



AN-370

Configuring EN 50131 Grade 3 Sensors in Protege GX

Application Note



The specifications and descriptions of products and services contained in this document were correct at the time of printing. Integrated Control Technology Limited reserves the right to change specifications or withdraw products without notice. No part of this document may be reproduced, photocopied, or transmitted in any form or by any means (electronic or mechanical), for any purpose, without the express written permission of Integrated Control Technology Limited. Designed and manufactured by Integrated Control Technology Limited, Protege® and the Protege® Logo are registered trademarks of Integrated Control Technology Limited. All other brand or product names are trademarks or registered trademarks of their respective holders.

Copyright © Integrated Control Technology Limited 2003-2026. All rights reserved.

Last Published: 29-Jul-26 9:03 AM

Contents

Introduction	4
Prerequisites	4
Configuration	5
Monitoring	6
Module LEDs	6
Monitoring in Protege GX	6
Alarms and Offsite Reporting	6

Introduction

End-of-line (EOL) resistors enable the system to detect tampering and faults in PIRs and other sensors. Standard Protege systems use two EOL resistors to detect closed, open, tamper and short states.

EN 50131 Grade 3 installations require two additional input states: **fault** and **anti-mask**. These are provided by EN 50131-2-2 and EN 50131-2-4 compliant sensors. You can implement this Grade 3 requirement in Protege GX using a 4-resistor EOL configuration.

This application note outlines the wiring and configuration requirements for Grade 3 sensors, as well as how these additional states are monitored and reported.

You can combine this feature with the instructions in [Application Note 312: Minimizing Offsite Reporting of False Alarms](#) for compliance with BS 8243 and UK PD 6662.

Prerequisites

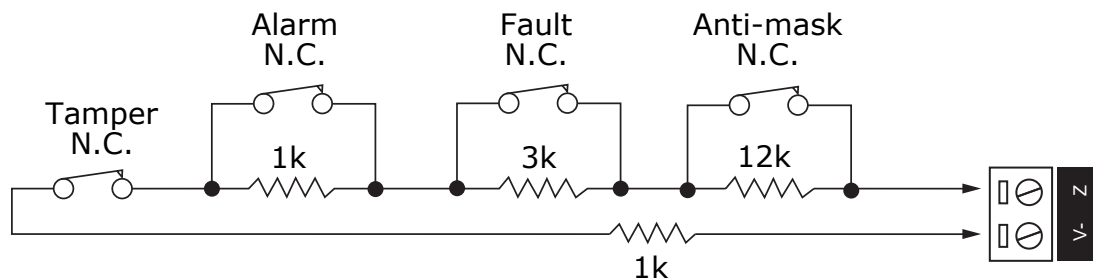
Component	Prerequisite
Protege GX software	4.3.411 or higher
Protege GX controller	2.08.1591 or higher
PRT-HZX16-DIN	1.12.45 or higher
PRT-ZX16-DIN	1.12.45 or higher
PRT-IO84-DIN	1.02.16 or higher

All hardware listed above is certified to EN 50131 Security Grade 4. See our [Product Certifications](#) page for more details.

Currently the new input states and events are not supported in the web app or web client. This feature is not available in Protege WX.

Configuration

When you wire sensors for Grade 3 installations, use the following 4-resistor configuration:



In Protege GX, you must set each input's EOL setting to *BS Grade 3*, as follows:

1. In Protege GX, add the required expander modules and inputs.
2. Navigate to **Programming | Inputs**.
3. Select the inputs you wish to configure.

Tip: You can select multiple inputs at once by holding **Shift**, then selecting the required inputs.
4. In the **Options** tab, set **Input end of line (EOL)** to *BS Grade 3*.
5. The **Contact type** should be *Normally closed*.
6. Click **Save**.
7. You must module update each expander module to implement the change. Navigate to the **Expanders** menu, right click on each expander and select **Update module**.

If the controller is registered as a reader expander, you must apply this setting to the reader expander's inputs, not the controller's inputs.

Monitoring

This section provides a reference for monitoring the 6 different input states that are available with a 4-resistor configuration.

Module LEDs

Status	LED Pattern
Closed	Solid green
Open	Solid red
Tamper	Flashing red
Short	Flashing green
Fault	Flashing red
Anti-mask	Solid red

Monitoring in Protege GX

Each input status has a unique event associated with it. You can monitor these events on status pages and floor plans, report on them and use them to trigger operator alarms and actions. The table below shows the events for each input status:

Status	Event
Closed	Input Closed
Open	Input Opened
Tamper	Input Tamper
Short	Input Shorted
Fault	Input Faulted
Anti-mask	Input Masked

You can monitor inputs by adding them to floor plans and status pages. Optionally, you can alter the following display features:

- Colors for each status on status pages (**Global | Color maps**)
- Icons for each status on floor plans (**Global | Floor plan symbols**)

Alarms and Offsite Reporting

Each Protege GX input can trigger three different types of alarms:

- Intruder alarms in the main portion of the area. The area must be armed.
- 24hr or tamper alarms in the 24hr portion of the area. The area must have its 24hr portion enabled.
- Confirmed alarms—these are intruder alarms that have been confirmed by multiple input activations.

Requires the custom setup outlined in [*Application Note 312: Minimizing Offsite Reporting of False Alarms*](#)

Each alarm type has specific reporting codes for the offsite monitoring station (Contact ID or SIA).

The table below shows the type of alarm triggered by each input status, and its associated reporting codes.

Status	Type of Alarm	Contact ID Code	SIA Code
Closed	None	-	-
Open	Intruder	130	BA / BH
Tamper	24hr / Tamper	137	BT / BJ
Short	24hr / Tamper	137	BT / BJ
Fault	24hr / Tamper	137	BT / BJ
Anti-mask	Intruder	130	BA / BH
Multiple open inputs	Confirmed (Intruder)	139	BV / BH

Designers & manufacturers of integrated electronic access control, security and automation products.

Designed & manufactured by Integrated Control Technology Ltd.

Copyright © Integrated Control Technology Limited 2003-2026. All rights reserved.

Disclaimer: Whilst every effort has been made to ensure accuracy in the representation of this product, neither Integrated Control Technology Ltd nor its employees shall be liable under any circumstances to any party in respect of decisions or actions they may make as a result of using this information. In accordance with the ICT policy of enhanced development, design and specifications are subject to change without notice.