Electricity Distribution

nationalgrid

Company Directive

ENGINEERING SPECIFICATION
EE SPEC: 79/3

Specification for SCADA Multipair Light Current Control Cables

Author: **Richard Summers**

Implementation Date: **October 2024**

Approved by

Andrew Reynolds
Engineering Policy Manager

Date: **7th October 2024**

Target Staff Group	**Network Services Staff**
Impact of Change	**Green – No major impact**
Planned Assurance checks	**Checks to be carried out by Team Managers as part of normal compliance checks**

IMPLEMENTATION PLAN

Introduction

This EE document contains the specification for SCADA cables purchased within NGED.

Main Changes

Updated to enable global tendering.

Impact of Changes

None, this change provides purchasing the ability to procure relevant SCADA cable.

Implementation Actions

No actions required.

No formal training will be required.

Implementation Timetable

This Standard Technique can be implemented with immediate effect.

REVISION HISTORY

Document Revision & Review Table		
Date	**Comments**	**Author**
October 2024	• Induced voltage level increased from 5kV to 15kV. • Rebranded to NGED. • Clarification to shrinkage requirements	Richard Summers
February 2018	• The sheath material has been changed from low-density polyethylene to PVC	Richard Summers
March 2015	• Additional shrinkage test added to the specification.	Peter White
December 2014	• The document has been modified to reflect the rebranding of the company.	Peter White

Contents

1.0 SCOPE

This specification deals with National Grid Electricity Distributions (NGED) requirement for polythene insulated and sheathed multi-pair light current control cables with a collective screen, which are intended primarily for use with control, indication and alarm equipment for switchgear and similar power apparatus, and are suitable for use on circuits where the working voltage does not normally exceed 150V d.c. or 110V a.c.

The finished cable shall generally meet the requirements of Electricity Association Technical Specification (EATS) 09-6 except where modified by this Specification.

2.0 CONDUCTORS

The conductors shall comply with BS 6360 (class 1), (or equivalent standard), in so far as applicable for plain annealed copper wires.

The size of conductor shall be 1/0.8mm.

3.0 STANDARD DESIGNS

The standard designs required by NGED are as follows: -

5 pair, 10 pair and 20 pair.

4.0 INSULATION

PVC insulation shall be Type TI1 compound in accordance with BS 6746 (or equivalent standard).

The thickness of insulation, determined by taking the average of a number of measurements as described in BS EN 60811.1.1 Clause 8.1, shall not be less than 0.3mm and the smallest of the measured values shall not fall below the minimum value of 0.25mm.

5.0 IDENTIFICATION AND TWINNING OF CORES

The cores of the cables shall be clearly identified by colours, which shall be a reasonable match to BS 6746 C, (or equivalent standard).

Two insulated cores of appropriate colours shall be uniformly twisted together to form a pair. The length of lay shall not exceed 125mm.

The colour identification scheme shall as given in EATS 09-6 section 4 clause 4.5.

6.0 LAYING-UP

The laying-up of the cables shall be as given in EATS 09-6 section 4 clause 4.6.

7.0 RIP CORD

A suitable ripcord shall be included to facilitate stripping.

8.0 COLLECTIVE SCREEN

The cables shall have a collective aluminium screen with a backing, which will ensure adhesion to the bedding. The laminated screen tape shall be applied longitudinally over the ripcord and drain wire and be in electrical contact with the drain wire. The drain wire shall be a 1/0.8 tinned copper wire. The thickness of the aluminium shall be not less than 0.15mm.

9.0 INNER SHEATH (BEDDING)

The inner sheath shall consist of an extruded covering of black polythene, which shall be type 03C compound in accordance with BS 6234. The thickness of insulation shall not be less than 1.0mm.

The minimum thickness of the inner polythene sheath, when measured in accordance with BS EN 60811.1.1 clause 8.1 shall not fall below the minimum value of 0.75mm.

The points at which measurements are made shall not coincide with the position of the ripcord or drain wire.

10.0 ARMOURING

The armour shall consist of a single layer of galvanised steel wires of the size indicated in EATS 09-6 section 4 table 4.2 and 4.3.

The galvanised steel wires shall comply with BS 6346, (or equivalent standard).

11.0 OUTER SHEATH

The outer sheath shall consist of an extruded covering of PVC. The minimum thickness of the inner polythene sheath, when measured in accordance with BS EN 60811.1.1 clause 8.1 shall not fall below the minimum value of 2mm.

12.0 CABLE MARKINGS

The cable markings shall comply with EATS 09-6 section 4 clause 4.13.1 and 4.13.2. In addition to this the cable shall be metre marked.

13.0 SEALING AND DRUMMING

Shall be as defined in EATS 09-6 section 4 clause 4.14.

14.0 TECHNICAL CHARACTERISTICS

Shall be as defined in EATS 09-6 section 4 clause 4.15.

15.0 TESTS AT WORKS

Shall be as defined in EATS 09-6 section 4 clause 4.16.1, 4.16.2 and 4.16.3.

16.0 INSULATION SHRINKAGE

Shrinkage shall not exceed 2% as defined in BS EN 60811-1-3.

17.0 INDUCED VOLTAGE LEVELS

Cables offered must be designed to withstand an induced voltage due to faults on adjacent power up to 15kV.

SCHEDULE 1

SPECIFICATION FOR SCADA MULTIPAIR UNDERGROUND CABLES.

ITEM NO.	SHOPS CODE	DESCRIPTION
1	36979	5 Pair SCADA multi-pair armoured cable
2	36980	10 Pair SCADA multi-pair armoured cable
3	36981	20 Pair SCADA multi-pair armoured cable

APPENDIX A

SUPERSEDED DOCUMENTATION

This document supersedes EE SPEC: 79/2 dated February 2018 which has now been withdrawn.

APPENDIX B

RECORD OF COMMENT DURING CONSULTATION

EE SPEC: 79/3 - Comments

APPENDIX C

KEY WORDS

None