Introduction

- The Digital Display clearly and simply displays, controls and regulates the temperature within a refrigerated compartment from the outside.

- Main operating parameters are handled by the micro processor in order to maximize performances.

- Product integration is simple, since the device is fully compatible with control unit IWM P/N SEG00002DA (Secop version 101N0212, for BD35/50F), and IWM P/N SEG00030GA (Secop version 101N0510).
The system logic provides as standard smart features like:

- Soft Start for effective, safe start-up of the compressor

- Fast Cooling to lower the temperature as quickly as possible

- Over Cooling to accumulate cold when there is a surplus of energy:
  1. When battery is in charging mode (battery charger, engine on, etc.)
  2. If provided with AC/DC kit when shore power is available
Turning the product on and off without opening the refrigerated compartment

Instant display of the actual temperature inside the refrigerated compartment

Display and/or change of the set temperature with a simple press of the up and down keys

Possibility of selecting temperature indication in Celsius or Fahrenheit
Digital Display: functions

- Instant display of main operating faults
- Possibility of selecting three different battery protection levels
- Three different temperature’s offset levels available
The product is equipped with a **Soft Start function**. The number of compressor revolutions is kept to the minimum allowed for approximately 30 sec. at every start of the compressor.

It balances the internal pressures on the gas circuit, preventing possible compressor blocks.

At the end of this process the compressor’s operation returns to the standard settings.
✓ ECO function is normally de-activated and needs to be put on by the user in order to be started.

✓ With ECO function active, the refrigerator will operate at minimum power, in energy-saving mode.

✓ Achievement of the set temperature cannot be guaranteed in this mode since priority is shifted to reduce power consumption and the capacity of the battery is preserved to the maximum achievable timing.

✓ When the ECO function is active, the Soft Start function is available and the compressor operates at the fixed RPM value of 2500.
The ITC logic (intelligent temperature control) is the basic principle of the digital display solution combining high product performance with a significant energy saving.

While the ITC is active, the following sub-functions are available:

1. Soft start
2. Fast Cooling
3. Over Cooling (to be activated by the user)
Integrated function: Over Cooling

✓ With the over cooling function activated, the system accumulates energy in food and drinks, sub-cooling the cabinet with reference to the set temperature.

✓ The accurate cabinet’s temperature reading allows the system to prevent freezing of food, stopping the sub-cooling under the reach of 1°C.

✓ Over Cooling is allowed by the system when a surplus of energy is detected. This can be achieved via the battery being charged (engine on, battery charger on, etc.) or with shore power connected if provided with the AC/DC module control.
<table>
<thead>
<tr>
<th></th>
<th>ITC</th>
<th>ECO</th>
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</thead>
<tbody>
<tr>
<td><strong>SOFT START</strong></td>
<td>SOFT START: OPERATES FIXED RPM 2500</td>
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<tr>
<td><strong>FAST COOLING</strong></td>
<td></td>
<td>FAST COOLING</td>
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<tr>
<td><strong>OVER COOLING</strong></td>
<td>(TO BE ACTIVATED BY THE USER)</td>
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</table>
The device is compatible only with control units IWM P/N SEG00002DA Secop version 101N0212 and IWM P/N SEG00030GA Secop version 101N0510.

Make sure that your device is equipped with one of the a.m. control units before installation.

Components making up the kit:
- Instructions manual
- Digital display
- Digital display support frame
- Container for wall installation
- Container for flush mounting installation
- Temperature sensor with cable
- Grille and temperature sensor support
- Display connection cable
- Filter and prolonging cable for AC/DC
- 2 M2.5 screws
- 2 self-tapping screws
- Rubber cable grommet
Visualisation of the product
Visualisation of the product
Visualisation of the product

1. On button
2. ECO / ITC function change button
3. Display
4. ITC active function LED
5. ECO active function LED
6. Button for temperature value decrease or menu scrolling
7. Button for temperature value increase or menu scrolling
Wall Installation
Wall installation example
Flush Installation
Flush installation example
# Part numbers

## Part Numbers, Description, Prices and Availability

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
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</thead>
<tbody>
<tr>
<td>SED00036DA</td>
<td>ISOTHERM ITC DIGITAL DISPLAY KIT FOR ELECTRONIC BOARDS 101N0212 / 101N510</td>
<td>PLS Contact IWM</td>
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</tbody>
</table>

![DANFOSS/SECOP ELECTRONIC CONTROL MODULE 101N0212](image1)

![DANFOSS/SECOP ELECTRONIC CONTROL MODULE 101N0510](image2)
# Overview

## Overview of Isotherm Refrigeration Controls

<table>
<thead>
<tr>
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<th>Interface</th>
<th>Energy Savings</th>
<th>Fast Cooling</th>
<th>Note</th>
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</thead>
<tbody>
<tr>
<td>Thermostat</td>
<td>Mechanical</td>
<td>0</td>
<td>++</td>
<td>- Also for AC/DC applications</td>
</tr>
<tr>
<td>ITC Digital Display</td>
<td>Digital</td>
<td>++</td>
<td>++</td>
<td>- Dynamic control of battery charging status</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- ITC ready fridges</td>
</tr>
<tr>
<td>ITC+Plate*</td>
<td>Digital</td>
<td>+++</td>
<td>+</td>
<td>- Overcooling function on fixed $\Delta T$</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- ECO mode to privilege battery savings</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Also for AC/DC applications</td>
</tr>
<tr>
<td>Smart Energy Control</td>
<td>Mechanical</td>
<td>+++</td>
<td>+++</td>
<td>- Full modulation of compressor speed</td>
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<td></td>
<td></td>
<td></td>
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<td>- Multiple customized settings for optimized savings/performance</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>- SEC ready fridges</td>
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<td>- DC applications only</td>
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* Soon replaces ASU plate / cooling units with the following benefits:
ITC + Plate: Benefits Vs ASU

- Higher energy savings (+20%)
- Digital interface: nicer and user friendly
- It can handle freezers till -18°C (ASU -6°C)
- Freeze protection setting for fridge cabinet
- Various battery protections
- Accurate display of temperature control via parameterizable offsets
SEC or ITC?

ITC/ECO logic privileges:
- battery savings/protection versus set temperature.
- Basic overcooling function (2 speeds / fixed $\Delta T$)

SEC logic privileges:
- temperature control performance modulating continuously compressor speed to save energy
Up to 25% energy savings due to a more efficient use of the compressor

Up to 40% savings with combined effects of stored cooling energy in food and drinks

Available as retrofit kit or originally fitted on fridges in the factory

Quick cooling in boost mode

Soft start to avoid starting peaks

Easy to set battery protection directly from the display

Eco mode
Thank you for your attention