

AS 4607—1999

Australian Standard™

Personal response systems

This Australian Standard was prepared by Committee TE/16, Personal Alarm Systems. It was approved on behalf of the Council of Standards Australia on 20 August 1999 and published on 5 November 1999.

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Australian Association of Occupational Therapists
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This Standard was issued in draft form for comment as DR 99046.

Australian Standard TM

Personal response systems

Originated as AS 2999 — 1989.
Revised and redesignated as AS 4607 — 1999.

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Published by Standards Australia International Ltd
PO Box 1055, Strathfield, NSW 2135, Australia
ISBN 0 7337 2929 0

PREFACE

This Standard was prepared by the Standards Australia Committee TE/16, Personal Response Systems, to supersede AS 2999—1989, *Alarm systems for the elderly and other persons at risk*.

The objective of this revision is to present the requirements for personal response systems as performance-based requirements. The requirements in AS 2999—1989 were prescriptive requirements which tends to be too narrowly focused.

The Standard applies to personal response systems technology which may be used in private dwellings and residential care facilities.

The term 'normative' has been used in this Standard to define the application of the appendix to which it applies. A 'normative' appendix is an integral part of a Standard.

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STANDARDS AUSTRALIA

Australian Standard Personal response systems

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies the minimum performance, design and operation requirements for telecommunications based personal response systems (PRSs). It also provides guidelines for the selection of such systems.

A personal response system is a communication system that facilitates the connection of a user requiring assistance to a central monitoring facility (CMF) using a local unit. This Standard is not intended to cover intruder alarm systems which are covered by AS 2201 (all Parts) or hard wired patient alarm systems which are covered by AS 3811.

1.2 APPLICATION

The requirements of this Standard shall not circumvent any legal requirements such as Trade Practices Act, Occupational Health and Safety Act, Privacy Act, Australian Communications Authority (ACA) Regulations, or insurance obligations.

1.3 NEW DESIGN AND INNOVATIONS

This Standard does not preclude the use of materials, designs, methods of assembly, procedures, and the like, that do not comply with a specific requirement of the Standard, or that are not mentioned in it, but which can be shown to give equivalent or superior results to those specified.

1.4 REFERENCED DOCUMENTS

AS

- 1939 Degrees of protection provided by enclosures for electrical equipment
- 2201 Intruder alarm systems (all parts)
- 3100 Approval and test specifications — General requirements for electrical equipment
- 3811 Hard-wired patient alarm systems
- 4252 Electromagnetic compatibility — Generic immunity standard
- 4252.1 Part 1: Residential, commercial and light industry
- 4268 Radio equipment and systems
- 4268.2 Part 2: Technical characteristics and test methods for radio equipment to be used in the 25 MHz to 25 GHz frequency range with power levels ranging up to 1 W AS/NZS
- 3000 Electrical installations (known as the Australian/New Zealand Wiring Rules)
- 3009 Electrical installations — Emergency power supplies in hospitals
- 3260 Approval and test specification — Safety of information technology equipment including electrical business equipment
- 3548 Limits and methods of measurement of radio disturbance characteristics of information technology equipment
- 4083 Planning for emergencies — Health care facilities

1.5 DEFINITIONS

For the purpose of this Standard, the definitions below apply.

1.5.1 Access control

A means of allowing controlled access into the user's premises. This may include remote activation of electric door latches.

1.5.2 Activated condition

The condition that exists from the time the local unit is manually or automatically triggered until the time the local unit is cleared down.

1.5.3 Activity monitor

An alarm-triggering device that operates automatically with the local unit when a routine activity being monitored is modified or ceases within a specified period. An inactivity monitor oversees an activity of a person or equipment. When, after a pre-determined period, an activity has not taken place an alarm signal is triggered.

1.5.4 Alarm signal

A signal sent from a local unit to the central monitoring facility (CMF) to indicate that an alarm condition exists.

1.5.5 Call lockout

A method of preventing subsequent emergency calls from the same local unit from being registered at the CMF within a predetermined period.

1.5.6 Cancelling system

The mechanism by which the alarm is cancelled.

1.5.7 Central monitoring facility (CMF)

A facility that contains the monitoring equipment and a user information system for the receipt of alarm signals from the local unit and is staffed 24 h, every day of the year by personnel who can initiate and verify the appropriate responses.

1.5.8 Clear down

Disconnection between the monitoring facility and the local unit.

1.5.9 CMF

See central monitoring facility.

1.5.10 Community-based facility

A monitoring facility whose purpose is to monitor local units in the community.

1.5.11 Confirmation signal

The signal indicating to a user that the alarm signal has been received and logged at the CMF.

1.5.12 Customer

The person, agency or company that pays for the service, not necessarily the user.

1.5.13 Data collection device

A device that provides a means of entering data into the local unit for transmission to the CMF.

1.5.14 Disconnection

An act that breaks a communication link.

1.5.15 Environmental monitors

Devices that trigger the local unit in the event of incidents that affect the user's environment, such as over/under temperature, gas level, smoke, fire or similar.

1.5.16 Fault condition

The condition that occurs when the local unit or CMF recognizes that itself or another part of the system is faulty.

1.5.17 Fault signal

A signal that indicates a fault condition (see Clause 1.5.16).

1.5.18 Handshaking

A process where data transmission is acknowledged.

1.5.19 Inactivity monitor (See also activity monitor)

An alarm-triggering device that operates automatically with the local unit when a routine activity being monitored is modified or ceases within a specified period. An inactivity monitor oversees an activity of a person or equipment. When, after a pre-determined period, an activity has not taken place an alarm signal is triggered.

1.5.20 Installer

The installer is the person who takes responsibility for installing the local unit and testing that the equipment/services are working.

1.5.21 Level 1 first aid certificate

A qualification obtained through a recognized training authority, e.g. Red Cross, St John Ambulance and similar.

1.5.22 Local equipment

Equipment comprising the local unit, trigger devices and any other associated equipment.

1.5.23 Local unit

The equipment that responds to triggering and other signals and communicates with the CMF. The local unit receives the signal from the trigger, processes and transmits the alarm or other signal to the CMF via a long range communications link, and provides audible and visual indications to the user.

1.5.24 Long-range communication link

The transmission medium between the local unit and the CMF.

1.5.25 Low dependency care

Users living in supported accommodation without 24 hour supervision.

1.5.26 May

Indicates the existence of an option.

1.5.27 Mode connection

A telephone line connection configuration which allows the local unit to take priority over all extensions on the same telephone service line.

1.5.28 Nominated contact

A person whom the user has nominated to respond to a call for assistance.

1.5.29 Non-critical

A design feature of a system which allows it to maintain its function without periodic adjustments.

1.5.30 Non-volatile

A design feature that ensures the system retains essential information when powered down.

1.5.31 Normal condition

The state of the system in which—

- (a) all parts and signal paths required for correct function of the system are operational;
- and
- (b) it is not in the pre-alarm, alarm, fault, disconnection, cancellation or test condition.

1.5.32 Open space

The situation where the signal path between the transmitter and receiver is not affected by obstructions or reflections.

1.5.33 Operator

An operator is a staff member of the CMF whose role is to action a response and implement a follow up procedure on behalf of the user.

1.5.34 Power supply

The source that normally delivers the necessary electrical power to the system.

1.5.35 Pre-alarm

A condition initiated within the local unit by the receipt of a triggering signal. The pre-alarm period is maintained for a pre-determined time during which visible and audible indication may be given to the user that this condition exists. The user can cancel the pre-alarm condition within this time in order to avoid transmission of the alarm to the CMF.

1.5.36 Pre-alarm signal

The signal that indicates the local unit is in the pre-alarm condition.

1.5.37 Primary battery

A battery that does not need charging and which cannot normally be recharged.

1.5.38 Reassurance signal

An audible or visual indication, or both, that the local unit is in the process of communicating with the CMF.

1.5.39 Redundancy

A concept used in personal response systems in which more functional units or services are provided in the system than are strictly needed to handle the planned workload. The units or services are arranged such that each is easily substituted for any other.

1.5.40 Remote trigger device

Any device that communicates with the local unit via a short range communication link.

1.5.41 Residential-based facility

A monitoring facility whose purpose is to monitor local units in residential care facilities, other than where 24 h care services are provided.

1.5.42 Response time

The time taken between a call being received and acknowledged by the CMF system and an operator responding to that call.

1.5.43 Service provider

Any business or department or individual that provides personal response services for users.

1.5.44 Shall

Indicates that a statement is mandatory.

1.5.45 Short-range communication link

The transmission medium between the trigger device and the local unit.

1.5.46 Should

Indicates a recommendation.

1.5.47 Test condition

A manually or automatically initiated condition during which system functions or parts thereof are tested.

1.5.48 Test signal

An automatically initiated signal that verifies the correct function of parts of the system thereof.

1.5.49 Trigger device

Any remote alarm button or sensor device that is used to transmit a triggering signal to the local unit.

1.5.50 Triggering signal

A signal received by the local unit from an associated trigger device.

1.5.51 User

The person who uses the triggering devices and local unit.

SECTION 2 PLANNING

2.1 GENERAL

Planning an appropriate personal response system (PRS) should commence as early as practicable in the development of a project.

2.2 CONSULTATION

2.2.1 General

Consultation should be conducted with the user or users' representative in order to provide a PRS that meets the needs of the user.

2.2.2 Residential-based facilities

Persons living in Group Homes, Retirement Villages and other low dependency care facilities may be at risk of personal injury. Such persons should have access to a personal trigger device that is monitored continuously.

Where a PRS is chosen for this application, consideration should be given to the range of the trigger devices to provide suitable coverage on the site.

In the initial stage of planning, the planner should consult with the user or users' representatives and manufacturers or suppliers to establish the appropriate type of system required. Further planning should include consultation with the user or users' representatives, manufacturers or suppliers and their installers, architects, developers, and electrical contractors and communications contractors, as applicable.

2.2.3 Individual user

The service provider should consult with the user or the users' representative in order to provide a PRS that meets the needs of the individual.

2.3 SELECTION OF OPTIONS

Consideration should be given to the selection of options listed in Clause 3.1.2.

A user may consider a number of trigger devices. Care should be taken when selecting or recommending a certain PRS type for specific usage.

SECTION 3 TECHNICAL PERFORMANCE REQUIREMENTS

3.1 GENERAL

3.1.1 Mandatory requirements

The personal response systems shall include the following hardware components:

- (a) A remote trigger device consisting of a method to summon assistance.
- (b) A local unit with a means of hands-free voice communications.
- (c) A long range communications link.
- (d) A central monitoring facility (CMF).
- (e) An information system.

3.1.2 Optional features

Other equipment/functions may include—

- (a) inactivity monitors;
- (b) environmental monitors;
- (c) data collection devices;
- (d) a telephone device and handset;
- (e) access control;
- (f) electromedical equipment; or
- (g) other equipment.

3.2 REGULATIONS

All equipment shall comply with relevant Australian Communications Authority (ACA) regulations.

3.3 ELECTROMAGNETIC CONFORMANCE (EMC) COMPATIBILITY AND PROTECTION

3.3.1 Emission

Electronic equipment shall meet the Australian Communications Authorities emission requirements and AS/NZS 3548. Radio trigger devices shall meet the requirements of AS 4268.2, Low interference potential devices, and other relevant requirements of the Australian Communication Authority (ACA).

3.3.2 Immunity

All local unit inputs and outputs shall be suitable for their intended purpose. They shall be resistant to high voltage transients, which may be caused by lightning and other induced voltages, or disturbances, which are likely to cause damage or malfunction of the local unit.

The local unit shall comply with the requirements of AS 4252.1.

3.4 ENVIRONMENT

Local unit and trigger devices shall be capable of operation under the following conditions:

- (a) Ambient temperature range 0°C to +50°C.
- (b) Relative humidity 20% to 90% (non condensing) at 30°C.