

ASAE S417.1 MAR 1985 (R2018)
Specifications for Alarm Systems Utilized in Agricultural Structures



**American Society of
Agricultural and Biological Engineers**

**S
T
A
N
D
A
R
D**

ASABE is a professional and technical organization, of members worldwide, who are dedicated to advancement of engineering applicable to agricultural, food, and biological systems. ASABE Standards are consensus documents developed and adopted by the American Society of Agricultural and Biological Engineers to meet standardization needs within the scope of the Society; principally agricultural field equipment, farmstead equipment, structures, soil and water resource management, turf and landscape equipment, forest engineering, food and process engineering, electric power applications, plant and animal environment, and waste management.

NOTE: ASABE Standards, Engineering Practices, and Data are informational and advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. The ASABE assumes no responsibility for results attributable to the application of ASABE Standards, Engineering Practices, and Data. Conformity does not ensure compliance with applicable ordinances, laws and regulations. Prospective users are responsible for protecting themselves against liability for infringement of patents.

ASABE Standards, Engineering Practices, and Data initially approved prior to the society name change in July of 2005 are designated as "ASAE", regardless of the revision approval date. Newly developed Standards, Engineering Practices and Data approved after July of 2005 are designated as "ASABE".

Standards designated as "ANSI" are American National Standards as are all ISO adoptions published by ASABE. Adoption as an American National Standard requires verification by ANSI that the requirements for due process, consensus, and other criteria for approval have been met by ASABE.

Consensus is established when, in the judgment of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that a concerted effort be made toward their resolution.

CAUTION NOTICE: ASABE and ANSI standards may be revised or withdrawn at any time. Additionally, procedures of ASABE require that action be taken periodically to reaffirm, revise, or withdraw each standard.

Copyright American Society of Agricultural and Biological Engineers. All rights reserved.

ASABE, 2950 Niles Road, St. Joseph, MI 49085-9659, USA, phone 269-429-0300, fax 269-429-3852, hq@asabe.org

Specifications for Alarm Systems Utilized in Agricultural Structures

Developed by the Agricultural Alarm Subcommittee of the ASAE Electrical Controls for Farmstead Equipment Committee; approved by the ASAE Electric Power and Processing Division Standards Committee; adopted by ASAE February 1983; revised March 1985; revised editorially and reconfirmed December 1989, December 1994; reaffirmed December 1995, December 1996, December 1997, February 2003, February 2008; revised editorially February 2008; reaffirmed December 2012; reaffirmed January 2018.

Keywords: Alarm, Safety, Structures

1 Purpose and scope

1.1 The purpose of this Standard is to establish specifications for fixed installation alarm systems utilized in agricultural structures.

1.2 This Standard defines characteristics and requirements for components, wiring and service of fixed installation alarm systems in agricultural structures.

2 Definitions

2.1 Agricultural alarm system: A fixed installation alarm system that is utilized in an agricultural structure. This system shall include the following components (see Fig. 1):

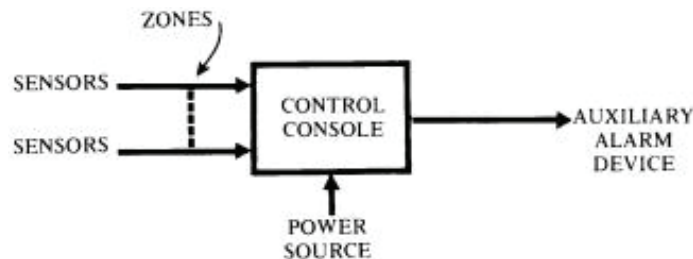


Figure 1 – System block diagram

2.1.1 Control console: The electronic/electrical assembly which monitors all sensors and activates auxiliary alarm devices upon sensing an alarm condition.

2.1.1.1 Zones: Individual sensor input terminals on a control console are defined as zones provided the console is capable of differentiating (through either audible or visual means) the specific input line that triggered the alarm. If there is **no** differentiation capability, the console is defined as a single-zone device. For example, a console with one input line for fire sensors, a second line for door sensors, but no means to indicate which line caused the alarm, would be considered a single-zone device.

2.1.2 Sensors: Any sending devices which are monitored by the system.

2.1.2.1 Normally open sensor (NO): A sensing device that is electrically equivalent to an open switch which closes or completes a circuit in an alarm condition.

2.1.2.2 Normally closed sensor (NC): A sensing device that is electrically equivalent to a closed switch which opens or breaks a circuit in an alarm condition.

2.1.2.3 Special sensor: A sensing device that does not fall in either of the two categories defined in paragraphs 2.1.2.1 and 2.1.2.2.

2.1.3 Power source: The means for providing the energy for the system to operate.

2.1.4 Auxiliary alarm device: A component usually, but not necessarily, remotely located from the console which provides an audible and/or visual indication of an alarm state.

3 System classification code

3.1 Agricultural alarm systems shall be classified according to a three-category classification code. Category 1 shall relate to the input capabilities of the console. Category 2 shall relate to the power source utilized by console. Category 3 shall relate to the type of auxiliary alarm devices utilized.

3.1.1 Category 1 (input capabilities) shall be defined as follows:

3.1.1.1 Type A(N): Utilizes NC and/or NO sensors wired directly to the control console on one or more zones. This system category shall be capable of accepting **both** NC and NO sensors on one wire pair/console input. (N) indicates the number of individual inputs that the console is capable of monitoring and differentiating. For example, A(1) would denote a one-zone system, while A(4) would denote a four-zone system.

3.1.1.2 Type B(N): Utilizes NC and/or NO sensors wired directly to the central console on one or more zones. This system category shall be capable of accepting **either, but not both**, NC or NO sensors on one wire pair/console input. (N) indicates the number of individual inputs that the console is capable of monitoring and differentiating.

3.1.1.3 Type C(N): Utilizes NC and/or NO sensors which return an alarm condition to the console by some means other than a dedicated wire pair. (N) indicates the number of individual input channels that the console is capable of monitoring and differentiating.

3.1.1.4 Type G(N): Utilizes a type of sensor/zone configuration not covered in any of the categories defined in paragraphs 3.1.1.1, 3.1.1.2, or 3.1.1.3.

3.1.2 Category 2 (power source) shall be defined as follows:

3.1.2.1 Type I: Utilizes primary AC power with a standby non-rechargeable battery.

3.1.2.2 Type II: Utilizes primary AC power with a standby rechargeable battery.

3.1.2.3 Type III: Utilizes self-contained non-rechargeable battery only.

3.1.2.4 Type IV: Utilizes self-contained rechargeable battery only.

3.1.2.5 Type V: Utilizes primary AC power source only.

3.1.2.6 Type X: Utilizes none of the power sources given in paragraphs 3.1.2.1 to 3.1.2.5.

3.1.3 Category 3 (auxiliary alarm devices) shall be defined as follows:

3.1.3.1 Type R: Internal — activates an alarm on the console.

3.1.3.2 Type S: Local — activates an alarm on the building premises where the console is located.

3.1.3.3 Type T: Remote/direct — activates an alarm via a direct-wire link at some location other than where the console is located.