7XV75 Test Switch

Notes on Safety
This catalogue contains notes that must be adhered to for your own personal safety and to avoid damage to property.

However, it does not constitute a complete description of all safety measures required for installation, service, and maintenance of the equipment (module, device) in question. Details are to be taken from the device manual and those are mandatory.

WARNING

Danger of severe personal injury or substantial damage to property

Hazardous voltages may occur in devices and modules during operation depending on the design and application.

✧ Always observe the instructions given in “Qualified Electrical Engineering Personnel” below.

Qualified Electrical Engineering Personnel

Only qualified electrical engineering personnel may commission and operate the equipment (module, device) described in this document. Qualified electrical engineering personnel in the sense of this document are people who can demonstrate technical qualifications as electrical technicians. These persons may commission, isolate, ground and label devices, systems and circuits according to the standards of safety engineering.

Use as Prescribed
The equipment (device, module) may only be used for such applications as set out in the catalogs and the technical description, and only in combination with third-party equipment recommended and approved by Siemens.

Problem-free and safe operation of the product depends on the following:

- Proper transport
- Proper operation and maintenance
- Proper storage, setup, and installation

WARNING

Danger of death, personal injury or substantial property damage

Non-observance of the following measures can result in death, personal injury or substantial property damage.

✧ The equipment must be grounded at the grounding terminal before any connections are made.

If you require further information, or if particular problems occur that are not handled in sufficient depth in the instructions of the respective product, you can request help through your local Siemens Office or representative.

Statement of Conformity

CE

Low-voltage Directive 2014/35/EU

RoHS Directive 2011/65/EU

The conformity is based on the compliance with the following harmonized standards

EN 50581 and EN 60255-27

Further standards
IEC 60255, VDE 0435

Application

The test switch serves in the testing of protection devices using secondary injection test sets.

The following versions are in a flush mounting case available:

- For feeder protection without an open starpoint.
- For feeder protection without an open starpoint and with additional contacts.
- For feeder protection without an open starpoint for two CT cores or separate earth fault CT.
- For feeder protection with an open starpoint.
- For feeder protection with an open starpoint and independent switchable trip and c.t. circuits.
- For a 3-winding transformer differential protection.
- For feeder protection without an open starpoint, with 4th CT and 4th VT input (three-stage test switch)

The test device can be used with auxiliary supplies ranging from 24 V to 250 V AC/DC. This makes selection between varying power supply models unnecessary.

Mode of operation

The 7XV75 test switch serves for testing protection devices including C.T. circuits and command contacts. With the help of the switches located on the front side, the current and voltage inputs as well as the circuits of the protection device to be tested are interrupted and applied to the plug-in connector located on the front side. Via this plug-in connector currents and voltages can be fed by an injection test set and the different commands and indications can be tested.

7XV75 Test Switch

NOTE

Connect and disconnect the test equipment only in test position of the device

NOTE

Turn the switch using a 90 degree switch angle within ...(time).

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NOTE

Grounding

The equipment must be grounded at the grounding terminal and the terminal pin according to corresponding diagram before any connections are made.

Technical data

General device data	Rated operating voltage V_n Rated operating current I_n Test current capacity for 1 s for 10 s Continuous current Overvoltage category, IEC 60255-27 Operating Altitude Minimum admissible atmospheric pressure Pollution degree Protection	250 V AC/DC Max 5 A for all circuits 150 A for CT circuits 60 A for CT circuits 20 A for CT circuits III Max 2000 m 783.8 hPa 2 Class 1
Electrical tests	**Insulation tests** Voltage test (routine test and type test) Impulse voltage test (type test) all circuits, class III Insulation resistance measurement	IEC 60255-27, Edition 2.0 2.5 kV; 50 Hz 5 kV (peak value); 1.2/50 µs; 0.5 J; 3 positive and 3 negative impulses at intervals of 5 s 500 V DC, For 1 min, ≥100 MOhm
Construction	Metal case Dimension Weight Protection type acc. to IEC 60529 with closed cover with open cover for operator protection Dimensions:	7XP20 1/6 of 19”wide approx. 3.4 kg IP40 IP20 IP2x for terminals See Chapter „Dimensions drawings in mm / inch” below
Mechanical stress tests	**Vibration and shock during operation** Vibration IEC 60255-21-1, class II IEC 60068-2-6 Shock IEC 60255-21-2, class I IEC 60068-2-27 Seismic vibration IEC 60255-21-3, class I IEC 60068-3-3	IEC 60255-21 and IEC 60068 Sinusoidal 10 Hz to 58 Hz: ± 0.075 mm amplitude 58 Hz to 150 Hz: 1 g acceleration Frequency sweep rate 1 octave/min 20 cycles in 3 orthogonal axes Semi-sinusoidal 5 g acceleration, duration 11 ms, each 3 shocks in both directions of the 3 axes Sinusoidal 1 Hz to 8 Hz: ± 3.5 mm amplitude (horizontal axis) 1 Hz to 8 Hz: ± 1.5 mm amplitude (vertical axis) 8 Hz to 35 Hz: 1 g acceleration (horizontal axis) 8 Hz to 35 Hz: 0.5 g acceleration (vertical axis) Frequency sweep 1 octave/min 1 cycle in 3 orthogonal axes
	Vibration and shock during transport Vibration IEC 60255-21-1, class II IEC 60068-2-6 Shock IEC 60255-21-2, class I IEC 60068-2-27 Continuous bump IEC 60255-21-2, class I IEC 60068-2-29	IEC 60255-21 and IEC 60068 Sinusoidal 5 Hz to 8 Hz: ± 7.5 mm amplitude 8 Hz to 150 Hz: 2 g acceleration Frequency sweep rate 1 octave/min 20 cycles in 3 orthogonal axes Semi-sinusoidal 15 g acceleration, duration 11 ms, each 3 shocks in both directions of the 3 axes Semi-sinusoidal 10 g acceleration, duration 16 ms, each 1000 shocks in both directions of the 3 axes
Climatic stress tests	**Temperatures** Permissible temperature during service Permissible temperature during storage	IEC 60255-1 - 20 °C (-4 °F) to + 70 °C (+ 158 °F) - 20 °C (-4 °F) to + 70 °C (+ 158 °F)

Technical data

Voltage Terminals

Recommended use of the screwed terminals

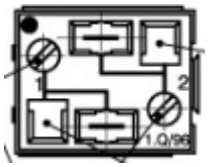
Stripping length (when used without conductor sleeve)	L = 10 mm (0,39 in) or L = 12 mm (0,47 in); max. wire cross-section AWG 16 (1.5 mm^2), use copper conductors only
When using conductor sleeves	Geometry for terminal cells according to EN 60947-7, class A1 must be complied with.
Permissible tightening torque at the terminal screw	0.8 Nm (7.1 lb.in.)
Sleeves length (wire range)	min. 10 mm (0.39 in) (e.g. DIN 46228-E1,5-10)

Current Terminals

Recommended use of the screwed terminals

Stripping length (when used without conductor sleeve)	L = 12 mm (0,47 in) or L = 14 mm (0,55 in); max. wire cross-section AWG 12 (4,0 mm^2), use copper conductors only
When using conductor sleeves	Geometry for terminal cells according to EN 60947-7, class A4 must be complied with.
Permissible tightening torque at the terminal screw	1,2 Nm (10.6 lb.in.)
Sleeves length (wire range)	min. 12 mm (0.47 in) (e.g. DIN 46228-E4-12)

Grounding screw

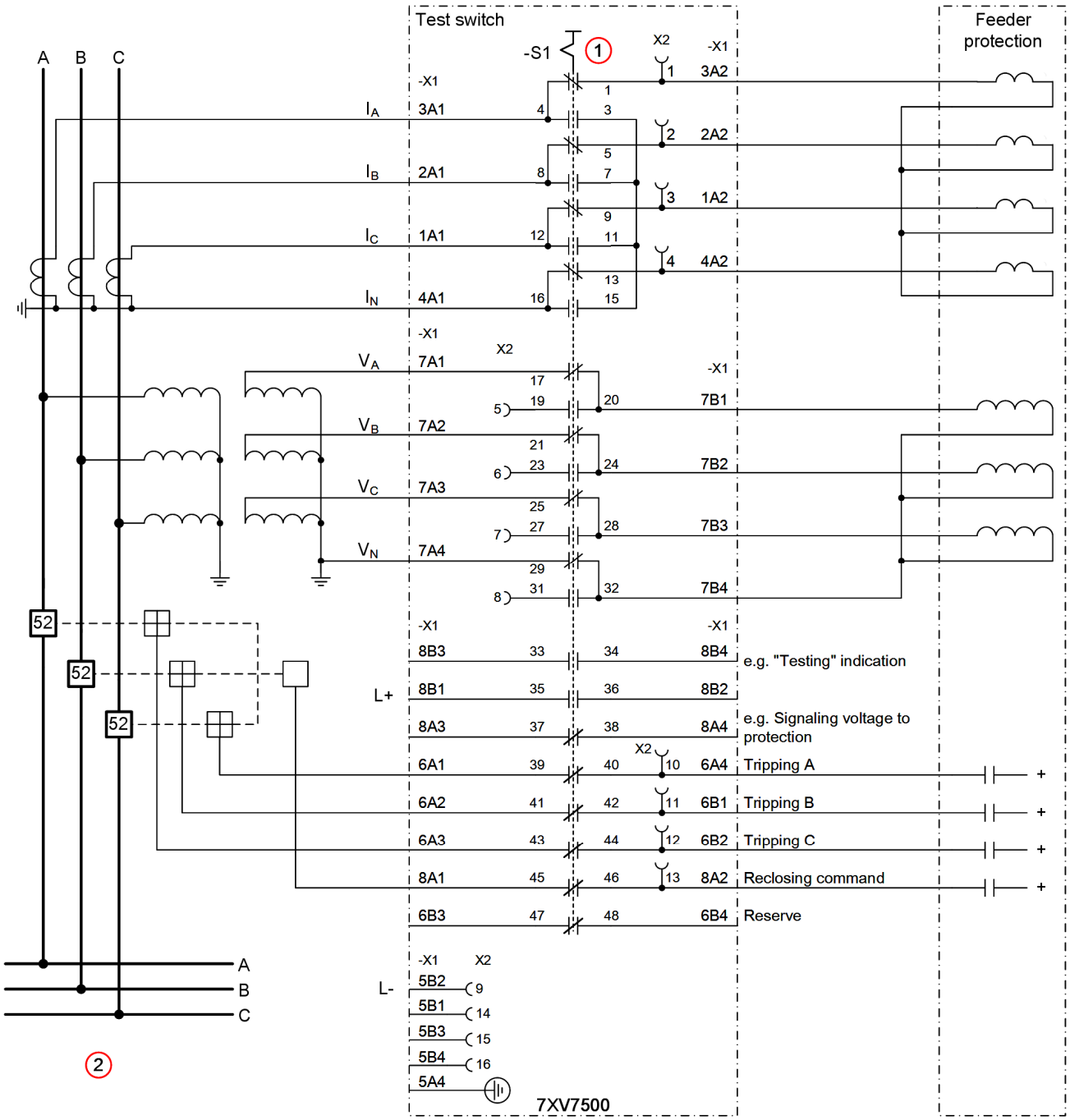
Location on protection device	
Permissible tightening torque at the grounding screw	1,2 Nm (10.6 lb.in.)

Voltage screw

Location on protection device	
Permissible tightening torque at the voltage screw	0.8 Nm (7.1 lb.in.)

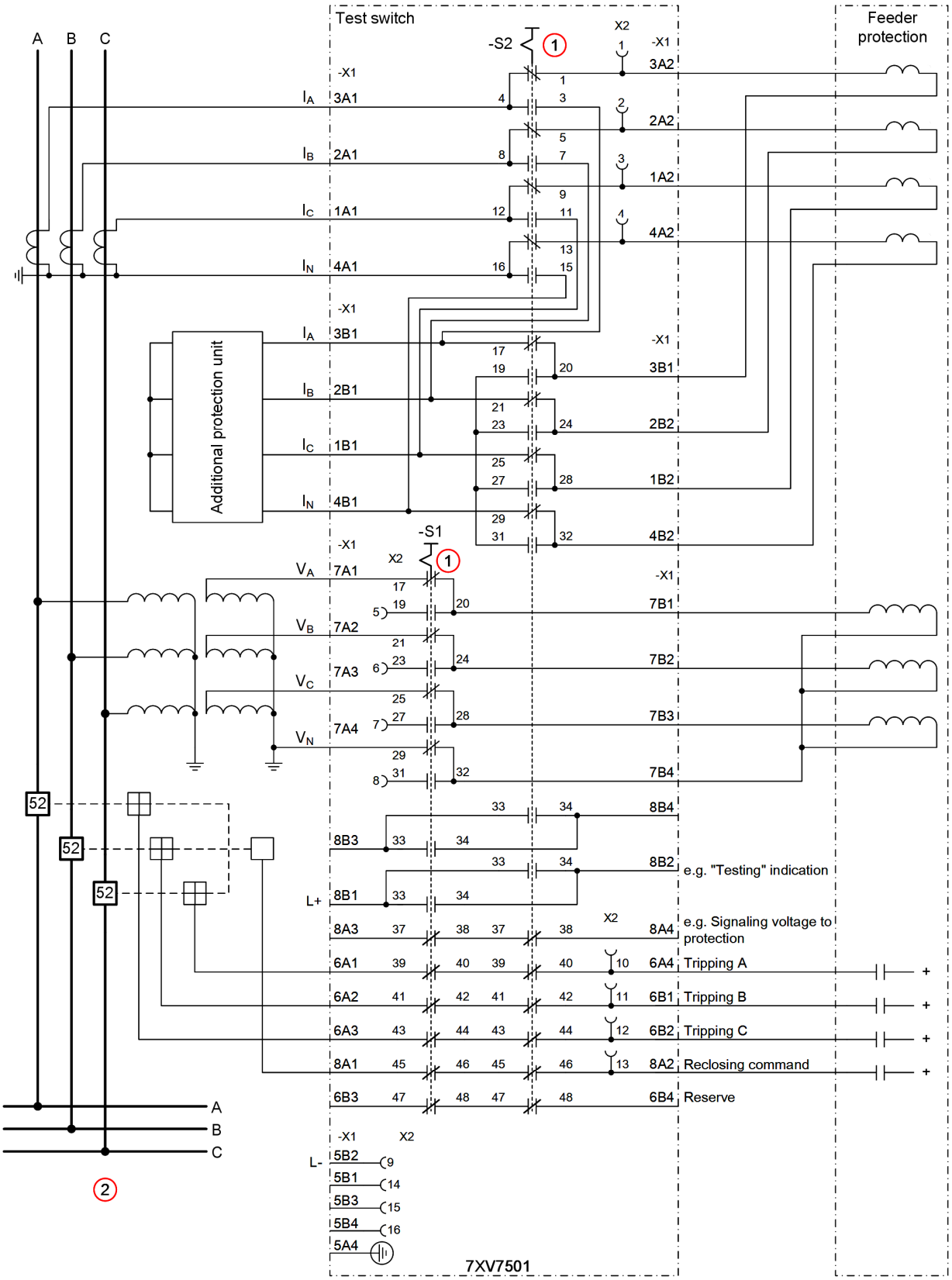
Nominal Values

The nominal values shown on the name plate of the device have to be observed.



Legend:
1: Service / Test
2: Test switch without open star point for feeder protection

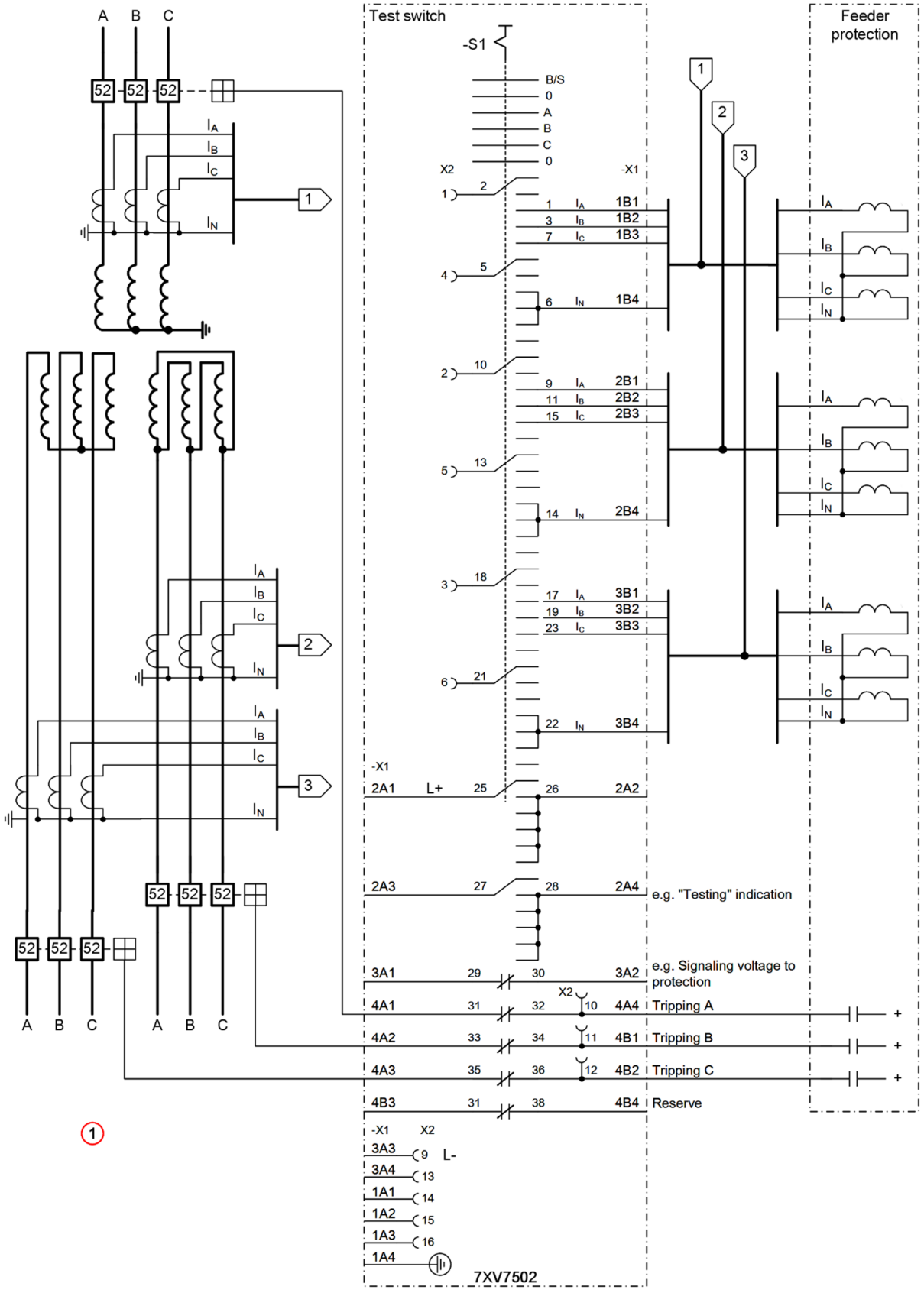
Connection Diagram for 7XV7500-0CA00 Test Switch



Legend:
1: Service / Test
2: Test switch without open star point for feeder protection

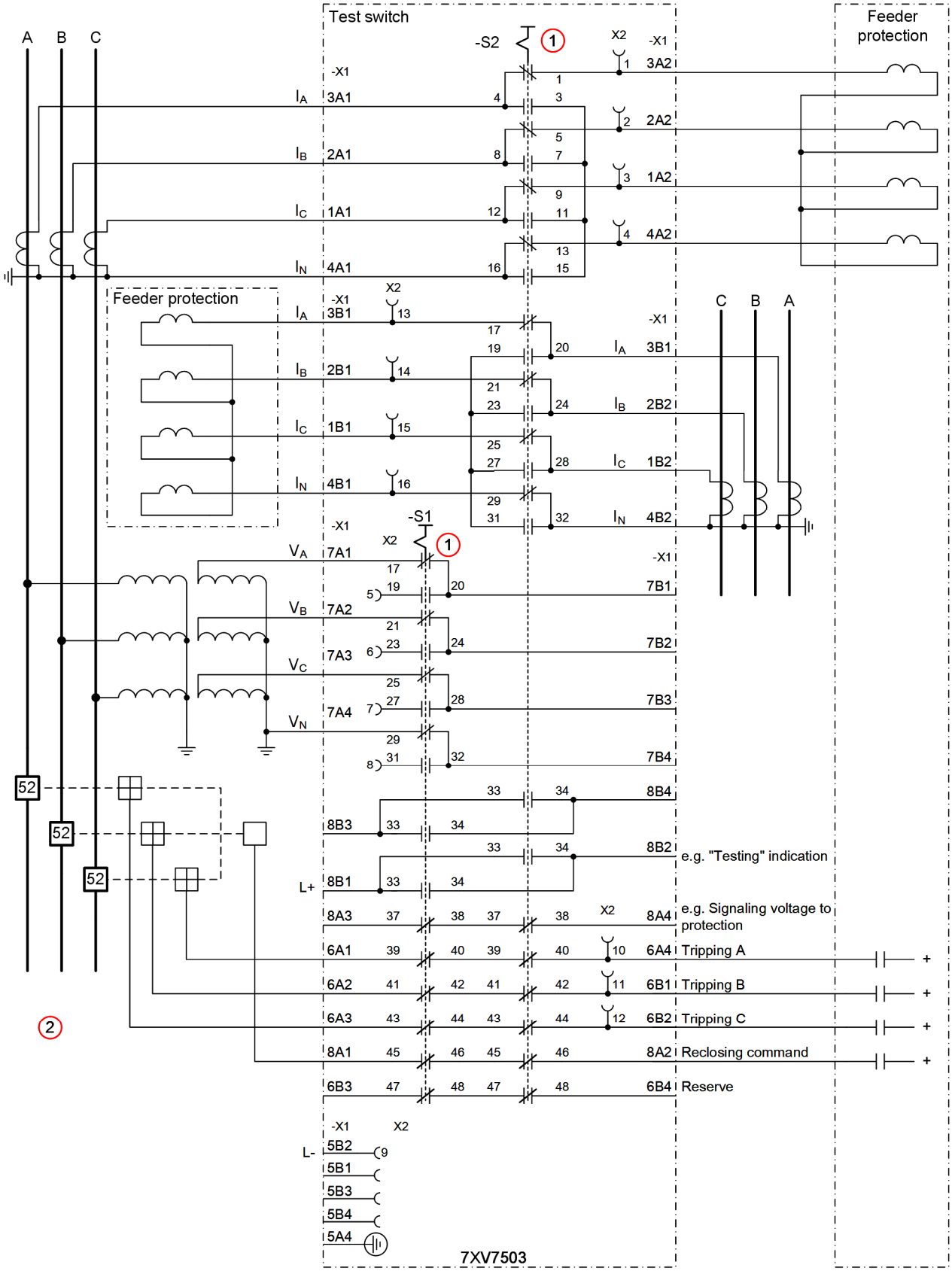
Connection Diagram for 7XV7501-0CA00 Test Switch

Typically not for distance protection or if used please consider the switch order of S1 and S2 (Operation->Test: S2 (I) – S1 (V); Test->Operation: S1 (V) – S2 (I)).



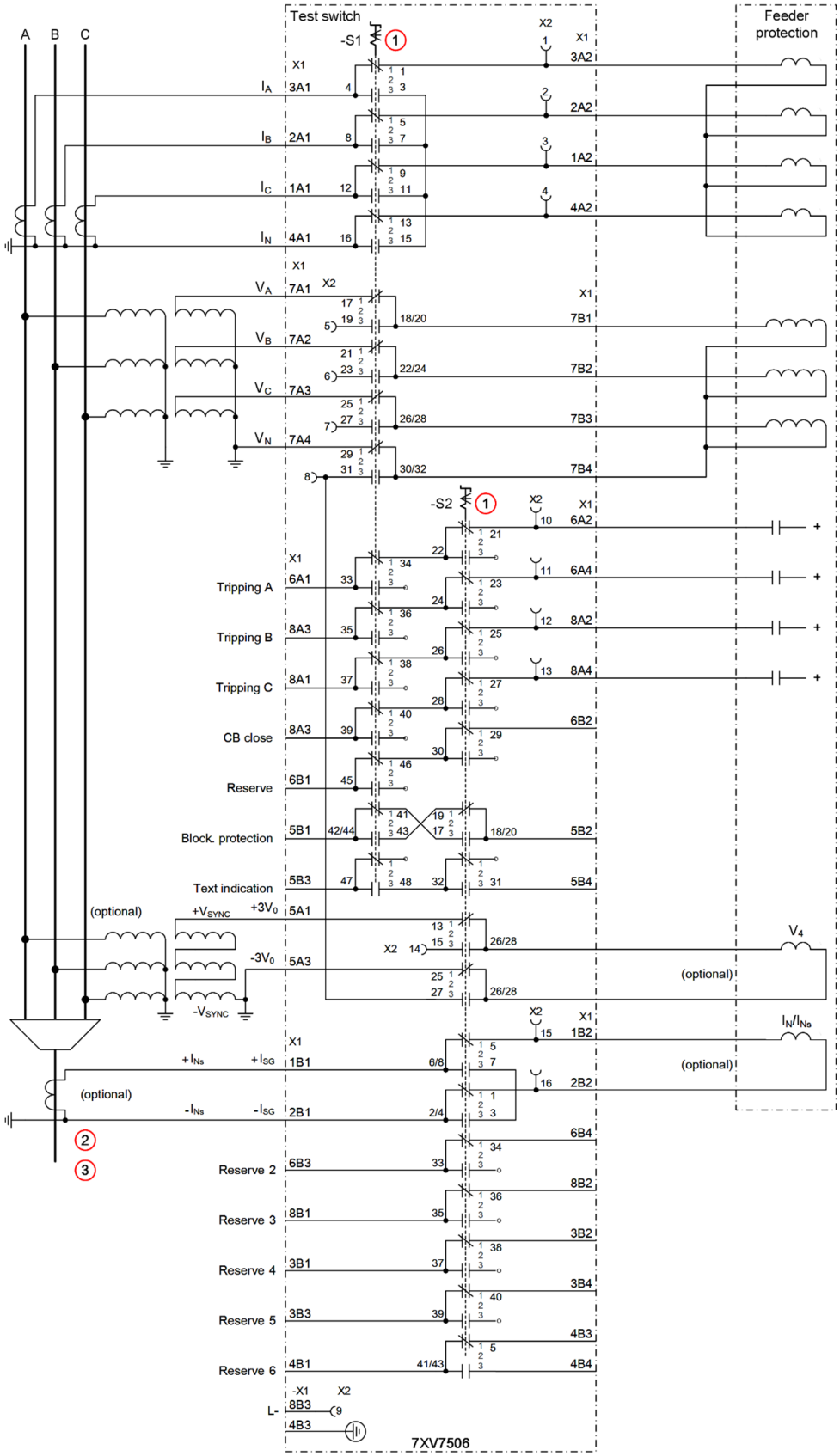
Legend:
1: Test switch for 3-winding transformer differential protection

Connection Diagram for 7XV7502-0CA00 Test Switch



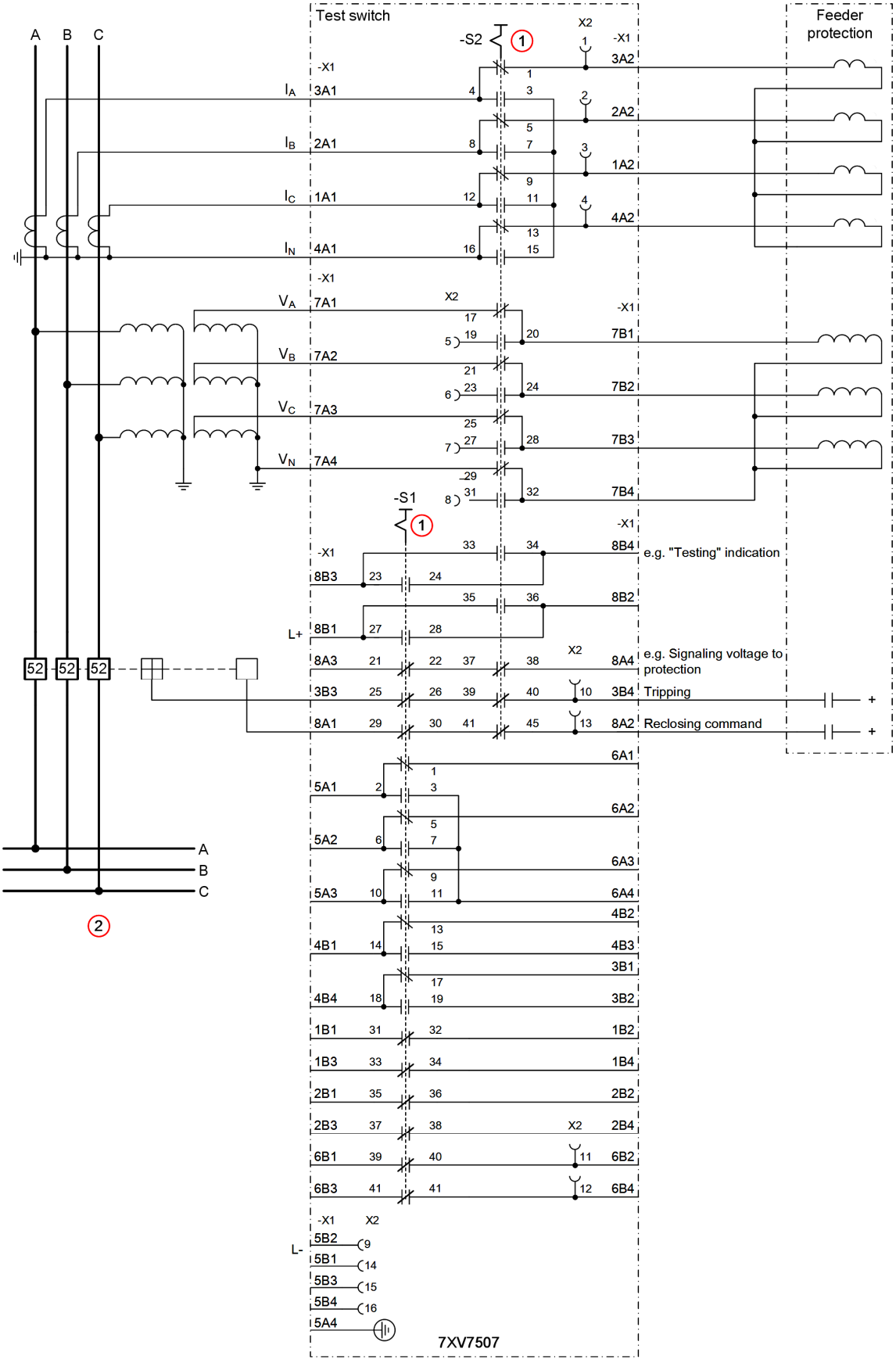
Legend:
1: Service / Test
2: Test switch without open star point for feeder protection for the CT cores or separate earth fault CT

Connection Diagram for 7XV7503-0CA00 Test Switch
Typically not for distance protection or if used please consider the switch order of S1 and S2 (Operation->Test: S2 (I) – S1 (V); Test->Operation: S1 (V) – S2 (I)).



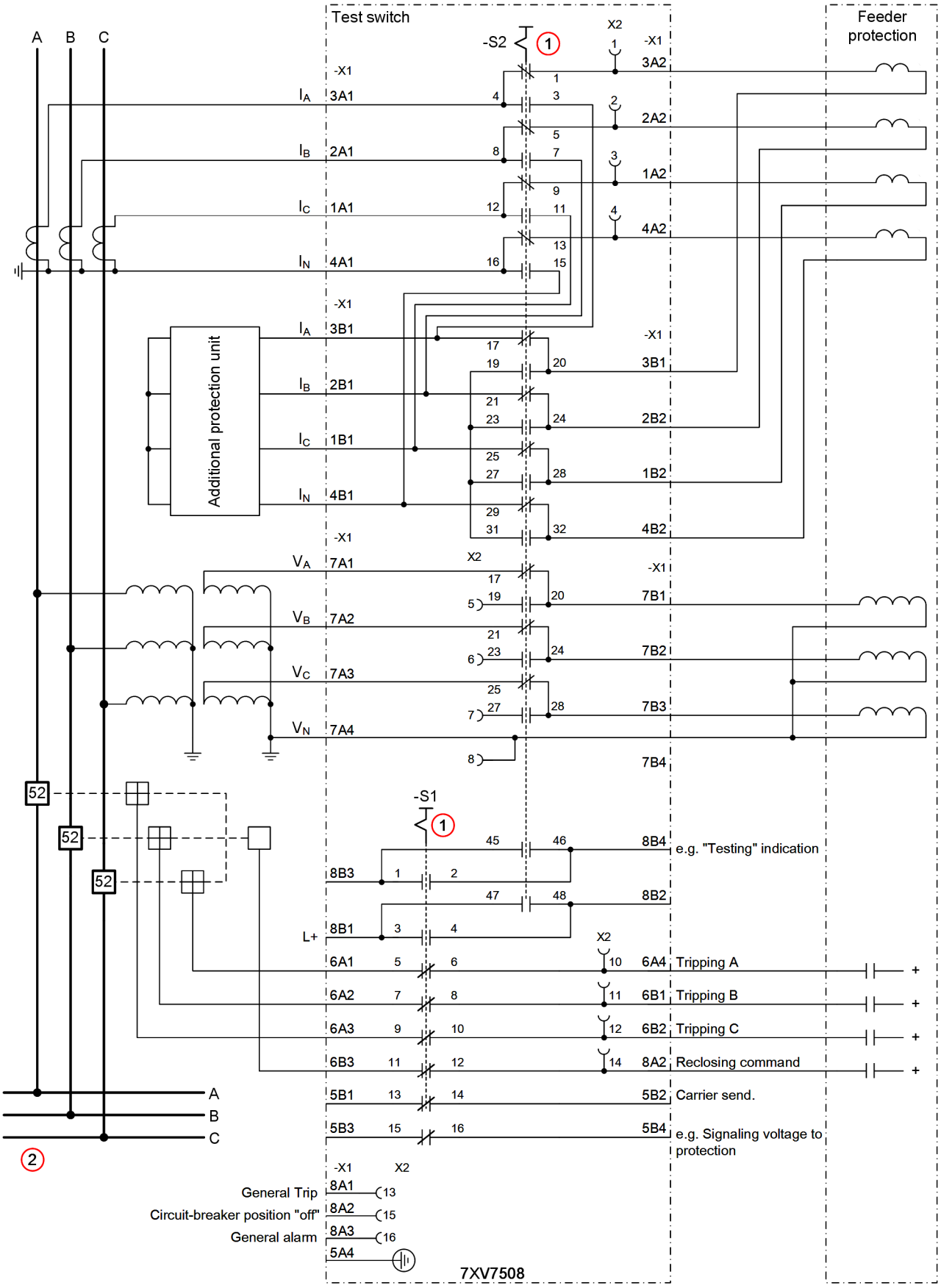
Legend:
1: Service 1 / Block 2 / Test 3
2: Grounding point has been changed from external grounding to 4B3
3: Test switch without open star point for feeder protection with 4 CT and 4 VT input with 16-pole Harting socket

Connection Diagram for 7XV7506-0CA00 three-stage Test Switch



Legend:
1: Service / Test
2: Test switch without open star point for feeder protection with additional NC and NO contacts

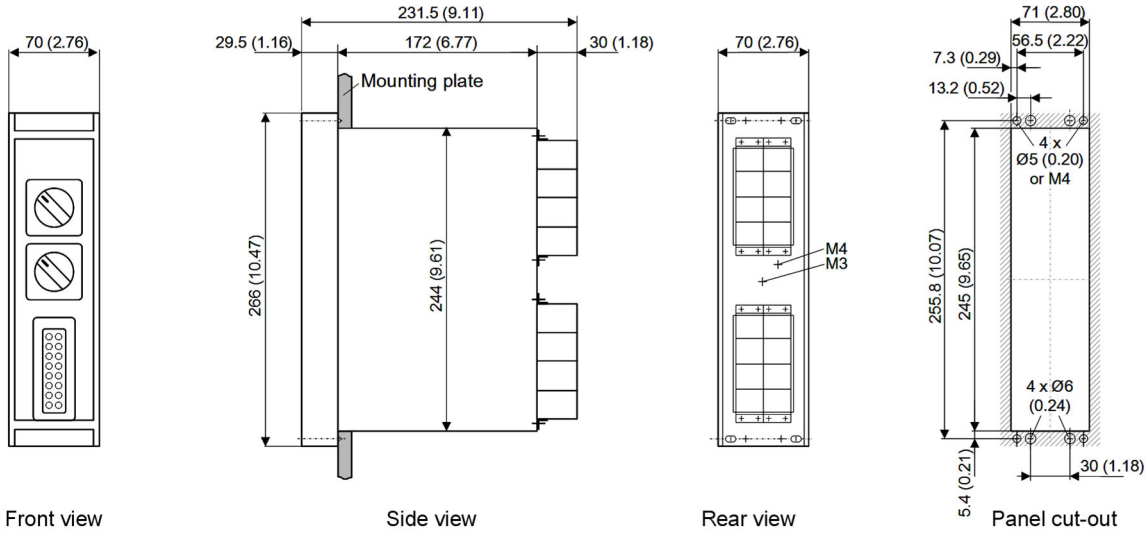
Connection Diagram for 7XV7507-0CA00 Test Switch



Legend:
1: Service / Test
2: Test switch without open star point independent switchable trip and C.T. circuits for feeder protection

Connection Diagram for 7XV7508-0CA00 Test Switch

Dimension drawings in mm / inch



Front view | Side view | Rear view | Panel cut-out

Dimensions in mm. Values in brackets in inches.

Selection and ordering data

Item	Order No.:										
Test switch	**7**	**X**	**V**	**7**	**5**	**0**	☐	**-**	☐	**C**	**A**	**0**	**0**
Application													
Without open starpoint for feeder protection							**0**						
With open starpoint for feeder protection							**1**						
For 3-winding transformer differential protection							**2**						
Without open starpoint for two CT cores or separate earth fault CT							**3**						
Without open starpoint for feeder protection, with 4th CT and 4th VT input (three-stage test switch)							**6**						
Without open starpoint for feeder protection and with additional contacts							**7**						
With open starpoint and independent switchable trip and C.T. circuits for feeder protection							**8**						
Front Test Plug connection													
With 16 pole Harting plug									**0**				
With 16 insulated 4 mm plugs (not available for 7XV7506)									**1**				

Accessories:

7XV6201-5 Connecting cable with 16 pole Harting plug and 17 insulated 4 mm plugs with cable marks7XV6201-6 Connecting cable with 16 pole Harting plug and 17 cable end sleeves with cable marks

Cable length: 2m

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