



Fibreoptic Industry Association
DOCUMENT No: FIA/IST/1/95

FIBRE OPTIC INSTALLATION SPECIFICATION PRO-FORMA

A complete set of documentation providing an easy-to-use checklist to allow the development of a comprehensive Installation Specification

INSTALLATION SPECIFICATION PRO-FORMA

The Installation Specification Pro-forma (ISP) has been produced in response to requests from the FIA membership for a form of checklist to aid in the development of an Installation Specification.

The ISP divides the Installation Specification into twelve areas:

| | |
|--------------------|---|
| General: | SITE INFORMATION |
| Section 1: | PATHWAY ANALYSIS |
| Section 2: | CIVILS |
| Section 3: | PATHWAY FIXTURES |
| Section 4: | HEALTH, SAFETY, REGULATIONS AND LEGISLATION |
| Section 5: | OPTICAL CABLE SPECIFICATION |
| Section 6: | OPTICAL FIBRE SPECIFICATION |
| Section 7: | INSTALLATION REQUIREMENTS |
| Section 8: | CLOSURES AND TERMINATION |
| Section 9: | TEST SCHEDULE (Stages 1 and 2) |
| Section 10: | PROGRAMME DEFINITION |
| Section 11: | DOCUMENTATION |

The ISP contains twelve sheets or templates which relate to these sections and can be used as required and in a variety of ways. The use of these sheets, as with all other associated FIA publications, is intended to assist in the development of smooth running and well specified projects. Their use is in no way mandatory.

SITE INFORMATION

One of these templates may be used per project.

PATHWAY ANALYSIS, CIVILS and PATHWAY FIXTURES

This enables the appropriate environments and requirements to be defined for each route (the term "pathway" is used to conform with emerging standards). The columns entitled "Section" allow pathways to be addressed individually or as a group as appropriate to the project under consideration.

HEALTH, SAFETY, REGULATIONS AND LEGISLATION

This enables the appropriate requirements to be defined for each route (the term "pathway" is used to conform with emerging standards). The columns entitled "Section" allow pathways to be addressed individually or as a group as appropriate to the project under consideration.

OPTICAL CABLE SPECIFICATION

This enables the specification of each type of optical cable to be used to be fully addressed. This template can be used in a variety of ways depending upon the size and complexity of the project. One column may be used for each type of cable used. Alternatively, the columns may be used to define the cable details for each of the pathways as defined in the templates detailed above.

OPTICAL FIBRE SPECIFICATION

This enables the specification of each type of optical fibre to be used to be fully addressed.

INSTALLATION REQUIREMENTS

This enable the means of cable installation to be specified for each route (the term “pathway” is used to conform with emerging standards). The columns entitled “Section” allow pathways to be addressed individually or as a group as appropriate to the project under consideration.

CLOSURES AND TERMINATION

This enables the specification of each type of closure to be used to be fully addressed. The columns entitled “Section” allow each closure to be defined individually.

TEST SCHEDULE (Stages 1 and 2)

These two sheets allow the definition of the Test Schedule at Stage 1 (installed) and Stage 2 (terminated). The columns entitled “Section” allow pathways to be addressed individually or as a group as appropriate to the project under consideration.

PROGRAMME DEFINITION

This enables the project management issues to be addressed. The columns entitled “Section” may be used in any way appropriate to the project.

DOCUMENTATION

This enables the type and style of documentation to be defined. The columns entitled “Section” may be used in any way appropriate to the project.

Installation Specification: Site Information

| Contract Details | |
|-------------------------|--|
| Site Name | |
| Site Address | |
| Site Contact: Name | |
| Site Contact: Phone/Fax | |
| Installer Name | |
| Installer Bid Contact | |

| Quotation Reference | |
|---------------------|--|
| Order Reference | |
| Contract File | |
| Contract Reference | |
| Delivery Site | |
| Delivery Address | |

| Tender / Scope Details | |
|------------------------|--|
| Tender Date | |
| Adjudication Date | |
| Commence Date | |
| Completion Date | |

| IEE Model Form 1 | |
|-------------------------------|--|
| JTC 80 | |
| Specific Terms and Conditions | |
| Indemnities | |
| Insurance's | |
| Defects liability | |
| Financing Required | |
| Liabilities | |

| Installation Grade | |
|--------------------|--|
| Testing Grade | |

| Design Information | |
|--------------------|--|
| Topology | |
| Nodal Positions | |
| Nodal Access | |
| Expansion | |
| Resilience | |

| Operational Lifetime | |
|------------------------|--|
| Applications Supported | |
| Maintenance Policy | |

Installation Specification

Section 1: Pathway Analysis

| BS7718 Reference FIA-CCP/1/91 Reference | 5.2.1, 5.4.1 5.1.1, 5.2.1 | Section | Section | Section | Section | Section | Section | Section | Section | Section | Section | Totals |
|--|------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| | Units | | | | | | | | | | | |
| Start Location | Location ID | | | | | | | | | | | |
| End Location | Location ID | | | | | | | | | | | |
| External | | | | | | | | | | | | |
| Duct | metres | | | | | | | | | | | |
| Fixings | metres | | | | | | | | | | | |
| Buried | metres | | | | | | | | | | | |
| Internal | | | | | | | | | | | | |
| Floor | metres | | | | | | | | | | | |
| Ceiling | metres | | | | | | | | | | | |
| Riser | metres | | | | | | | | | | | |
| Trunking | metres | | | | | | | | | | | |
| Tray | metres | | | | | | | | | | | |
| Tunnel | metres | | | | | | | | | | | |
| Aerial | | | | | | | | | | | | |
| Roof | metres | | | | | | | | | | | |
| Gantry | metres | | | | | | | | | | | |
| Catenary | metres | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Pre-installed fixtures | Y/N | | | | | | | | | | | |
| Additional fixtures required | Y/N | | | | | | | | | | | |
| Plans (scaled/unscaled) | Y/N | | | | | | | | | | | |

Installation Specification Section 2: Civils

| BS7718 Reference FIA-CCP/1/91 Reference | 5.4 5.2 | Section | Section | Section | Section | Section | Section | Section | Section | Section | Section | Totals |
|--|----------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| | Units | | | | | | | | | | | |
| Trenching | Depth/m | | | | | | | | | | | |
| Draw Pits | Size/ No. | | | | | | | | | | | |
| Man Holes | Size/ No. | | | | | | | | | | | |
| General excavation | Depth/m | | | | | | | | | | | |
| Reinstatement | Grade/m | | | | | | | | | | | |
| Direct Burial | Depth/m | | | | | | | | | | | |
| Pole Fixing | Height/ No. | | | | | | | | | | | |
| Rod & Rope | metres | | | | | | | | | | | |
| Clean & Test Duct System | Type/ m | | | | | | | | | | | |
| Water Pumping | Duration | | | | | | | | | | | |
| Flooring | | | | | | | | | | | | |
| Remove | Area/sq.m | | | | | | | | | | | |
| Install | Area/sq.m | | | | | | | | | | | |
| Ceiling | | | | | | | | | | | | |
| Remove | Area/sq.m | | | | | | | | | | | |
| Install | Area/sq.m | | | | | | | | | | | |
| Barriers & Seals | Type/ No. | | | | | | | | | | | |
| Tension & Vibration Control | Type/ No. | | | | | | | | | | | |
| Anti Creep Devices | Type/ No. | | | | | | | | | | | |
| Health & Safety Pre-Works | | | | | | | | | | | | |
| Security & Protection | | | | | | | | | | | | |

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Section 3: Pathway Fixtures

| BS7718 Reference FIA-CCP/1/91 Reference | 5.4.1 5.2.1 | Section | Section | Section | Section | Section | Section | Section | Section | Section | Section | Totals |
|--|-----------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| | Units | | | | | | | | | | | |
| Tray | | | | | | | | | | | | |
| 450mm | metres | | | | | | | | | | | |
| 300mm | metres | | | | | | | | | | | |
| 150mm | metres | | | | | | | | | | | |
| Other Size | metres | | | | | | | | | | | |
| Trunking | | | | | | | | | | | | |
| 25mm x 25mm | metres | | | | | | | | | | | |
| 50mm x 100mm | metres | | | | | | | | | | | |
| 3 x 100mm trunk | metres | | | | | | | | | | | |
| Dado | metres | | | | | | | | | | | |
| PVC Ducting | metres | | | | | | | | | | | |
| 100mm | | | | | | | | | | | | |
| 150mm | metres | | | | | | | | | | | |
| Other Size | metres | | | | | | | | | | | |
| Sub Ducting | | | | | | | | | | | | |
| 25mm | metres | | | | | | | | | | | |
| 38mm | metres | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Cleating | Type/ No. | | | | | | | | | | | |
| Catenary Wire | Size/ metres | | | | | | | | | | | |
| Fixings | Type/ No. | | | | | | | | | | | |

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Section 4: Health, Safety, Regulations and Legislation

| BS7718 Reference FIA-CCP/1/91 Reference | 5.4.1, 5.4.4 5.2.1, 5.2.4 | Section | Section | Section | Section | Section | Section | Section | Section | Section | Section | Totals |
|--|------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| | Units | | | | | | | | | | | |
| Gas Detection | Y/N Type | | | | | | | | | | | |
| Protective Clothing | Type | | | | | | | | | | | |
| Winches and Lifting Gear | Y/N | | | | | | | | | | | |
| Platforms and Hoists | Y/N | | | | | | | | | | | |
| Breathing Apparatus | Y/N | | | | | | | | | | | |
| Fire Regulations | Details | | | | | | | | | | | |
| Building Regulations | Details | | | | | | | | | | | |
| Site Training | Y/N | | | | | | | | | | | |
| Permits to Work | Y/N | | | | | | | | | | | |
| Planned Access | Y/N | | | | | | | | | | | |
| Hazardous Material Handling | Y/N | | | | | | | | | | | |
| Plant Protection | Y/N | | | | | | | | | | | |
| Guarding and Signing | Y/N | | | | | | | | | | | |

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Section 5: Optical Cable Specification

| BS7718 Reference FIA-CCP/1/91 Reference | 5.3 5.3 | Section | Section | Section | Section | Section | Section | Section | Section | Section | Section | Totals |
|--|-------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| | Units | | | | | | | | | | | |
| Pathway Length | metres | | | | | | | | | | | |
| Pathway Environment | FIA Class | | | | | | | | | | | |
| Pathway ID | ID | | | | | | | | | | | |
| Cable Code | | | | | | | | | | | | |
| Physical | 7.2.2, B.7 7.1.1, B6 | | | | | | | | | | | |
| Sheath Material | Type | | | | | | | | | | | |
| Metallic / Non Metallic | M/NM | | | | | | | | | | | |
| Moisture Barrier | Y/N Type | | | | | | | | | | | |
| Tensile Member | Y/N Type | | | | | | | | | | | |
| Steel Wire Armour | Y/N | | | | | | | | | | | |
| Rodent Protection | Y/N Type | | | | | | | | | | | |
| Gas Seals | Y/N | | | | | | | | | | | |
| Pressurised System | Y/N | | | | | | | | | | | |
| Construction | 7.2.2, B.7 7.1.1, B6 | | | | | | | | | | | |
| Loose Tube/ Tight Buffered/Blown Fibre | L/T/B | | | | | | | | | | | |
| Cable Quantity | No./metres | | | | | | | | | | | |
| Cable Length | No. | | | | | | | | | | | |
| Optical Fibres in cable | | | | | | | | | | | | |
| SM: 8/125µm | No. | | | | | | | | | | | |
| MM: 50/125µm | No. | | | | | | | | | | | |
| MM: 62.5/125µm | No. | | | | | | | | | | | |
| Other | No. | | | | | | | | | | | |

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Section 6: Optical Fibre Specification

| BS7718 Reference FIA-CCP/1/91 Reference | B.2.3,B.3 7.2.3 B1.2, B2.0 7.1.2 | 8/125um | 50/125um | 62.5/125 um | | |
|--|---|---------|----------|-------------|--|--|
| | OF Geometry | | | | | |
| | Units | | | | | |
| N.A. | | | | | | |
| Attenuation | | | | | | |
| 850nm | dB/km | | | | | |
| 1310nm | dB/km | | | | | |
| 1550nm | dB/km | | | | | |
| Bandwidth | | | | | | |
| 850nm | MHzkm | | | | | |
| 1310nm | MHzkm | | | | | |
| Chromatic Dispersion | | | | | | |
| 1310nm | ps.nm.km | | | | | |
| 1550nm | ps.nm.km | | | | | |
| Colour Coding | Y/N | | | | | |

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Section 7: Installation Requirements

| BS7718 Reference FIA-CCP/1/91 Reference | 5.4 5.2 | Section | Section | Section | Section | Section | Section | Section | Section | Section | Section | Totals |
|--|--------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| | Units | | | | | | | | | | | |
| Hand Lay | metres | | | | | | | | | | | |
| Hand Pull | metres | | | | | | | | | | | |
| Winch Pull | metres | | | | | | | | | | | |
| Tension device | metres/ tension | | | | | | | | | | | |
| Fused linkage | tension | | | | | | | | | | | |
| Cable Stocking | size | | | | | | | | | | | |
| Bell Mouth | No. | | | | | | | | | | | |
| Fleet Positions | Y/N | | | | | | | | | | | |
| Vertical Install | length | | | | | | | | | | | |
| Horizontal Install | length | | | | | | | | | | | |
| Installation Grade | | | | | | | | | | | | |
| Administration/labelling | Type | | | | | | | | | | | |
| Dressing /Tie Centres | metres | | | | | | | | | | | |

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Section 8: Closures and Termination

| BS7718 Reference | 7.5, 7.6 B.8, B.9 | Section | Section | Section | Section | Section | Section | Section | Section | Section | Section | Totals |
|-------------------------------------|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| FIA-CCP/1/91 Reference | 7.3, 7.4 B7, B8 | | | | | | | | | | | |
| | Units | | | | | | | | | | | |
| Closure Position | Location/ No./ ID | | | | | | | | | | | |
| External In Line Joint | Y/N | | | | | | | | | | | |
| External In Line Closure | Y/N | | | | | | | | | | | |
| Rack Mounted Termination | Y/N | | | | | | | | | | | |
| Protective Housing to IP | IP rating | | | | | | | | | | | |
| Cable Ports | Size/ No. | | | | | | | | | | | |
| Strain Relief | Y/N | | | | | | | | | | | |
| Pressurised | Y/N Pressure | | | | | | | | | | | |
| Earthing fittings | Size/ No. | | | | | | | | | | | |
| Cable/Cable Termination | Y/N | | | | | | | | | | | |
| Cable /Connector Termination | Y/N | | | | | | | | | | | |
| Bulkhead Adaptors | Type/No. | | | | | | | | | | | |
| Direct termination | Type/No./ Insertion Loss | | | | | | | | | | | |
| Spliced Pigtails | Type/No./ Insertion Loss | | | | | | | | | | | |
| Splice | Type/No./ Insertion Loss | | | | | | | | | | | |

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Section 9: Test Schedule (Stage 1)

| BS7718 Reference FIA-CCP/1/91 Reference | 8.9 8.9 | Section | Section | Section | Section | Section | Section | Section | Section | Section | Section | Totals |
|---|------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| | | | | | | | | | | | | |
| Stage 1A Installed - Physical | | | | | | | | | | | | |
| Goods Inwards | | | | | | | | | | | | |
| Component Acceptance | | | | | | | | | | | | |
| Cable Installation | | | | | | | | | | | | |
| Cable Dressing | | | | | | | | | | | | |
| Administration/Labelling | | | | | | | | | | | | |
| Stage 1B Installed - Performance | | | | | | | | | | | | |
| OTDR Tests | | | | | | | | | | | | |
| 850nm | No./AQL% | | | | | | | | | | | |
| 1310nm | No./AQL% | | | | | | | | | | | |
| 1550nm | No./AQL% | | | | | | | | | | | |
| Remedial Works | Procedure | | | | | | | | | | | |

Installation Specification Section 9: Test Schedule (Stage 2)

| BS7718 Reference FIA-CCP/1/91 Reference | 10 10 | Section | Section | Section | Section | Section | Section | Section | Section | Section | Section | Totals |
|--|-----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| | | | | | | | | | | | | |
| Stage2A Terminated Cabling - Physical | | | | | | | | | | | | |
| Administration | | | | | | | | | | | | |
| Seals & Dressing | | | | | | | | | | | | |
| Physical Protection | | | | | | | | | | | | |
| Stage 2B Terminated Cabling - Performance | | | | | | | | | | | | |
| Optical Loss Budgets | | | | | | | | | | | | |
| 850nm | dB | | | | | | | | | | | |
| 1310nm | dB | | | | | | | | | | | |
| 1550nm | dB | | | | | | | | | | | |
| OTDR Tests | | | | | | | | | | | | |
| 850nm | No./AQL% | | | | | | | | | | | |
| 1310nm | No./AQL% | | | | | | | | | | | |
| 1550nm | No./AQL% | | | | | | | | | | | |
| Power Meter Measurements | | | | | | | | | | | | |
| Wavelength Correction | Y/N | | | | | | | | | | | |
| 850nm | No./AQL% | | | | | | | | | | | |
| Single Direction | Y/N | | | | | | | | | | | |
| Both Directions | Y/N | | | | | | | | | | | |
| 1310nm | No./AQL% | | | | | | | | | | | |
| Single Direction | Y/N | | | | | | | | | | | |
| Both Directions | Y/N | | | | | | | | | | | |
| 1550nm | No./AQL% | | | | | | | | | | | |
| Single Direction | Y/N | | | | | | | | | | | |
| Both Directions | Y/N | | | | | | | | | | | |
| Remedial Action | Procedure | | | | | | | | | | | |

Installation Specification Section 10: Programme Definition

| BS7718 Reference FIA-CCP/1/91 Reference | | Section | Section | Section | Section | Section | Section | Section | Section | Section | Section |
|--|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | | | | | | | | | | | |
| Order Number | | | | | | | | | | | |
| Mobilisation required | | | | | | | | | | | |
| Planned teams | | | | | | | | | | | |
| Dependencies | | | | | | | | | | | |
| Free Issue Material | | | | | | | | | | | |
| Material Access | | | | | | | | | | | |
| Material Storage | | | | | | | | | | | |
| | | | | | | | | | | | |
| Section Commence | | | | | | | | | | | |
| Section Test | | | | | | | | | | | |
| Section Handover | | | | | | | | | | | |
| | | | | | | | | | | | |
| Meetings & Attendance | | | | | | | | | | | |
| Project Management | | | | | | | | | | | |

Installation Specification Section 11: Documentation

| BS7718 Reference FIA-CCP/1/91 Reference | 11 11 | Section | Section | Section | Section | Section | Section | Section | Section | Section | Section |
|---|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | | | | | | | | | | | |
| Free Issue | Format | | | | | | | | | | |
| As Built Plans | Format | | | | | | | | | | |
| Final Acceptance Tests | Format | | | | | | | | | | |
| Patching & Interconnect | Format | | | | | | | | | | |
| Inspection & Acceptance Certificates | | | | | | | | | | | |