Minimum Alarm Configuration New Switching Equipment

Contents

1 . General

1.1 Purpose

This practice is being issued to standardize the minimum alarm configuration for new installations (installations made after publication of the first issue of this practice) of electronic switching systems.

NOTE: The **standards set forth In this practice apply only to new offlces and associated remote switching units. The standards will not necessarily apply to existing electronic offices.**

1.2 Filing Instructions

File this practice in numerical order in your GTE Telephone Operations practices set.

1.3 Supersedures

This practice supersedes:

- Ail local practices, policies, procedures, general instructions, letters, and memoranda which address this subject.
- Any document which provides information contrary to the information contained in this practice.

NOTE: **This practice will not supersede any existing alarm practices for established switching units.**

1.4 Copyright and Responsibility

1.5 Disclaimer

This practice was prepared solely for the use of GTE Telephone Operations. It must be used only by its employees, contractors, customers and end users, when installing, operating, maintaining, and repairing GTE Telephone Operations' equipment, facilities and services. Any other use of this practice is forbidden. The information contained in this practice may not be applicable in all circumstances and is subject to change without notice. By using this practice the user agrees that GTE Telephone Operations will have no liability (to the extent permitted by applicable law) for any consequential, incidental, special, or punitive damages that may result.

2. Overview

2.1 Related Information

The following chart lists GTE Telephone Operations Practices that contain information related to the subject of this practice.

Practice...	Titled..
205-000-000	Equipment Alarms Overview
205-000-001	Alarms for Electromechanical Switching Equipment
205-000-002	Alarms for Electronic Switching Equipment
205-000-003	Alarms for Toll Switching Equipment
205-000-004	Alarms for Carrier and Radio Facilities
205-000-005	Alarms for Switching Equipment Support Systems
205-000-006	Alarms for Peripheral Equipment Port Systems
740-200-070	Building Alarms – Engineering Application
740-500-070	Remote Equipment Buildings (REBs) – Engineering Guidelines

2.2 Acronyms and Definitions

The following chart defines acronyms used in this practice.

Acronym or Term	Definition
AC	Alternating Current
DGU	Data Gathering Unit
HVAC	Heating, Ventilation, and Air Conditioning
MXU	Multiplex Unit

3. Systems and Conditions Requiring Alarms

3.1 Building Alarms Chart

This section explains which building systems and conditions must be equipped with a monitored alarm system. The information is arranged in a three-part chart. The chart:

- Lists building systems and conditions that require monitoring.
- Designates if the alarm for a particular system or condition is "required," "required if available," or "required only in facilities housing electronic switching systems."
- Describes the condition that triggers the alarm (causes the alarm to be transmitted).

NOTE: The alarms designated in the chart as being "Required" must always be provided In each facility The alarms designated "Required if available" must be provided when the system is present In the facility. Refer to GTE Telephone Operations Practice 740-200-070, Building Alarms – Engineering Application, for more information about building alarms in general, and about specific applications.

System or Condition	Requirement	Alarm Is Transmitted When...
Commercial Power Failure	Required	Commercial AC power experiences under-voltage, phase failure, or phase reversal. Under-voltage set point for alarm is approximately 85% of nominal voltage.
Surge Arrestor	Required	The surge arrestor elements within the unit fail, and the surge arrestor no longer provides protection.
High Temperature	Required	Switching equipment room temperature reaches a set point of 86° Fahrenheit (and continues if the temperatures climbs higher).
Low Temperature	Required	Switching equipment room temperature reaches a set point of 60° Fahrenheit (and continues if the temperatures drops lower).
HVAC Failure	Required	Either of the following conditions occur: • Air handler air flow of an HVAC unit fails. • HVAC compressor shuts off due to abnormal operating conditions that cause high refrigerant discharge pressure, low refrigerant suction pressure, etc.

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3.1 Building Alarms Chart, continued

System or Condttion	Requirement	Alarm Is Transmitted When...
High Humidity	Required	Equipment room relative humidity level reaches a set point of 60% (and continues if the humidity level rises).
Low Humidity	Required	Equipment room relative humidity level reaches a set point of 25% (and continues if the humidity level drops).
Intrusion Alarm	Required	An exterior door to an equipment room is opened.
Fire Detection/ Suppression System Alarm	Required if available	The building fire detection/suppression control panel goes into a fire alarm condition.
Fire Detection/ Suppression System Trouble	Required if available	The building fire detection/suppression control panel goes into a system trouble condition.
Generator Transfer	Required if available	The building is being powered by the emergency generator. **NOTE 1: This alarm point is only used for locations wlth on-site, permanent generators.** **NOTE 2: This alarm condition signals that a system (the generator) Is operating proper/y. All other alarm conditions signal system failures.**
Generator Failure	Required if available	The emergency generator fails. **NOTE: This alarm point is only used for locations with on-slte, permanent generators.**

(continued)

3.1 Building Alarms Chart, continued

System or Condition	Requirement	Alarm Is Transmitted When...
Low Fuel (for generator)	Required if available	Generator's fuel level reaches the following set points: • 20% fuel remaining in generator day tank. • 100 gallons remaining in main storage tank.

NOTE: The following chart further explains requirements for monitoring generator fuel.

If the Location Has...	Then...
A day tank	Day tank must be equipped with an alarm.
A main tank (without a day tank)	Main tank must be equipped with an alarm.
Both main tank and day tank	Day tank must be equipped with an alarm, and the main tank, if it already has a tank monitoring device, must be equipped with an alarm.
NOTE: It is not the intent of this requirement to retrofit an exlsting main tank for an alarm when a day tank is available to be equipped for an alarm at the location.	

Fuel Leak	Required if available	A fuel leak detection device detects a fuel leak in the generator underground storage tank.
Cable Vault Gas	Required if available	A cable vault gas detection device detects gas or system trouble.
Cable Vault Flood	Required if available	Either of the following occurs: • A sump pump fails. This is indicated by a sump pump float mechanism reaching a set-point level, triggering the alarm. The set point is a water level higher than the water level required to activate the sump pump. • A floor flood detection device indicates water on a cable floor.

NOTE: Depending on the location, a cable vault may have both or either of the mentioned alarm systems. If both exlst, both must be monitored for alarm conditions.

(continued)

3.1 Building Alarms Chart, continued

System or Condition	Requirement	Alarm Is Transmitted When...
High Voltage	Required only in facilities housing electronic switching systems	Voltage exceeds equalize voltage of 54.1 volts.
Low Voltage	Required only in facilities housing electronic switching systems	Voltage is less than 48 volts.
Main Battery Distribution Fuse	Required only in facilities housing electronic switching systems	Main power fuse fails.
Rectifier Failure	Required only in facilities housing electronic switching systems	Charger fails to provide charging current to office batteries.
Secondary Alarm Distribution Fuse	Required only in facilities housing electronic switching systems	Power distribution fuse fails.

3.2 Additional Alarms

In addition to the building alarms described in the previous section, the following alarms are an essential part of maintaining properly functioning electronic switching systems:

- MXU alarms.
- Alarms provided by equipment manufacturers, “built-in” to the systems they manufacture.
- Alarms on peripheral equipment.

3.2.1 MXU Alarms

MXU alarms will be provided according to manufacturer design specifications. Additional alarm capability will not be provided.

3.2 Additional Alarms, continued

3.2.2 Manufacturer-Equipped System Alarms

System-generated alarms which are used for reporting equipment status are software activated and are specific to particular switching technology.

NOTE: Manufacturer-equipped, system-generated alarms are not specified in this practice. Consult the manufacturer's design specifications for alarm(s) provided.

3.2.3 Peripheral Alarms

Peripheral alarm requirements vary from site to site, based on the equipment at each site. Peripheral alarms (e.g., a carrier alarm) will be provided as required per established practices and procedures. All peripheral equipment served out of a remote switching unit must have on-site audible alarms.

NOTE: Refer to GTE Telephone Operations Practice 205-000-006, Alarms for Peripheral Equipment Port Systems, for more information.

3.3 Power Alarms

As listed in the chart in section 3.1, the alarms listed below are required in each switching unit facility. Required are alarms that monitor:

- Commercial power failure.
- High voltage.
- Low voltage.
- Main battery distribution fuse.
- Rectifier failure.
- Secondary alarm distribution fuse.

New installations (installations made after publication of the first issue of this practice) are provided with power plants equipped with "intelligent" monitoring and control units. Consequently, for reporting purposes, only one alarm lead is required for notification of any power malfunction.

NOTE: If the switching unit facility is not equipped with an intelligent monitoring system, then the power alarms must be Individually reported.

3.4 Requirements for Alarm Indicators and Monitoring

In effect are the following requirements regarding alarm indicators and the monitoring of alarms:

- All alarms must be "remoted" (i.e., provided with remote surveillance or monitoring) to the appropriate support center.
- All equipment with alarms must have visual alarm indicators.
- Alarms for peripheral equipment served out of a remote switching unit must be on-site, audible alarms.
- MXUs do not require audible alarms at the site.
- Each base unit must be equipped with both visual and audible alarms for subtending remotes.

4. Digital Switching Equipment

4.1 Digital Switching Equipment Products

The following chart lists digital switching products found in the various GTE Telephone Operations Network Services operating equipment areas.

NOTE: This list is as complete as can be provided at this time, and is presented only as an example of digital products presently in service.

Product Name	What the Name Stands for
5ESS	Number 5 Electronic Switching System
5ESS-ORM	– Optical Remote Module
5ESS-OSPS	– Operator Service Position System
5ESS-RSM	– Remote Switching Module
5ESS-SLC	– Subscriber Line Carrier
DCO	Digital Central Off ice
DCO-DSU	– Digital Switching Unit
DCO-RLG	– Remote Line Switch with Survivability
DCO-RLS	– Remote Line Switch
DCO-RNS	– Remote Network Switch
DCO-RSU	– Remote Switching Unit
DCO-SLC	– Subscriber Line Carrier
DCO-SCP	– Switching Control Point
DMS-10	Digital Multiplex System
DMS-1 0-HSO	– Host Switching Office
DMS-1 0-OPM	– Outside Plant Module
DMS-10-RLCM	– Remote Line Concentrator Module
DMS-10-SCMR	– Subscriber Carrier Module – Rural
DMS-10-SCMU	– Subscriber Carrier Module – Urban
DMS--10--SCMU	– Satellite Switching Office
DMS-100	Digital Multiplex System
DMS-100-OPM	– Outside Plant Module
DMS-100-RLCM	– Remote Line Concentrator Module
DMS-100-RLM	– Remote Line Module
DMS-IOO-RSC	– Remote Switching Center
DMS-1 00-SLC	– Subscriber Line Carrier
DMS-100-SCMR	– Subscriber Carrier Module – Rural
DMS-100-SCMU	– Subscriber Carrier Module – Urban
DMS-100/200	Digital Multiplex System – Class 4/5 Switch
DMS-200/TOPS	Digital Multiplex System – Traffic Operator Position System
DMS-STP	Digital Multiplex System – Signal Transfer Point
EWSD	Electronic Switched Digital
EWSD-RLU	– Remote Line Unit
GTD-5	General Telephone Digital Switch
GTD-5 MXU	– Multiplex Unit
GTD-5 MXUE	– Expanded Multiplex Unit
GTD-5 RLU	– Remote Line Unit
GTD-5 RSO	– Remote Switch Unit with Survivability
GTD-5 RSU	– Remote Switch Unit