

# TOPAS

## Traffic Open Products and Specifications

### *TOPAS 2508A*

#### *Performance Specification for Tactile Equipment for use at Pedestrian Crossings*

<b>Revision</b>	<b>Date</b>	<b>Scope</b>	<b>Authorised by</b>
A (v1)	09/01/15	First Draft	Admin
A (v2)	**/1/15	Revision	BWL
	22/1/15	Revision	AG
A (v3)	17/3/15	Draft	KF
A (v4)	17/4/15	Final	Board
A (v5)	11/03/16	Final	Board

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# TOPAS 2508A

## PERFORMANCE SPECIFICATION FOR TACTILE EQUIPMENT FOR USE AT PEDESTRIAN CROSSINGS

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# 1 INTRODUCTION

- 1.1 This specification covers the requirements for Tactile Equipment for use at signalised crossings on public highways.
- 1.2 TOPAS specifications are explicitly purchasing specifications and compliance with them is not mandatory. However Local and other Purchasing Authorities may typically require that equipment purchased complies with TOPAS specifications and is TOPAS registered.
- 1.3 Manufacturers may register products as being compliant with this specification, using the process defined in TOPAS 0600
- 1.4 TOPAS registration requires manufacturers submit a Technical File to an appropriate Technical Assessor to aid compliance verification. The content requirement for the Technical File is defined in Appendix Z of this specification.
- 1.5 Guidance to potential users of this Product is given in Appendix A.
- 1.6 Within this specification, "The Product" shall mean all components necessary to provide a complete operational unit meeting the requirements of this specification and the common requirements defined in TOPAS 0600.

## ***Implementation***

- 1.7 This specification implements requirements as originally defined in HA specification TR 2508A. Product Approvals to TR 2508A may be used to register products to this specification as defined in TOPAS 0600

- 1.8 This specification will be immediately implemented from the date of issue for all new TOPAS registrations.

## ***Glossary of Terms***

- 1.9 A comprehensive glossary of terms is given in Highways Agency document TA 84 Code of Practice for Traffic Control and Information Systems for All-Purpose Roads.

## ***Intellectual Property Rights (IPR)***

- 1.10 The University of Nottingham owns the Intellectual Property Rights (IPR) for this Product.
- 1.11 It is the responsibility of the Design Authority to ensure that a licence agreement with the University is established prior to marketing a version of this Product.
- 1.12 Details of the licensing agreement can be obtained upon application to:

The IP Officer  
Research Support Office  
The University of Nottingham  
University Park  
Nottingham NG7 2RD

## 2 FUNCTIONAL REQUIREMENTS

### *General*

- 2.1 The Product provides an indication to visually impaired pedestrians, at signal controlled pedestrian crossing facilities, of the period during which they may use the crossing.
- 2.2 The Product shall consist of a rotating tactile cone, control unit and power.

### *Performance*

- 2.3 When driven, the tactile cone shall rotate symmetrically around a central vertical axis.
- 2.4 The tactile cone shall only rotate when a steady green pedestrian signal is being displayed to pedestrians and the signal controller's audible/tactile drive output is present.
- 2.5 Rotation of the tactile cone shall cease when a reverse torque equal to or greater than 0.08 Nm is applied to the tactile cone.
- 2.6 When driven, the tactile cone shall rotate at 60 rpm  $\pm$  20% when a reverse torque equal to or less than 0.06 Nm is applied to the tactile cone.
- 2.7 When the tactile cone is not being driven, the maximum torque required to rotate it in a clockwise or anticlockwise direction shall not exceed 0.04 Nm.

### *Construction*

- 2.8 The Product shall consist of a drive mechanism, a tactile cone and any fitting used to fit the tactile unit to the pedestrian push button box.

- 2.9 The tactile unit shall be designed for retrospective fitting in all existing approved pedestrian push-button boxes.
- 2.10 The tactile unit shall be constructed to allow for installation to be carried out on site.
- 2.11 It shall not be possible to remove/dismantle any part of the tactile unit without the use of special tools.
- 2.12 Where the tactile cone interfaces with the external surface of the pedestrian push button box, the diameter of the cone shall be 15 mm  $\pm$  1.0 mm.
- 2.13 When fitted the tactile unit shall not restrict access to the pedestrian push button box.
- 2.14 Any fitting accessible at the outside face of the Pedestrian Push Button Box shall not by itself allow the complete or partial removal of the tactile unit (including the tactile cone).
- 2.15 Where the fitting is external to the push button box, the fitting, excluding case, shall not exceed a depth of 5.0 mm measured from the external face of the box.
- 2.16 When fitted to the push button box any free vertical and lateral movement of the tactile cone shall not exceed 1.0 mm.
- 2.17 The tactile cone shall protrude 20 mm  $\pm$  1.0 mm when measured from the external face of the pedestrian push button box or from the surface of any external fitting when fitted.
- 2.18 The diameter of the taper at the extremity of the tactile shall be 8.0 mm  $\pm$  1.0 mm.

- 2.19 The entire length of the tactile cone shall be knurled.
- 2.20 The depth of the knurling shall be between 0.2 mm and 0.5 mm.
- 2.21 The enclosure housing the tactile Product's electronic circuitry shall be constructed of materials that will withstand the effects of the environment in which it is intended to operate.

### ***Electrical Requirements***

- 2.22 The supply for the Product shall be the 'normal' and 'dimmed' signal aspect voltage range output by Type Approved signal controllers.
- 2.23 All wiring, termination, earthing and labelling shall be in accordance with BS 7671.
- 2.24 The signal controller's audible/tactical drive supply is as defined in TOPAS 2523.
- 2.25 Where operation from an extra low voltage supply is required, the tactile equipment shall comply with the operational requirements of this specification when connected at 24 Vac or 48 Vac.

### ***Tactile Power Supply (internal to signal controller)***

- 2.26 Where an installation comprises several pedestrian stages, separate power supplies shall be provided to supply those tactile units that shall be driven by the appropriate pedestrian stage.

### ***Tactile Power Supply (external to signal controller)***

- 2.27 The power supply shall normally be located in an enclosure on the same signal pole as the pedestrian push button box to which the tactile equipment is fitted. Installation of 230 Vac equipment is not permitted within the pedestrian push button box.
- 2.28 The power supply shall be designed to supply designed to supply either one or two tactile units.
- 2.29 Where a dual type of power supply unit is used the two outputs shall be electrically isolated from each other.

### ***Tactile Power Supply (Common Requirements)***

- 2.30 The power supply shall be fitted with a clearly identified means of connection for the extra low voltage supply output connections. This shall also provide input connections for the steady green pedestrian signal and the signal controller's audible/tactical drive output.
- 2.31 The power supply shall be provided with a durable label in English or international symbols to identify:
  - i) The value of the extra low voltage output and current;
  - ii) The input voltage and current (where applicable);
  - iii) The number of tactile units it has been designed to supply.
- 2.32 The extra low voltage output shall be fused or current limited.
- 2.33 A protective device of suitable rating shall protect the ac supply to the Product's power supply.

### ***Environmental***

- 2.34 When fitted, the tactile unit shall provide a seal to IP55 between the inner and outer faces of the push button box enclosure.
- 2.35 The tactile unit shall be of corrosion resistant construction and fit for the environment in which it will be used.
- 2.36 The tactile unit shall be constructed to IP52 standard.

### ***Reliability***

- 2.37 The tactile Product shall be designed and constructed such that it can deliver a Mean Time Between Failures (MTBF) prediction figure of 12000 hours or greater, continuous operation.

## 3 REFERENCES

### *General*

3.1 Where undated references are listed, the latest issue of the publication applies.

### *British Standards*

3.2 The British Standards Institution, London, publishes British Standards.

BS 7671	Requirements for Electrical Installations
BS 7987	Road Traffic Signal Systems
BS EN 50293	Electromagnetic Compatibility – Road Traffic Signal Systems Product Standard.
BS EN 60529	Specification for degrees of protection provided by enclosures (IP Code).

### *Specifications*

3.3 TOPAS Limited specifications are available from [www.topasgroup.org.uk](http://www.topasgroup.org.uk)

TOPAS 0600	Statutory Approval of Equipments for the Control of Vehicular and Pedestrian Traffic on Roads.
TOPAS 2500	Specification for Traffic Signal Controller.
TOPAS 2523	Traffic Control Equipment Interface Specification
TR 2130	Environmental Tests for Motorway Communications Equipment and Portable and Permanent Traffic Control Equipment

### *Other Publications.*

TAL 4/91	Audible and Tactile Signals at Pelican Crossings
TAL 5/91	Audible and Tactile Signals at Signal Controlled Crossings
TRSGD	Traffic Signs Regulations and General Directions.
ZPPRGD	The Zebra, Pelican and Puffin Pedestrian Crossings Regulations and General Directions
89/336/EEC	EMC Regulations 1992, (Statutory Instrument 1992 No 2372).



## APPENDIX A INFORMATIVE GUIDE

### *General*

A1 This Appendix is an informative guide to Systems Integrators and Highway Authorities who wish to purchase / hire and use Tactile Equipment, for use at Pedestrian Crossings, that has been declared conformant to this specification. Prospective purchasers/hirers should ensure that the procurement contract address the following issues.

### *Marking and Labelling*

- A2 The procurement contract should include a clause calling for all connections to be clearly identified and that the Product is fitted with a label displaying the Following:
- i) The unique product identifier and serial number;
  - ii) The Specification and associated Appendix against which it has been declared compliant;
  - iii) The electrical supply requirements of the Product.

# APPENDIX Z TECHNICAL FILE CONTENT

This appendix defines the necessary content for a Technical File Pack (a collection of relevant documents) which must be reviewed by an appropriate Technical Assessor as part of the TOPAS Registration process (See TOPAS 0600).

Only the 'ticked' items are required to be present in a Technical File Pack used to support TOPAS Registration against TOPAS 2508A.

Ref	Item	Description	Required
1	Technical File overview document	A summary document outlining the product, specifying which TOPAS and other relevant specification(s) the product has been designed to comply with, together with a detailed table of contents for the Technical File Pack.  Where copies of external certificates or documents are referred to these may be included within the Technical File overview document or supplied separately as part of the Technical File Pack.	√
2	QA accreditation certificate(s)	A copy of the Quality Management Registration Certificates for the organisation applying for TOPAS Product Registration.	√
3	Details of all CE markings that apply to the product	A list of all directives complied with and how achieved. Typically this would be references to explicit CE Technical Files and certificates, copies of which would be included in the Technical File Pack.	√
4	A functional design description of the product	A reference to the overall System Design Documentation for the product (by document part number and issue).	√
5	Product part numbers	A list of top level assembly part numbers and their issue states including all firmware / software part numbers and issues.	√
6	Test procedures and results	A reference to all test schedules and test result documents (by document part number and issue).	√
7	Statement of compliance	A clause by clause statement of compliance against TOPAS 2508A confirming compliance and/or listing caveats or deviations.	√

8	EMC test results	A reference to EMC test performance requirements. Copies of the results of EMC testing undertaken by an appropriately qualified independent approved test house must be included in the Technical File Pack.	√
9	Optical test results	A reference to Optical tests performance requirements. Copies of the results of Optical testing undertaken by an appropriately qualified independent approved test house must be included in the Technical File Pack.	N/A
10	Environmental test results	A reference to Environmental tests performance requirements. Copies of the results of the Environmental testing undertaken by an appropriately qualified independent approved test house must be included in the Technical File Pack.	√
11	Radio Agency test results	A reference to Radio Agency tests performance requirements. Copies of the results of Radio Agency testing undertaken by an appropriately qualified independent approved test house must be included in the Technical File Pack.	N/A
12	Primary Safety Test results	For Traffic Control equipment specifically a reference to the Primary Safety Test schedule and test results by part number and issue. A copy of the test results should be included as part of the Technical File Pack.	N/A
13	Failure Mode Analysis	A reference to the product failure mode analysis requirements and results by document part number and issue.	N/A