MERIDIAN®

MN140 Series
DC-Powered Smoke Alarms
INSTRUCTIONS FOR INSTALLATION AND USE

READ THIS INSTRUCTION SHEET THOROUGHLY BEFORE INSTALLING AND USING YOUR MERIDIAN SMOKE DETECTOR

Features
- *Advanced 90° photoelectric detection pattern and specially designed smoke chamber* ✱ *for superior detection and dust resistance*
- *Unique high signal-to-noise ratio and superior RFI immunity to prevent false alarms*
- *Excellent smoke access provides reliable detection for all smoke flow directions and velocities*
- *Loud 85dB piezoelectric alarm horn*
- *Solid-state LED Indicator Light (green)*
- *Form A (normally open, alarm closed) and/or Form C (normally open/normally closed) alarm relays are available with different models*
- *Interconnect up to 20 alarm units*
- *Removable terminals for easier wiring*
- *57°C (135°F) fixed temperature heat sensor option*
- *Test Button for user to perform sensitivity test*
- *The unit will automatically perform a self-test once every 40 seconds and provide an audible trouble indication if the unit has insufficient smoke sensitivity*
- *Attractive styling for any decor*
- *ULC Listed S531*

Models
MN140 ....Form "A" Alarm Relay; Sounder; Interconnect

MN140T ....As MN140 with 57°C (135°F) Thermistor

MN140R ....As MN140 with Form "C" Auxiliary Relay

MN140RT ....As MN140 with Form "C" Auxiliary Relay and 57°C (135°F) Thermistor

MN140C ....Form "C" Alarm Relay; Sounder; Interconnect

MN140CT ....As MN140C with 57°C (135°F) Thermistor

MN140CH ....As MN140C plus isolated 57°C (135°F) Thermistor as heat detector with Form "A" Relay

**✱***Protected under Canadian patent No. 1452296. Other patents pending.*

Introduction
The DSC Meridian photoelectric smoke alarm incorporates many advanced design features to provide years of reliable operation. It is important to follow the installation and operation instructions on this sheet to ensure that the unit will function properly — even the best designed smoke alarm will be rendered useless if it is not connected or located properly.

It is very important that you understand how to test and maintain your system. Refer to the *Instruction* or *User Manual* for your alarm system, and familiarize yourself with how the fire alarm functions of your system operate. Be sure to test your system regularly following the test procedures described in your manual. If you should ever have problems operating or testing your system, and especially if there are problems with the fire alarm functions, contact your smoke alarm installer or dealer immediately for service.

While smoke alarms and alarm systems are designed to warn you of potentially dangerous situations, no system can prevent emergencies. An alarm system is not a substitute for life and property insurance; you should always maintain appropriate insurance coverage.

How the Smoke Alarm Works
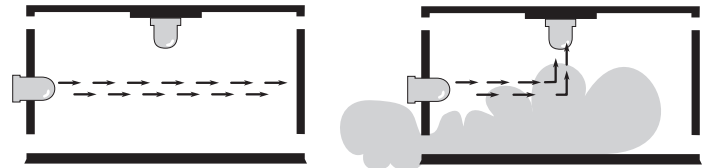
Normally, light pulses in the smoke chamber do not reach the light sensor.

Smoke in the smoke chamber deflects light into the light sensor, triggering an alarm.

As shown in the illustration, a light source is directed across the smoke chamber and is not normally reflected into the sensing element. When smoke enters the chamber, the light beam is scattered by the smoke and is reflected into the sensor. When enough light is detected by the sensor, an alarm is activated. On alarm, the sounder and the alarm and auxiliary relays are activated, and the green indicator light will shut OFF. *When the smoke clears from the smoke chamber, the unit will automatically reset itself.*

Interconnected Units
Up to 20 units may be interconnected. When one unit senses smoke and generates a "local" alarm, all of the interconnected "remote" units will sound. Only the unit detecting the smoke or heat condition will activate its alarm relay (and auxiliary relay, if equipped) and its indicator light will shut OFF. The interconnected units will not activate their relays and their indicator lights will remain ON. This will assist in locating the unit that initiated the alarm.

If an interconnected unit sounding an alarm initiated by another unit detects smoke or heat, the interconnected unit's sounder will continue to sound, its Indicator Light will shut OFF, and the unit will activate its relays.

Alarm Indications (except model MN140CH)

Condition	Sounder	Indicator Light	Relay(s)
No Smoke or Heat	Silent	ON steady	D†
Local Smoke or Heat	Alarm	OFF	A†
Remote Smoke or Heat	Alarm	ON steady	D
Automatic Self Test Functioning Normally	Silent	ON steady	D
Automatic Self Test Insufficient Sensitivity	Chirp every 40 s	ON steady	D
Push-button Test Functioning Normally	Chirp every 40 s	ON steady	D
Push-button Test Insufficient Sensitivity	Silent	ON steady	D

Alarm Indications for model MN140CH)

Condition	Sounder	Indicator Light	Relay"A"	Relay"C"
No smoke or heat	Silent	ON steady	D†	D
Local smoke or heat	Alarm	OFF	D	A†
Local heat	Silent	ON steady	A	D
Remote smoke	Alarm	ON	D	D
Automatic self-test functioning normally	Silent	ON steady	D	D
Automatic self-test insufficient sensitivity	Chirp every 40-50 s	ON steady	D	D
Push-button test functioning normally	Alarm	OFF	D	A
Push-button test insufficient sensitivity	Silent	ON steady	D	D

† D = Deactivated, A = Activated

Limitations of Smoke Alarms

While the Meridian smoke alarm has been designed for reliability, it is important to know that all smoke alarms have limitations.

- Smoke alarms will not work without power. Devices powered from a control panel will not function if the control panel's AC and battery back-up power supplies both fail.
- Smoke alarms can only generate an alarm when smoke gets inside the smoke chamber; anything that prevents smoke from entering the smoke chamber may prevent or delay an alarm. Refer to the 'Guidelines for Locating Smoke Alarms' on this *Instruction Sheet*; it is important that smoke alarms be located on at least every floor of the premises, preferably in every room. It is also important to avoid obstructions, such as closed doors, that may prevent smoke from reaching the unit. A smoke alarm will not detect a fire in the walls, in the chimney or on the roof of a building until smoke enters the smoke chamber.
- Smoke alarms have certain obvious limitations: they may not provide protection for someone smoking in bed, for children playing with matches, or for sudden and violent explosions. A smoke alarm is a single part of overall fire safety precautions; the smoke alarm should never be seen as a substitute for a complete fire safety program.

Guidelines for Locating Smoke Alarms

On smooth ceilings, detectors may be spaced 9.1m (30 feet) apart as a guide. Other spacings may be required depending on ceiling height, air movement, the presence of joists, uninsulated ceilings, etc.**

Do not locate smoke detectors at the top of peaked or gabled ceilings; the dead air space in these locations may prevent the unit from detecting smoke.

Avoid areas with turbulent air flow, such as near doors, fans or windows. Rapid air movement around the detector may prevent smoke from entering the unit.

Do not locate detectors in areas of high humidity.

Do not locate detectors in areas where the temperature rises above 38°C (100°F) or falls below 5°C (41°F).

○ Smoke detectors for better protection
● Smoke detectors for minimum protection
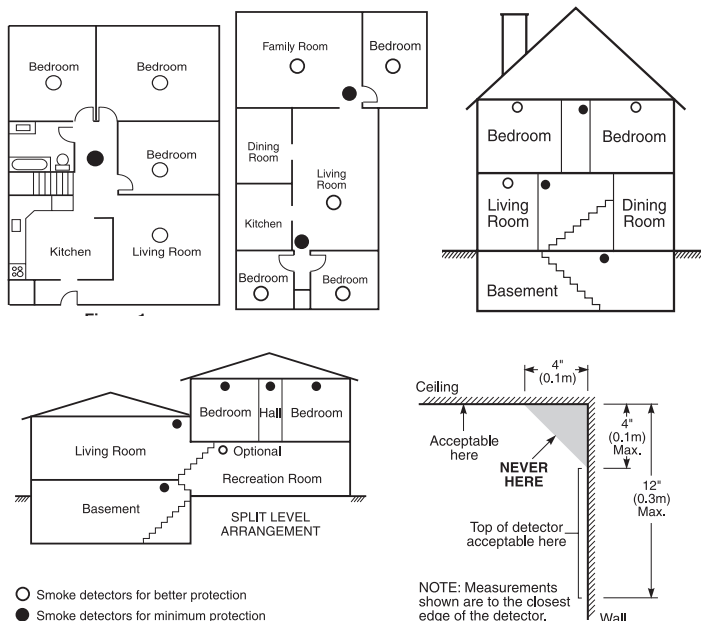
** Smoke detectors should always be installed in accordance with CAN/ULC-S553-02 standard for installation of smoke alarms.

Testing Your Smoke Alarm

Never use burning or smouldering materials to test a smoke alarm. Follow the test procedure described here or contact your smoke alarm dealer or installer for testing instructions. It is recommended that your entire alarm system should be tested at least once per week.

Follow the directions found in your alarm system's manual to perform a complete test of your system. Note that system testing should be performed regularly to verify the operation of all system functions.

To test the unit, press and hold the test button on the front of the unit. When the button is pressed, an alarm should sound; when the button is released, the alarm should be silenced. If the smoke alarm does not function properly, call your smoke alarm installer or dealer for service.

Owner's Maintenance Instructions

The Meridian Smoke Alarm is designed to require a minimum of maintenance. If the case becomes dusty, wipe the case gently with a soft dry cloth. If the case is greasy, wipe the case gently with a soft cloth slightly dampened with soapy water.

Never disassemble the smoke alarm; there are no user serviceable parts inside the unit. Never paint the unit, as paint may prevent smoke from entering the unit. If you are planning renovations or repainting, contact your Installer and ask that the unit be temporarily removed until work is complete.

If the unit is located in an area where it is exposed to high levels of dust or insects and is found to cause false alarms, it may require service; contact your smoke alarm installer or dealer.

Fire Safety In The Home

Most fires occur in the home, and to minimize this danger, it is recommended that a household fire safety audit be conducted and a family escape plan be developed.

Household Fire Safety Audit

1 Are all electrical appliances and outlets in a safe condition? Check for frayed cords, over-loaded lighting circuits, etc. If you are uncertain about the condition of your electrical appliances or household service, have a professional evaluation.
2 Are all flammable liquids stored safely in closed containers in a cool, well ventilated area? Cleaning with flammable liquids should be avoided.
3 Are hazardous materials such as matches out of the reach of children?
4 Are furnaces and wood burning appliances properly installed, clean and in good working order? If in doubt, have a professional evaluation.

Family Escape Planning

There is often very little time between the detection of a fire and the time it becomes deadly. Because of this, it is very important that a family escape plan be developed and rehearsed.

1 Every family member should participate in developing the escape plan.
2 Study the possible escape routes from each location within the house. Since many fires occur at night, special attention should be given to the escape routes from sleeping quarters.
3 It is essential that escape from a bedroom be possible without opening the interior door. Consider the following when making your escape plans:
- Make sure that doors and windows that open to the outside are easily opened. Ensure that they are not painted shut, and that their locking mechanisms operate smoothly.
- If opening the exit or using the exit is too difficult for children, the elderly or handicapped, plans for rescue should be developed. This includes making sure that those who are to perform the rescue can promptly hear the fire warning signal.
- If the exit is above the ground level, an approved fire ladder or rope should be provided, as well as training in its use.

- Exits on the ground level should be kept clear. Be sure to remove snow from exterior patio doors in winter; outdoor furniture or equipment should not block exits.
- The family should have a predetermined assembly point where everyone can be accounted for; for example, across the street or at a neighbour's house.
- Once everyone is out of the house, call the fire department.
- A good plan emphasizes quick escape. Do not investigate first or attempt to fight the fire, and do not attempt to rescue belongings or valuables as this takes up time. Once outside, do not re-enter the house; wait for the fire department.
- Write the plan down and rehearse frequently so that should an emergency arise, everyone will know what to do. Revise the plan as conditions change; for example, when there are more or fewer family members in the home, or if there are changes to the house.
- Make sure your fire warning system is operational by conducting weekly tests. If you are unsure about system operation, contact your smoke alarm installer or dealer.
- It is recommended that you contact your local fire department and request further information on home fire safety and escape planning. If available, have your local fire prevention officer conduct an in-house fire safety inspection.

Installation Instructions

Specifications

Nominal Operating Voltage ....12 - 24V_{DC} or V_{FWR}

Maximum Operating Voltage Range 10 - 30V_{DC}, or 10 - 26.4V_{FWR}

Standby Current..17mA

Alarm Current
  - MN140(T).. 40mA maximum
  - MN140C(T) .... 45mA maximum
  - MN140R(T)...................................... 65mA maximum
  - MN140CH .... 65mA maximum

Relay Rating (Resistive)
  - Form A Relay ....1A at 30V_{DC} / V_{AC}
  - Form C Relay ....2A at 30V_{DC} / V_{AC}

Smoke Sensitivity
  - .... 2.5%/ft obscuration ±0.5%/ft
  - .... 2.5%/305mm ±0.5%/305mm

Operating Environment
  - ....0°C - 37.8°C (32°F - 100°F)
  - ....5% - 95% RH, non-condensing

Field Test
  - ....Pushbutton and/or
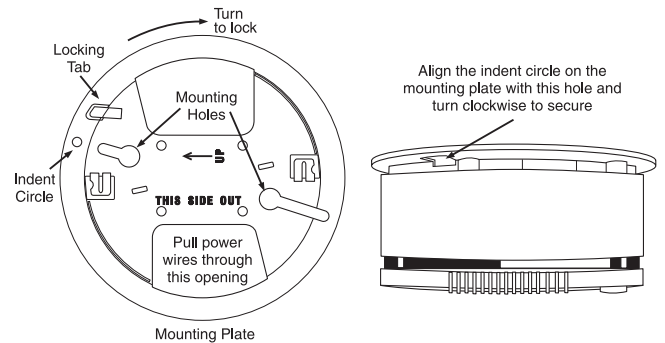 - .... Gemini 501 Smoke Alarm Analyser

Dimensions
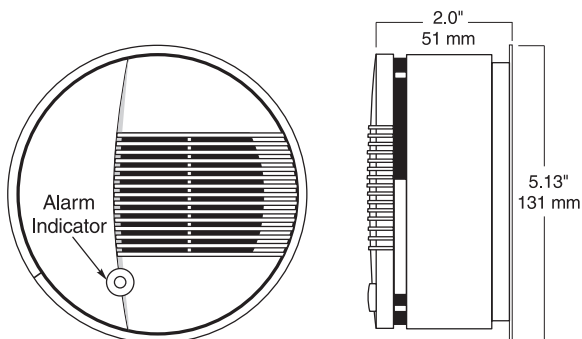
Mounting the Unit

The Meridian smoke alarm mounts to a standard 4" octagonal electrical box. *12 to 24V_{DC} or Full Wave Rectified power must be supplied from a ULC Listed power supply or the auxiliary power terminals of a ULC Listed alarm control unit. Wiring should be in accordance with the Canadian Electrical Code, Part I, and applicable local codes.*
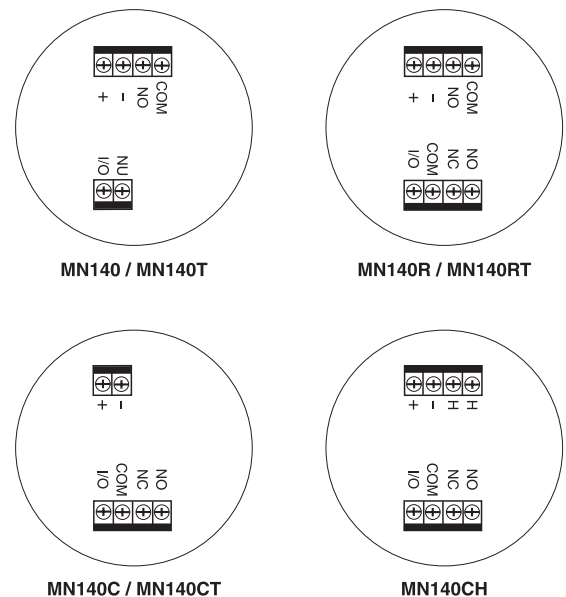
Remove the mounting plate from the case by pushing the locking tab and turning the mounting plate counter-clockwise. Attach the mounting plate to the electrical box (see diagram below for orientation).
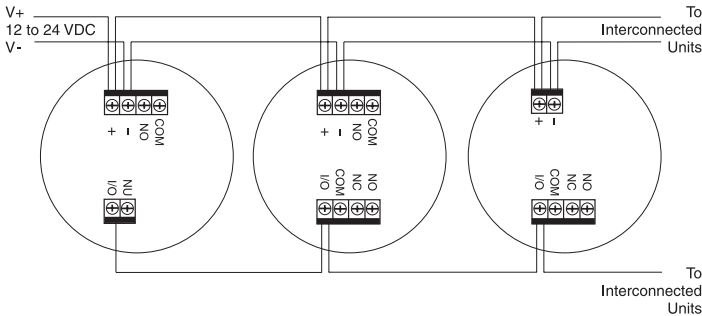
Wiring

Refer to the wiring diagrams on this installation sheet and those provided in the installation manual of the alarm control panel being used with the unit.

Before connecting the unit, prepare the wires from the electrical box for connection; the wires should not be frayed or bent. Dress the power and the form A relay wires through the opening on the side of the mounting plate away from the locking tab. Dress the form C relay wires and the interconnect wire (if used) through the opening on the side of the mounting plate next to the locking tab. (See diagram above.)

The removable terminal blocks can be unplugged with the aid of a small screwdriver to make it easier to connect the wires to them. When the wiring is completed, inspect it thoroughly and correct any errors. Then, plug the terminal blocks back into the unit. Neatly insert the service loops in the wiring back into the electrical box as the unit is mounted to the mounting plate. Align the mounting plate's locking tab with the recess on the unit's case and turn the unit clockwise until it is firmly secured.

MN140 / MN140T

MN140R / MN140RT

MN140C / MN140CT

MN140CH

Wiring (Bottom View)

Multiple Alarm Wiring

CAUTION: If the power connections are reversed, the unit will not operate. The unit is protected against damage from incorrect wiring.

The unit can be removed from the mounting plate by pressing the locking tab with a screwdriver and turning the unit counter-clockwise.

Dust Cover

The dust cover is intended to protect the unit from dust and dirt entry, only while the unit is not in service.

CAUTION: The smoke detector will not function with the dust cover in place.

Installation Testing

When all connections are completed, apply power to the system as described in the control panel's installation manual. If all connections are correct, each unit's green indicator light should be ON to indicate that power is on, and there should be no alarm from any of the smoke alarms. If an alarm sounds, ensure that there is not an actual alarm condition. If there is no actual alarm, remove power from the system and check all smoke alarms for correct wiring.

If no alarm sounds, test each smoke alarm by pressing the Test Button on the front of the unit. When the button is pressed, an alarm will sound; when the button is released, the alarm will be silenced.

Testing shall be in accordance with the CAN/ULC-S552-02 standard for maintenance and testing smoke detectors.

Installer's Maintenance Instructions

Normally, the Meridian smoke alarm will not require maintenance. If the unit is mounted in a high dust environment, the inlet areas of the case may be vacuumed with a soft brush attachment.

Be sure to inform the user and their monitoring station when maintenance of any sort is performed on the smoke alarm or any part of the alarm control system. Always test smoke alarms after maintenance. If a smoke alarm continues to generate nuisance alarms even after vacuuming, return the unit to DSC for service. Contact DSC at the address and number below to obtain a return authorisation number before returning the unit.

Installer's Responsibility to the User

It is the installer's responsibility to thoroughly instruct the end user of the system on the operation, testing and maintenance of their system. The Installer should fully explain and demonstrate all functions of the alarm control system and any equipment, such as smoke alarms, connected to it. The user should be provided with all instruction sheets and manuals for their system and any components connected to it. Complete and thorough instruction for the user is essential to ensure they will obtain the greatest benefit from their system. Providing the user with complete operational information will also benefit the installer through a reduction in service calls for nuisance alarms.

Limited Warranty

Digital Security Controls Ltd. warrants that for a period of twelve months from the date of purchase, the product shall be free of defects in materials and workmanship under normal use and that in fulfilment of any breach of such warranty, Digital Security Controls Ltd. shall, at its option, repair or replace the defective equipment upon return of the equipment to its repair depot. This warranty applies only to defects in parts and workmanship and not to damage incurred in shipping or handling, or damage due to causes beyond the control of Digital Security Controls Ltd. such as lightning, excessive voltage, mechanical shock, water damage, or damage arising out of abuse, alteration or improper application of the equipment.

The foregoing warranty shall apply only to the original buyer, and is and shall be in lieu of any and all other warranties, whether expressed or implied and of all other obligations or liabilities on the part of Digital Security Controls Ltd. Digital Security Controls Ltd. neither assumes, nor authorizes any other person purporting to act on its behalf to modify or to change this warranty, nor to assume for it any other warranty or liability concerning this product.

In no event shall Digital Security Controls Ltd. be liable for any direct, indirect, or consequential damages, loss of anticipated profits, loss of time or any other losses incurred by the buyer in connection with the purchase, installation or operation or failure of this product.

Smoke detectors that are a part of this system may not properly alert occupants of a fire for a number of reasons, some of which follow. The smoke detectors may have been improperly installed or positioned. Smoke may not be able to reach the smoke detectors, such as when the fire is in a chimney, walls or roofs, or on the other side of closed doors. Smoke detectors may not detect smoke from fires on another level of the residence or building.

Every fire is different in the amount of smoke produced and the rate of burning. Smoke detectors cannot sense all types of fires equally well. Smoke detectors may not provide timely warning of fires caused by carelessness or safety hazards such as smoking in bed, violent explosions, escaping gas, improper storage of flammable materials, overloaded electrical circuits, children playing with matches or arson.

Even if the smoke detector operates as intended, there may be circumstances when there is insufficient warning to allow all occupants to escape in time to avoid injury or death.

Warning: Digital Security Controls Ltd. recommends that the entire system be completely tested on a regular basis. However, despite frequent testing, and due to, but not limited to, criminal tampering or electrical disruption, it is possible for this product to fail to perform as expected.

Important Information: Changes or modifications not expressly approved by Digital Security Controls Ltd. could void the user's authority to operate this equipment.

DSC®

For Information and Technical Assistance:
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