DIMENSIONAL DATA

OVERALL DIMENSIONS
The dimensions are expressed in millimetres and inches (third-scale drawing).
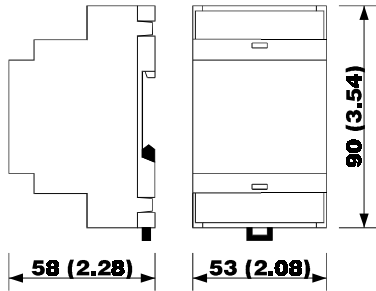

Fig. 3
ds63me.wmf

INSTALLATION

WITH THE FIXING SYSTEM SUGGESTED BY THE BUILDER
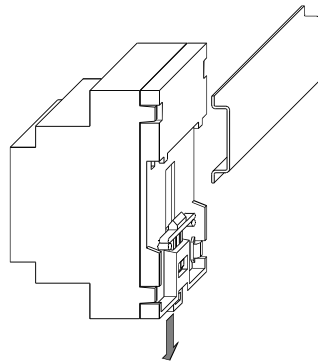On DIN EN 50022 standard rail according with DIN 43880 norms (third-scale drawing).

Fig. 4
ms63m.wmf

ELECTRICAL CONNECTION

CONNECTIONS TO DERIVE
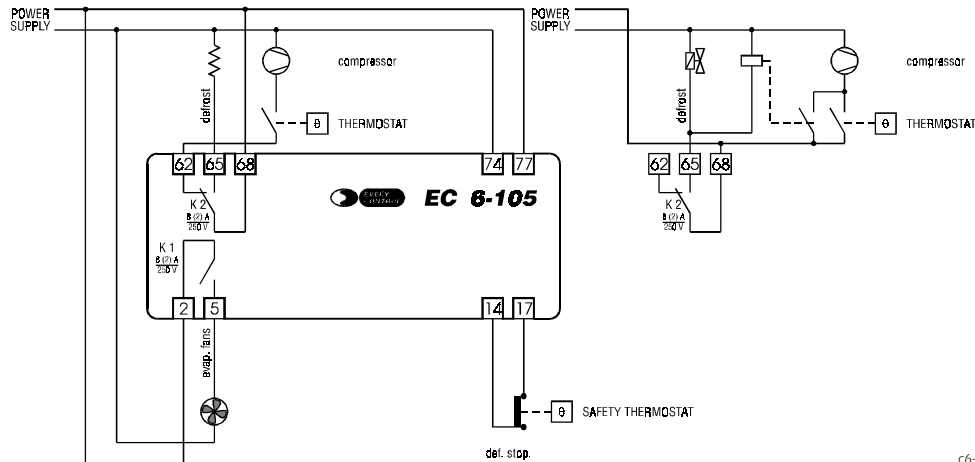Instance of typical application.

Fig. 5
c6-105e.wmf

BUILDER DATA

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EC 6-105

Defrost timer

IMPORTANT:
The use of this new instrument is easy; but for safety reasons, it is important read these instructions carefully before the installation or before the use and follow all additional informations.
It is very important keep these instructions with the instrument for future consultations.
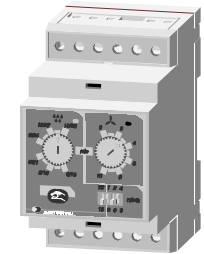

Fig. 1
f6-105.wmf

ENGLISH

GENERAL INFORMATIONS

WHAT IS THE USE
EC 6-105 is a timer studied for defrost management (for time-safety temperature) able to meet a wide range of accuracy applications bound to time intervals in refrigeration field.

There are a key for the manual activation of a defrost cycle, a digital input for the remote stopping of a defrost cycle and two 8 (2) A @ 250 Vac relay outputs for evaporator fans and defrost system management; through the controls present on the instrument frontal panel it is possible to set the instrument to manage the defrost according with one's requirements and to establish the evaporator fans output activity.

EC 6-105 is available in the 53 x 90 mm (2.08 x 3.54 in., 3 DIN modules) case and it is studied for DIN standard rail installation.

GETTING STARTED

INSTALLATION
EC 6-105 was studied for DIN EN 50022 standard rail installation according with DIN 43880 norms (the overall dimensions are related in Fig. 3, the fixing system suggested by the builder is related in Fig. 4).

ADDITIONAL INFORMATIONS
- *verify if the using conditions (ambient temperature, humidity, etc.) are within the limits indicated by the builder (see the chapter TECHNICAL DATA)*
- *install the instrument in a location with a suitable ventilation, to avoid the internal overheating of the instrument*
- *do not install the instrument near surfaces that can to obstruct the air-grating (carpets, covers, etc.), heating sources (radiators, hot air ducts, etc.), locations subject to direct sunlight, rain, humidity, excessive dust, mechanical vibrations or bumps, devices with strong magnetos (microwave ovens, big speakers, etc.)*
- *according with the safety norms, the protection against possible contacts with electrical parts and parts protected with functional insulation only must be ensured through a correct installation procedure of the instrument; all parts that ensure the protection must be fixed so that they can not be removed if not with a tool.*

ELECTRICAL CONNECTION
EC 6-105 is provided with four screw terminal blocks for cables up to 2.5 mm² (0.38in.², for the connection to the power supply, digital input and outputs), located on the instrument frontal panel (the connections to derive are related in Fig. 5 and they are checkable on the polyester label stuck on the instrument case).

ADDITIONAL INFORMATIONS
- *if the instrument is brought from a cold to a warm location, the humidity may condense inside the instrument; wait about an hour before supply the instrument*
- *verify if the operating power supply voltage, electrical frequency and power of the instrument correspond to the local power supply (see the chapter TECHNICAL DATA)*
- *do not supply more instruments with the same transformer*
- *if the instrument is installed on a vehicle, its power supply must be derived directly from the battery of the vehicle*
- *give the instrument a protection able to limit the current absorbed in case of failure*
- *the instrument remains connected to the local power supply as long as the terminals 74 and 77 are derived to the local power supply, even if the instrument is apparently turned off*
- *give the outputs a protection able to protect them against short circuit and overload*
- *do not try to repair the instrument; for the repairs apply to highly qualified staff*
- *if you have any questions or problems concerning the instrument please consult Every Control (see the chapter BUILDER DATA).*

USE

PRELIMINARY INFORMATIONS
After derived the connections related in Fig. 5, the instrument reproposes the last settings stored.
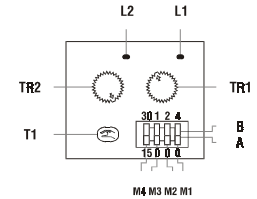

Fig. 2
iu6105.wmf

EC 6-105 is provided with four microswitch and of two trimmer that permit to set the instrument according with one's requirements (see the chapter CONFIGURABILITY).

The output K 1 is associated to the evaporator fans and it is forced to the status ON, except during a defrost and an evaporator fans stoppage.

In the course of the 24 hours, at regular time intervals (defrost interval), the instrument automatically activates the number of defrost cycles established with the microswitch **M1**, **M2** and **M3**.

A defrost cycle provides two phases (defrost and evaporator fans stoppage) connected in cascade since the end of one automatically determines the passage to the following one.

The output K 2 is associated to the defrost and it remains continuously activated during the defrost or as long as the defrost stopping digital input gets activated when the defrost ends and the instrument automatically moves to the evaporator fans stoppage; during the defrost the output K 1 gets forced to the status OFF.

Passed the evaporator fans stoppage length from the moment of the defrost end the defrost cycle ends; during an evaporator fans stoppage the activation of the output K 1 gets disabled.

Keeping pushed for two seconds at least the key T1 the instrument activates a defrost cycle.

NUMBER OF AUTOMATIC DEFROST CYCLES IN THE COURSE OF THE 24 HOURS SETTING
To modify the number of automatic defrost cycles in the course of the 24 hours to position the microswitch **M1**, **M2** and **M3** on the desired value (for instance to set three automatic defrost cycles in the course of the 24 hours to position the microswitch **M1** in position **A** and the microswitch **M2** and **M3** in position **B**).

ADDITIONAL INFORMATIONS
- *the modification of the number of automatic defrost cycles in the course of the 24 hours has not immediate effect; to obtain this effect, after the modification keep pushed for two seconds at least the key T1*
- *the course of the defrost interval gets recorded each 10 minutes and it is stored in a non volatile memory even if a lack of power supply happens; when the power supply recovers the instrument reproposes the last setting stored*
- *if all microswitch are positioned in position A the instrument never automatically activates a defrost cycle*
- *if the number of automatic defrost cycle in the course of the 24 hours is not a submultiple of 24 the fractions in minutes of the defrost interval get cancelled but accumulated and stored in a non volatile memory even if a lack of power supply happens provoking an automatic adjustment of the last defrost cycle such as to guarantee that the addition of defrost intervals even is equivalent to 24 hours.*

DEFROST MAXIMUM LENGTH SETTING

To modify the defrost maximum length value to position the microswitch **M4** on the desired scale and to rotate the trimmer **TR2** as long as the arrow indicates the desired value (for instance to set a defrost maximum length of twenty-seven minutes to position the microswitch **M4** in position **B** and to rotate the trimmer **TR2** as long as the arrow indicates the notch 12/27).

ADDITIONAL INFORMATIONS

- *the modification of the defrost maximum length value has not immediate effect; to obtain this effect it must not be executed during the course of the value*
- *the course of the defrost maximum length value gets recorded each 10 minutes and it is stored in a non volatile memory even if a lack of power supply happens; when the power supply recovers the instrument reproposes the last setting stored*
- *if the defrost stopping digital input is activated the instrument never activates a defrost cycle.*

EVAPORATOR FANS STOPPAGE LENGTH SETTING

To modify the evaporator fans stoppage length to rotate the trimmer **TR1** as long as the arrow indicates the desired value (for instance to set an evaporator fans stoppage length of eight minutes to rotate the trimmer **TR1** as long as the arrow indicates the notch 8).

ADDITIONAL INFORMATIONS

- *the modification of the evaporator fans stoppage length value has not immediate effect; to obtain this effect it must not be executed during the course of the value*
- *the course of the evaporator fans stoppage length value gets recorded each 10 minutes and it is stored in a non volatile memory even if a lack of power supply happens; when the power supply recovers the instrument reproposes the last setting stored.*

CONFIGURABILITY

CONFIGURABILITY

MIN.	MAX.	U.M.	ST.	DEFROST REGULATOR
0	7	---	3	**number of automatic defrost cycles in the course of the 24 hours**

It establishes the number of automatic defrost cycles that the instrument activates in the course of the 24 hours.

MIN.	MAX.	U.M.	ST.	
0	30	min.	30	**defrost maximum length**

It establishes the defrost maximum length.

MIN.	MAX.	U.M.	ST.	EVAPORATOR FANS REGULATOR ASSOCIATED TO THE OUTPUT K 1
0	10	min.	10	**evaporator fans stoppage length**

It establishes the time that disable the output activation from the moment of the defrost end.

SIGNALS

SIGNALS

If the LED **L1** is turned ON it means that the output K 1 is activated.

If the LED **L2** is turned ON it means that the output K 2 is activated.

If the LED **L2** flashes it means that an evaporator fans stoppage is running.

TECHNICAL DATA

TECHNICAL DATA

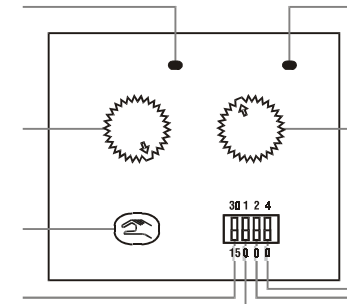|	
Case:	plastic grey (PP0), self-extinguishing.
Size:	53 x 90 x 58 mm (2.08 x 3.54 x 2.28 in., 3 DIN modules).
Installation:	on DIN EN 50022 standard rail installation according with DIN 43880 norms.
Type of protection:	IP 40.
Connections:	screw terminal blocks with pitch 7.5 mm (0.29 in., power supply, digital input and outputs) for cables up to 2.5 mm² (0.38 in.²).
Ambient temperature:	from 0 to +60 °C (+32 to +140 °F, 10 ... 90 % of not condensing relative humidity).
Power supply:	230 Vac or 115 Vac or 24 Vac, 50/60 Hz, 1.5 VA.
Insulation class:	II.
Digital inputs:	1 for the remote stopping of a defrost (5 V, 1 mA) with NC contact.
Display:	output status indicators.
Outputs:	two 8 (2) A @ 250 Vac relays for evaporator fans (NO contact) and defrost system (change-over contact) management.
Defrost management:	interval, safety temperature and maximum length.

HOW TO ORDER

CODING SYSTEM

Instrument name:	EC 6-105.
Fixed:	D.
Desired power supply:	220 (230 Vac)
	115 (115 Vac)
	A24 (24 Vac).
Options:	custom configuration.

output K 2 status indication LED

defrost maximum length setting trimmer (according with the times base established with the microswitch M4)

defrost cycle activation key

microswitch M4 for the defrost maximum lenght times base setting

output K 1 status indication LED

evaporator fans stoppage length setting trimmer

number of automatic defrost cycles in the course of the 24 hours setting microswitches