

WATER SUPPLIES DEPARTMENT
STANDARD SPECIFICATION E-90-02
MANUAL FOR
ELECTRICAL AND INSTRUMENTATION EQUIPMENT

1 GENERAL

1.1 General Considerations

The manual shall provide relevant information in a practical way for the managing, commissioning, operating and maintenance of the product. The basic requirements are:

- (a) The manual shall describe all presentable and useful information in an accurate and concise manner;
- (b) The content shall be well organised, grouped and indexed to facilitate searching;
- (c) The content shall be edited for easy understanding and to suit the purpose for which it is intended; and
- (d) The manual shall be compiled and bound in durable heavy duty binders for A4 paper with hard covers and spine for easy keeping and amendment. In addition to the manuals in paper form, the Contractor shall also supply a CD-R containing an electronic version of the final manuals.

1.2 Standards

The manual shall comply with the latest version of relevant British or other International Standards. The following standards, in particular, shall apply where appropriate:

BS 4884	Technical manuals
BS EN 61187	Electrical and electronic measuring equipment – Documentation
BS ISO/IEC 26514	Software and systems engineering. Requirements for designers and developers of user documentation

2. CONTENT

2.1 Identification of the Manual

The following information shall be given on the front cover and spine of the binder of the manual:

- (a) Order references
- (b) Name of the product
- (c) Model or type designation of the product
- (d) Location of use
- (e) Date of issue of the manual
- (f) Reference or volume number of the manual

2.2 Identification of the Product

The names of the publisher of the manual, manufacturer and supplier of the product shall be given with postal and e-mail addresses, telephone and fax numbers in the manual.

2.3 Categories of Information

The manual shall include the following categories of information for the products where appropriate:

(a) Design and planning information

It shall include the design and planning basic data such as background information, purpose, capability, performance, calculation, environmental impact, health and safety.

(b) Operating and technical information

Operating information shall include instructions and procedures for the safe operation of product under normal, emergency and special conditions. Technical information shall include the background knowledge, environmental conditions and system characteristics to enable the operational and maintenance staff to carry out their work efficiently and effectively.

(c) Handling, installation, storage and transit information

It shall state the methods and precautions to avoid risk of injury to people or damage to the product. For items weighting over 100 kg, lifting points and details on the use of slings and spreaders shall be specified. Limit of storage life and storage environment of the product shall be specified. The installation procedures shall cover the information such as supply voltage, foundations and mounting requirements, methods of connecting and protecting the product, a list of tools, tester and calibration equipment.

(d) Maintenance instructions

It shall provide the information and procedures of routine maintenance, overhaul, fault diagnosis, commissioning, special tools, checklists, flow chart, communication protocol, set points, testing and inspection. It shall possess sufficient details and clarity to enable technicians to understand and maintain the product and to identify replaceable parts, all in an effective and expeditious manner without having to resort to extensive unguided search through other items of documentation.

(e) Maintenance schedules

It shall include schedules of preventive maintenance in term of time interval, running hours or operating cycles etc. in order to keep the product in good working condition.

(f) Part lists, spares and product data sheet

It shall consist of the information of nameplate details, reference and model numbers, operational ranges, illustrated locations and materials etc. For motors, a completed motor data schedule as included in the tender document shall be incorporated in the manual.

(g) Reports and certificates

Works test reports, type test certificates/reports, calibration certificates where called for in the contract and site test records, if any shall form part of the manual.

(h) Drawings

A drawing schedule shall be provided. One copy of each approved drawing shall be included in the manual. Drawings above A3 size shall each be neatly folded and contained in a durable transparent plastic bag of A4 size.

(i) Catalogues

Product catalogues giving the general information and technical details of equipment and components supplied shall be included in the manual.

(j) Disposal instructions

It shall cover the methods and precautions to handle and dispose of the hazardous substances such as hazard waste, toxic substances and contamination during use to ensure the safety of the users and the environment.

(k) Health and safety information

It shall cover the precautionary information for the safe use and handling of the product, the avoidance of electric shocks and other hazards. Headings with the words of '*warning*' or '*caution*' shall prominently be displayed immediately before the relevant text.