DIP-34A

Analogue Addressable Photoelectric Smoke Detector

INSTRUCTION MANUAL

GENERAL

DIP-34A Analogue Addressable Photoelectric Smoke Detector (hereinafter referred to as the DIP-34A or the detector) is to be used in a fire alarm system. It is designed to detect fires which come with appearing of smoke within closed spaces.

The DIP-34A operates under control of the S2000-KDL controller which the detector is connected to and which supplies power and communicates data with the DIP-34A via the two-wire multiplex addressable polling loop. Up to 127 DIP-34A detectors can operate under a single S2000-KDL.

The DIP-34A detects smoke inside its sensing chamber by sensing light reflected by smoke particles and responds with its status to the S2000M console or Orion Pro software via the S2000-KDL controller. Depending on detected smoke amount these statuses can be Norm, Fire Prealarm or Fire Alarm.

In addition, the detector can respond to the console's request with a current condition of its sensing chamber which corresponds to its smoke or dust level. Based on this answer, an Operator of the console can make a decision about maintenance works or waiting for a Fire Pre-alarm message in case of appearance of smoke at the beginning of a fire.

The area protected by a single DIP-34A is approximately 85 m^2 unless it is set not higher than 3.5 m.

The DIP-34A supports DPLS_v2.xx Multiplex Addressable Polling Loop Protocol enabling monitoring addressable loop voltage at the detector's location. The version of DIP-34A software is 1.30.

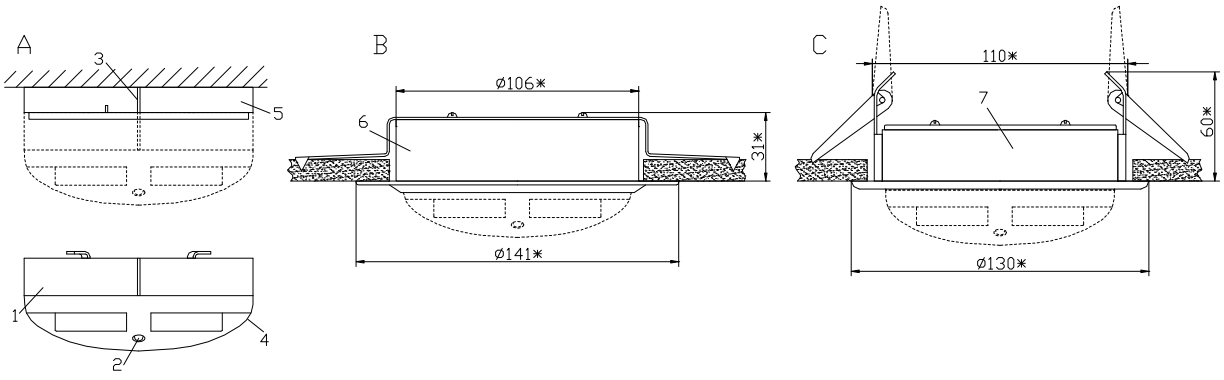
The detector operability must be periodically tested either by using test aerosol (as described below) or by means of a laser test tool (such as the test tool produced by the System Sensor Company).

The detector is supplied with a protective cover and an "Address:" label.

SPECIFICATIONS

Sensitivity	0.05 - 0.2 dB/m (1.2 %/m to 4.7 %/m)
Response Time	10 s max
Ingress Protection Rating	IP 41
Input Voltage (from an S2000-KDL)	8 ÷ 10 V dc
Current Consumption (via the loop of the S2000-KDL)	0.5 mA max
Pre-operation Time	60 s max
Operating Temperatures	–30 to +55℃
Storage Temperatures	–50 to +50℃
Humidity	93% at +40℃, non-condensing
Overall Dimensions (diameter x height)	100×46 mm max
Weight	0.2 kg max
Average Lifetime	at least 10 years

DIP-34A VIEW AND DIMENSIONS



1 *DIP-34A Smoke Detector*
2 *Light Emitter*
3 *Base Aligning Mark by Light Emitter*
4 *Mark and Rectangle Hole (**Open here**)*
5 *Mounting Base*
6* *MK-1 Suspended Ceiling Mounting Kit*
7* *MK-2 Suspended Ceiling Mounting Kit*
** are purchased separately*

Figure 1 Three Ways to Mount the Detector

MOUNTING

A DIP-34A is to be mounted in accordance with your local standards, codes, regulations, and ordinances. If the detector is mounted on a ceiling at a distance of no more than 4.5 m from the wall and the height of the ceiling doesn't exceed 3.5 m then the protected area is about 85 square meters.

There are three ways to mount the detector (see Figure 1).

To install the detector to a solid surface (variant **A**) use the mounting base provided (see the drilling pattern in Figure 2). For doing this **align the detector mark with the short mark line moulded on the mounting base, and then turn the detector clockwise until the detector mark is aligned with the mark 3 as shown in Figure 1 (A)**.

To build the detector into a suspended ceiling use separately purchased mounting kits MK-1 (variant **B**) or MK-2 (variant **C**).

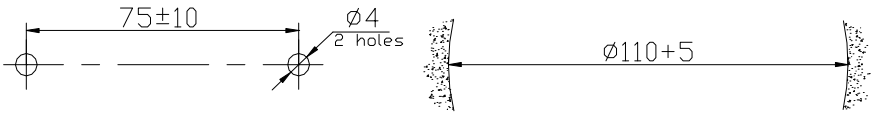


Figure 2 Drilling Patterns

Figure 2 demonstrates the drilling pattern to attach a mounting base in accordance with the variant A and the diameter of the hole in a suspended ceiling for the variants B and C.

WIRING

Figure 3 shows the wiring diagram for connecting DIP-34A detectors to the multiplex addressable polling loop of an S2000-KDL controller.

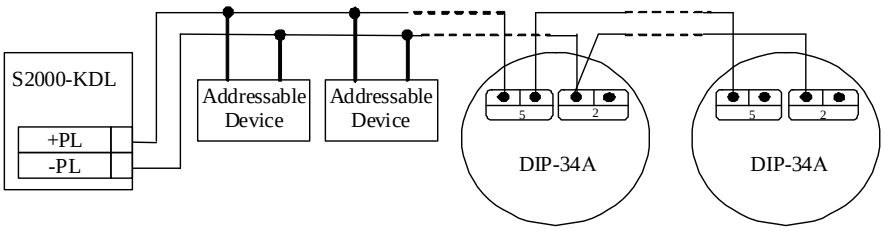


Figure 3. Wiring Diagram

PROGRAMMING

In order the DIP-34A to operate properly within two-wire addressable loop of the S2000-KDL controller, it must be assigned to a unique number from 1 to 127 within the loop – the address which is stored in the DIP-34A non-volatile memory. This address provides identifying the detector by the S2000-KDL controller. Moreover, a monitoring strategy must be defined which will be used by the S2000-KDL controller while processing signals received from the DIP-34A.

Programming the DIP-34A Address within the S2000-KDL Addressable Loop

A DIP-34A is supplied with the default address of 127. This address value can be changed using either S2000(M) console tools or PC tools such as UProg Configuration Tool.

In order to program the unique DIP-34A loop address connect it to a S2000-KDL controller which is in turns connected to a network controller (a S2000(M) console or PC under UProg software). Then send one of the following commands to the S2000-KDL controller (for getting more information see the relevant User's Manual):

Change the Device Address	Use the *Change Device Address* command specifying the old detector address and the new detector address as the parameters (see more information in the referred Manuals). The network controller will display the messages about disconnecting the device with the old address and then detecting the device with the newly programmed address.
Program the Device Address	If the device address is unknown or two devices have the same address then use the *Program Device Address* command specifying a required address as the parameter. Then press the detector light emitter or send the laser test tool beam into it. The message about detecting the device with the newly assigned address shall be displayed by a network controller (S2000(M)) or UProg Configuration Tool. Then write the address on the label and stick it on the detector base.

Programming the S2000-KDL to Operate the DIP-34A

To handle signals from a DIP-34A correctly, a S2000-KDL controller must be programmed with the *Zone Type* parameter for this DIP-34A being set to value 1 (*Smoke*) or 8 (*Smoke Analogue Addressable with Variable Thresholds*). To program the S2000-KDL, connect it to a PC under UProg Configuration Tool and follow the relevant programming instructions in accordance with the S2000-KDL User's Manual.

DIP-34A ROUTINE TESTING

Before testing DIP-34A, please disconnect executive outputs of all system devices and modules that can release an extinguishing agent or activate light and sound alarms. Notify the fire department and persons where the audible signals can be heard.

After testing verify that all detectors are ready to operate properly. Then restore operability of all the system components disconnected before testing and inform the relevant departments about completing the test.

To test the DIP-34A detector, turn on the network controller and the S2000-KDL controller. The light emitter of the detector will light steady. When the communications between the detector and S2000-KDL will be established the light emitter will flash once per 4 seconds indicating Norm detector status.

Take a spray can of smoke detector test aerosol and spray some of the test material into the detector. The network controller shall display *Fire Alarm* message for the device with the address of the DIP-34A. The detector light emitter shall flash twice every 4 seconds.

Alternately, you can perform a simplified test just by pressing the detector light emitter or lighting it with the laser beam of a laser test tool. This will cause steady lighting of the detector light emitter within 3 s followed by its double flashing every 4 seconds. The network controller will display a:

- *Fire Alarm* message for the device with the address of the DIP-34A if the S2000-KDL of versions 1.35 and below is in use
- *Test* message or *Fire Alarm* message (depending on the current test mode) when the S2000-KDL of versions 1.36 and higher is in use

To have information about light indication of the detector when an S2000-KDL of version 1.30+ is in use and about testing please see the Manuals for the S2000-KDL controller and the network controller.

When the test aerosol disappears (or light emitter is released, or laser test tool is disposed) the detector must be in the Norm status.

If the S2000M console or Orion Pro software has displayed no messages mentioned above or the detector's LED behaves in a different way than mentioned above then the detector is unhealthy and must be replaced.

MAINTENANCE

At least annually inspect the screen assembly under the detector cover. If there is any dust on the screen assembly, clean this one with a vacuum cleaner (by pumping air).

When a *Service Required* message is received from the detector remove the dust from the sensing chamber.

In accordance with your rules of maintenance, maintain the detector as part of your fire alarm system.

WARNINGS

To avoid contamination of the detector, please DO NOT remove the protective cover until the surrounding area is cleared from dirt and dust.

DO NOT remove the detector's PCB because this automatically cancels the warranty.

DO NOT mount the detector within the premises where air velocity values exceed 15 m/s.

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