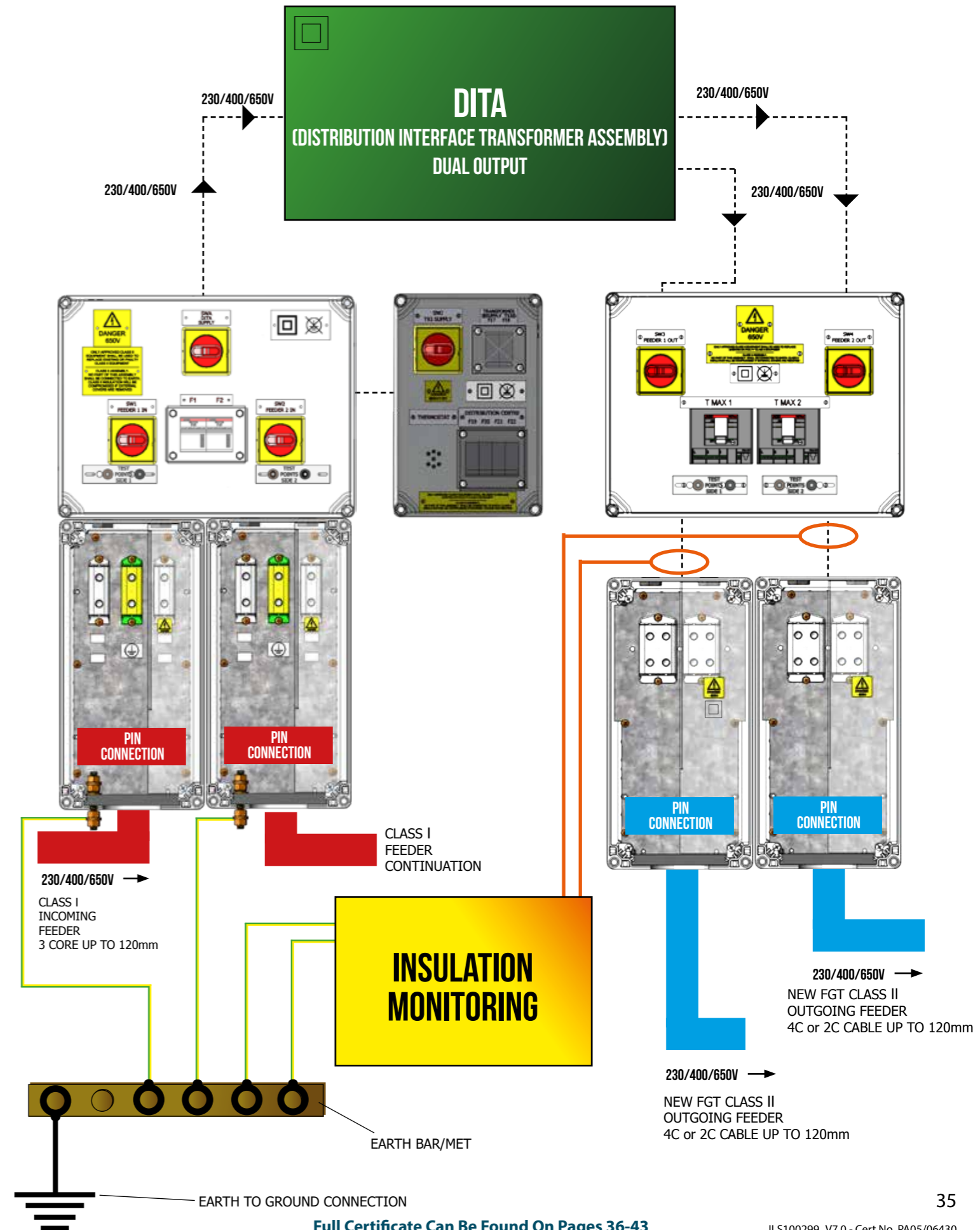
Class I IN
2 x Dual Class II OUT



(Product Specification for Distribution Interface Transformer Assemblies (DITA) for Signalling Power Distribution Systems Ref: NR/L2/SIGELP/27419 - Page 29)

DITA (DISTRIBUTION INTERFACE TRANSFORMER ASSEMBLY)

CLASS I IN > 2 X CLASS II OUT (DUAL)



Full Certificate Can Be Found On Pages 36-43

Manufacturer:
iLECSYS Rail Ltd.

Issue : 1
Valid From : 10-05-2019

Integrated FSP and DITA

Product Description

Integrated FSP and DITA for segregation of existing signalling power distribution feeder circuits. Ratings from 5kVA, 10kVA, 15kVA and 40kVA inclusive.

Product Image



Scope of Acceptance

Full Acceptance

Full acceptance for Isolating transformer at 5kVA, 10kVA, 15kVA and 40kVA and Protection and Control Unit for integration into a trackside apparatus housing to form a DITA in accordance with NR/L2/SIGELP/27419.

DITA to be installed in a signalling power distribution system in accordance with NR/L2/SIGELP/27410 Iss 2.

Network Rail Acceptance Panel (NRAP) hereby authorises the product above for use and trial use on railway infrastructure for which Network Rail is the Infrastructure Manager under the ROGS regulations.
Reviewed by: _____ Authorised by: _____

Sam Flint
Product Acceptance Coordinator

Felix Langley
Professional Head of Power Distribution HV/LV

Manufacturer:
iLECSYS Rail Ltd.

Issue : 1
Valid From : 10-05-2019

Specific Conditions

The following Conditions are specific to the approved product/s contained within this Certificate. These conditions must be adhered to in addition to the Network Rail General Conditions contained within the "General Terms and Conditions" section.

Failure to adhere to these conditions may result in the withdrawal or suspension of Acceptance of some, or all of the items contained within the accepted configuration.

Manufacturer

- 1) Mechanical drawings, Electrical Schematics, Factory Acceptance Test (FAT), site reports, EMC statements and O & M Manuals shall be provided with equipment.
- 2) The FSP shall meet the requirements of NR/L2/SIGELP/27409 Issue 2
- 3) The DITA shall meet the requirements of NR/L2/SIGELP/27419
- 3) The Manufacturer conditions of previously approved products shall still remain i.e. (PA05/06087, PA05/05342, PA05/05344, PA05/06433, PA05/06436, PA05/06490, PA05/06592)
- 4) Clear instructions and labelling is required where a DITA is installed that introduces different earthing system to that of the primary (ie, 650 V IT to 650 V TN).
- 5) Clear drawings to be provisioned and fixed to the inside of the enclosure clearly detailing the earthing arrangements and their connection to local and remote earthing systems. This shall be site specific.
- 6) The O&M manual shall be updated to include reference to different earthing systems and how compliance can / will be met.
- 7) Metallic apparatus housings can be used but must be product approved and suitable for housing DITA equipment.

User

- 1) The DITA shall be installed in a signalling power distribution system such that the 5kVA, 10kVA, 15kVA and 40kVA capacity of the equipment is not exceeded.
- 2) Equipment to be installed with Class II switchgear in accordance with NR/L2/SIGELP/27409 Issue 2 and alarm transmission facilities to form a DITA in accordance with NR/L2/SIGELP/27419.
- 3) The requirements for a Class II installation are satisfied if the DITA is installed in accordance with NR/L2/SIGELP/27410 Issue 2 – Specification for Class II Based Signalling Power Distribution Systems.
- 4) Suitable BS HD 60269-2 / BS88-2 fusing (as per the manufacturers Data Sheet) to provide protection against near source faults shall be provided at the input of the Isolating transformer and shall discriminate with downstream protective devices.
- 5) The cabling between Class II FSP switchgear and the Isolating transformer shall be enclosed in insulated conduit system in accordance with NR/L2/SIGELP/27421 and NR/L2/SIGELP/27422.
- 6) Prior to energising the DITA within a Signalling Power Distribution system, the installer shall be satisfied that the DITA settings are suitably designed, installed and adjusted to provide appropriate power characteristics and circuit protection to all connected loads including, signalling functional supplies.
- 7) Protection and Control Unit (PCU) Definite Minimum Time breaker shall be adjusted in accordance with overall system power protection design to achieve discrimination with upstream PSP protection and downstream FSP transformer protection.
- 8) The DITA shall be earthed with a target value in accordance with NR/L3/SIGELP/27410 Issue 2 section 9.1. The earthing system shall be installed in accordance with NR/L3/SIGELP/27418.
- 9) Site Acceptance Test (SAT) specific to this installation shall be completed on commissioning.

Manufacturer:
iLECSYS Rail Ltd.

Issue : 1
Valid From : 10-05-2019

- 10) In the event of a fault the manufacturer shall be responsible for investigation and rectification.
- 11) Any changes to the signalling power distribution system will be done in accordance to NR/L2/SIGELP/27416 Issue 1
- 12) The GRP Housing shall not be installed within the Overhead Contact Line Zone (OCLZ) as defined in BS EN 50122-1:2011+A4:2017
- 13) Product approved metallic housings can be used but must be supplied from ilecsys Rail Ltd.
- 14) The User conditions of previously approved products shall still remain i.e. (PA05/06087, PA05/05342, PA05/05344, PA05/06433, PA05/06436, PA05/06490)
- 15) Protection of TN systems must be designed and specified to the installer before energisation. The local earthing electrode or other earthing connection shall be coordinated with the protection design to meet a disconnection time that not exceeding the limits set in BS7671 for distribution systems. Any local earthing system connected to the TN system shall be clearly marked to indicate that it is intended to afford protection against electric shock under first fault conditions.
- 16) Where earthing systems connected to the 650TN are disconnected for the purpose of periodic testing the incoming power supply shall be isolated.
- 17) The iLECSYS DITA is intended to be supplied as a complete wired and tested assembly and not as a series of individual components. The DITA modules can be provided for use in an REB or PSP without a case but must be installed, commissioned and tested by iLECSYS engineers or competent contractor under supervision from iLECSYS prior to operational use on the network.

Product Configuration


DITA Housing

Part No.	Description	Image	Catalogue No.
ILS200004-001	GRP Full LOC case		0087/007533



Manufacturer:
iLECSYS Rail Ltd.

Issue : 1
Valid From : 10-05-2019

Transformer Options


Part No.	Description	Image	Catalogue No.
T3258	5kVA 650:650V Single Output		0086/011903
T3258-2	5kVA 230:230V Single Output		0086/011904
T3259	10kVA 650:650V Single Output		0086/011905
T3260	15kVA 650:650V Single Output		0086/011906
T3263	40kVA 650:650V Single Output		0086/011907

Connection Box Options


Part No.	Description	Image	Catalogue No.
FSP/SEG/K4C-2040	Class I M10 Stud Terminals for 16-95mm ² Al/Cu Cable M63 Removable Gland Plate		0086/011908
FSP-CII/SEG/A-2040	Class II Tunnel Terminals for 35-120mm ² Al/Cu Cable 2/4c M63 Removable Gland Plate		086/034711

Manufacturer:
iLECSYS Rail Ltd.



Issue : 1
Valid From : 10-05-2019

Part No.	Description	Image	Catalogue No.
FSP-CII/SEG/K4C-2040	Class II M10 Stud Terminals for 16-95mm ² Al/Cu Cable 2/4c M63 Removable Gland Plate		0086/011909

Definite Minimum Time Protection Options

Part No.	Description	Image	Catalogue No.
P/N 1SDA067067R1	ABB Tmax XT2 160 Ekip LSI 10A		0086/011910
P/N 1SDA067068R1	ABB Tmax XT2 160 Ekip LSI 25A		0086/011911
P/N 1SDA067069R1	ABB Tmax XT2 160 Ekip LSI 63A		0086/011912

Insulation Resistance Monitoring Options




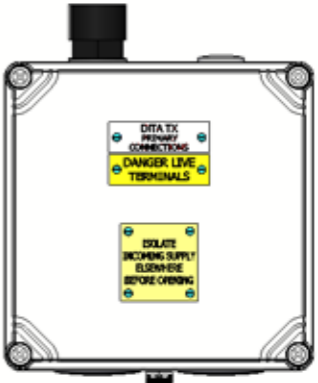
Part No.	Description	Image	Catalogue No.
	265 ILR Insulation Monitoring Unit (Using Bender IRDH265 + Voestalpine Mini-Logger) (required to cover existing installations)		0086/011913
ILS200020-001	685 ILR Insulation Monitoring Unit (Using Bender iso685W-D + Voestalpine Mini-Logger) (required to cover new installations)		0086/011914

Manufacturer:
iLECSYS Rail Ltd.

Issue : 1
Valid From : 10-05-2019


Part No.	Description	Image	Catalogue No.
RS3/1	RS3 Signal Earth Fault Location System		086/000103

Spare Parts

Part No.	Description	Images	Catalogue No.
170224-194	DITA Input Module C/W ABB E92/125 Fuse-holder (22 x 58mm)		0086/011915
170228-214	DITA 1 Switch Combined Auxiliary/ Distribution Box		0086/011916
170227-199	DITA Output Module C/W 2 x Tmax Ekip LSI units		0086/011917
181019-1349	DITA Control Case (1) Transformer Connections Plate (Only for multi-case installations for 20 – 40kVA transformers)		0086/011918

Manufacturer:
iLECSYS Rail Ltd.

Issue : 1
Valid From : 10-05-2019

Part No.	Description	Images	Catalogue No.
181019-1350	DITA Transformer Case (2) Transformer Connections Plate (Only for multi-case installations for 20 – 40kVA transformers)		0086/011919

Manufacturer:
iLECSYS Rail Ltd.

Issue : 1
Valid From : 10-05-2019

Manuals and Training Materials

Reference	Title	Doc. Rev.	Date and Applies to Cert. issue No.	
NR/SPS M010	Distribution Interface Transformer Assembly (DITA) Maintenance	01		1
NR/SPS F005	DITA Equipment Test Results	01		1
	PA05-06430 iLECSYS DITA OM Manual V2.2	2.2	10/05/2019	1
ABB TMAX Maintenance Manual	Tmax XT Maintenance	1	10/05/2019	1
ABB TMAX Manual	1SDC210033D0203_Tmax XT en.pdf	1	10/05/2019	1
	TECH142 - OM Manual Aluminum Wound Class II DITA Network Rail DITA Sche	1	10/05/2019	1
ISOMETER O&M Manual	IRDH265-365_D00014_01_M_XXEN	1	10/05/2019	1

Certificate History

Issue	Date	Issue History
T1	21/12/2017	Initial issue for trial purposes
T2	16/03/2018	Second Trial issue to capture the 40kVA rating
T3	17/08/2018	New site added to capture 10kVA rating at West Hampstead
1	10/05/2019	Full Acceptance granted

Contact Details

Manufacturer

iLECSYS Rail Ltd.
Peter Dickson
Engineering Manager
pjd@ilecsys.co.uk

Applicant

Tahir Ayub
Programme Engineering Manager
Network Rail
Tahir.Ayub@networkrail.co.uk


Lead Reviewing Engineer

James Palmer
Engineer (M&E) (Distribution)
Network Rail
James.Palmer2@networkrail.co.uk

Mariusz Tyszka
Project Engineer
Network Rail
Mariusz.Tyszka@networkrail.co.uk

Nilda Sanchez
Senior Engineer
Network Rail
nilda.sanchez@networkrail.co.uk

Symbols & Abbreviations

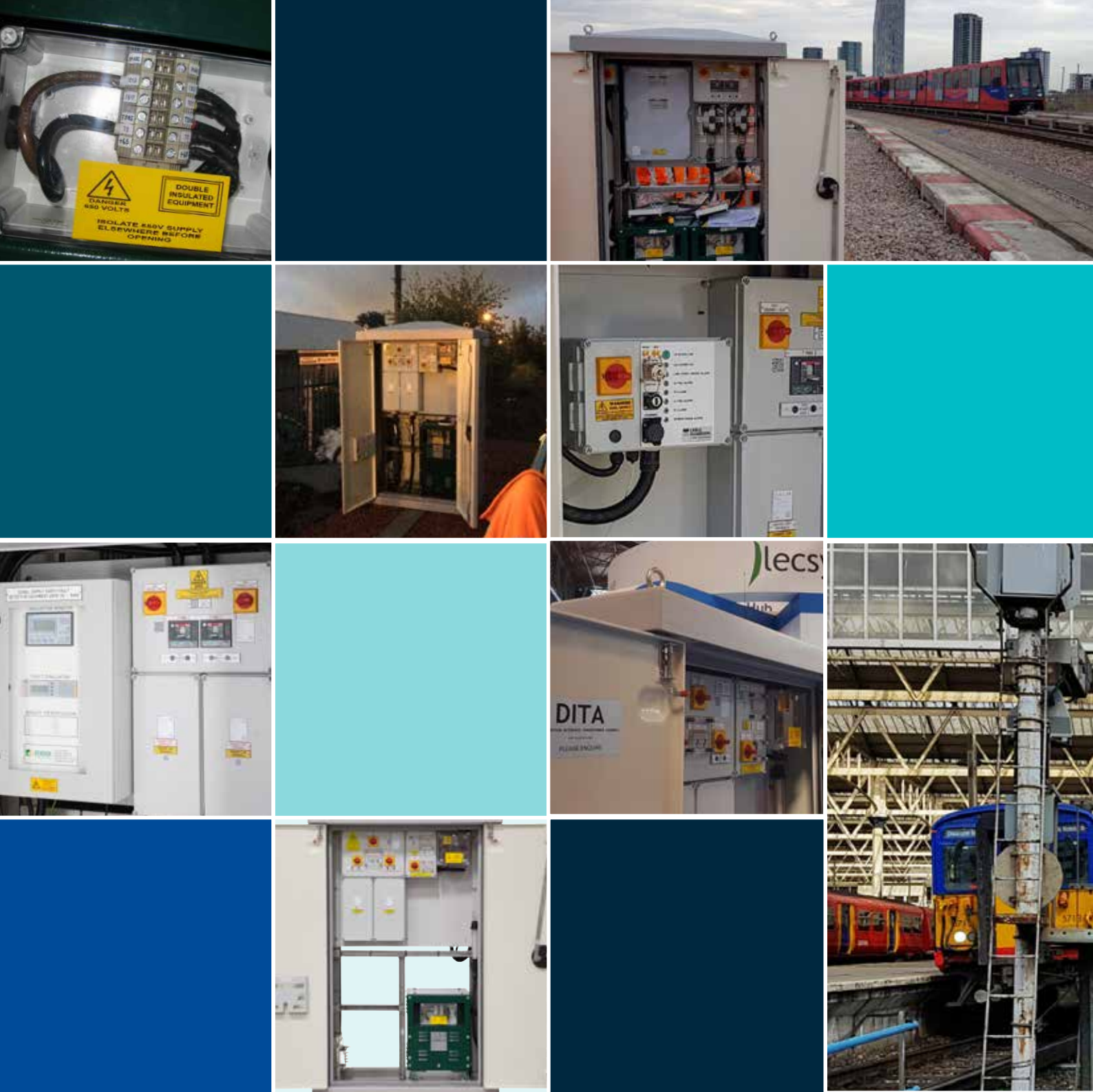
A	Amps
a.c.	Alternating Current
CE	Conformité Européene
d.c.	Direct Current
DITA	Distribution Interface Transformer Assembly
DMT	Definite Minimum Time
DFSS	Distribution Feeder Soft Start
FSP	Functional Supply Point
IM	Insulation Monitoring
IP	Ingress Protection
kg	Kilo-grams
kVA	Kilo-Volt-Amperes
MET	Main Earth Terminal
mm	Millimetre
mm²	Millimetres Squared
ms	Milli-second
O&M	Operations and Maintenance (manual)
PCU	Protection and Control Unit
PSP	Principal Supply Point
RAM	Reliability Availability Maintainability
RCM	Remote Conditioning Monitoring
SSP	Signalling Supply Point
UV	Ultraviolet
V	Volts
Ω	Ohms
°C	Degrees Celsius
	Class II

Definitions

Apparatus Housing	External weatherproof housing which may be referred to as a location case, signalling equipment housing, cubicle, shelter, container or building.
Class I Transformer	Transformer in which protection against electric shock does not rely on basic insulation only, but includes an additional safety precaution such as a protective earth terminal, provided for the connection of accessible conductive parts to the protective earth conductor in the fixed wiring of the installation, so that accessible conductive parts cannot become live in the event of a failure of the basic insulation in accordance with BS EN 61558-1:2007.
Class II Transformer	Transformer with basic insulation as provision for basic protection, and supplementary insulation as provision for fault protection or in which basic and fault protection are provided by reinforced insulation, in accordance with BS EN 61140.
Class II Hybrid Transformer	Transformer in which the primary side, including its terminals, meet the requirements for Class II and the secondary side meets the requirements for Class I, allowing ready access to the secondary tapplings for adjustment in service as defined in NR/L2/SIGELP/30007.
Definite Minimum Time Protection Device (DMT)	An electronic protective device with adjustable disconnection time and current characteristics which remain constant throughout its operating range.
Distribution Interface Transformer Assembly (DITA)	Transformer assembly in accordance with this standard. Assembly consists of switchgear, isolating transformer and protection and control unit (PCU).
Functional Supply Point (FSP)	The point that the power supply distribution system connects with an item of supplied equipment and may be co-located with signalling equipment.
Principle Supply Point (PSP)	The point that the power supply distribution system connects with an item of supplied equipment and may be co-located with signalling equipment. The designation 'PSP' is taken to include other primary supply sources such as auxiliary supply points (ASP) and signalling supply points (SSP).
Nominal Supply Voltage	The nominal output voltage is derived from the PSP output that is connected to the primary; eg. A supply sourced from a 650V PSP shall be considered to have a rated supply voltage of 650V.

Notes

Notes



ilecsys RAIL

t: 01442 828387

f: 01442 828399

e-mail: enquiry@ilecsysrail.co.uk

1 Kites Park • Summerleys Road • Princes Risborough • Buckinghamshire • HP27 9PX

