ID-Digifrost Line

ID-DIGIFROST LINE BROCHURE

eliwell

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ID-Digifrost Line

General Description

Eliwell is a pioneer in the development and application of electronic controllers in Europe, and was responsible for defining the industry-standard dimension of 32mm x 74mm. The Digifrost Line is Eliwell's newest offering for the control of refrigeration systems. It contains the newest safety and reliability features, in particular the HACCP option, which allows users to record temperature alarm events and their duration.

The Digifrost family of controllers ranges from a unit with a single input and single relay output, to a unit with three inputs and four relay outputs. The LX models are Televis enabled. Maximum versatility is provided through an extensive list of parameter settings that allow users to customize the controller to their application.

The distinguishing features of Invensys Controllers are:

- Eliwell's expertise as a leading brand in the production of electronic devices for the refrigeration industry
- Quick and easy installation
- 230 Vac power supply on most models
- Standard Copy Card for fast parameter programming in all models
- PTC or NTC selectable temperature probes are standard
- IP65 protection (European standard for dust and moisture protection)
- Specific models to directly control compressors up to 2 hp
- Specific models for HACCP applications (temperature event data recording)
- Connection to the Televis**System**

icon specifications / selection guide

NTC/PTC probe
Selectable input for NTC/PTC probe.

Compressor 2 hp
Direct management for compressors up to 2 hp (power).

Compressor 1 hp
Direct management for compressors up to 1 hp (power).

Real Time Clock
"Fixed time event" management through internal clock.

Alarm output
Alarm output, available on relay or at 12 V for external repetition of the alarm.

Digital input
Models with voltage-free Digital Input.

HACCP
Temperature alarm data recording.

TELEVIS
Models provided with a TTL output for Copy Card and Televis**System**.

TTL output
Allows fast program transfer.

Power supply
Power supply direct switching 12 to 36V

Link
Network to syncronize instruments' functions.

Modbus
Serial Communication Protocol.

X default
O optional
S selectable
- not available

SELECTION GUIDE	ID 961	ID 961 A	ID 961 LX	ID 970	ID 970 LX	ID 971	ID 971 LX	ID 974	ID 974 LX	ID 975 LX	ID 983 LX	ID 985 LX
Analog Inputs	1	1	1	1	1	2	2	2	2	2	3	3
1 NTC temperature probe	S	S	X	S	X	-	-	-	-	-	-	-
1 PTC temperature probe	X	X	S	X	S	-	-	-	-	-	-	-
2 NTC temperature probes	-	-	-	-	-	S	X	S	X	X	-	-
2 PTC temperature probes	-	-	-	-	-	X	S	X	S	S	-	-
3 NTC temperature probes	-	-	-	-	-	-	-	-	-	-	X	X
3 PTC temperature probes	-	-	-	-	-	-	-	-	-	-	S	S
Relays outputs	1	2	1	2	2	2	2	3	3	4	2	4
Compressor	X	X	X	X	X	X	X	X	X	X	X	X
Defrost	-	-	-	X	X	X	X	X	X	X	X	X
Evaporator Fans	-	-	-	-	O	-	O	X	X	X	-	X
Alarm	-	X	-	-	O	-	O	-	O	X	-	X
Auxiliary output	-	-	-	-	O	-	O	-	O	O	O	O
Digital inputs			1		1		1		1		2	2
1 Programmable Input	-	-	X	-	X	-	X	-	X	-	X	X
2 Programmable Inputs	-	-	-	-	-	-	-	-	-	-	X	X
Functions												
Removable Connectors (1)	O	O	O	O	O	O	O	O	O	O	O	O
Relay 1 hp	O	O	O	O	O	O	O	O	O	-	-	-
Relay 2 hp	O	O	O	O	O	O	O	-	-	-	-	-
Buzzer	O	O	O	O	O	O	O	X	O	O	O	O
Televis	-	-	X	-	X	-	X	-	X	X	X	X
Copy Card	X	X	X	X	X	X	X	X	X	X	X	X
HACCP	-	-	O	-	-	-	-	-	O	-	-	O
LINK	-	-	-	-	-	-	-	-	-	-	X	X
RTC	-	-	-	-	-	-	-	-	-	-	X	X
Modbus	-	-	-	-	-	-	-	-	-	-	O	O
Power supply												
230 Vac	O	O	O	O	O	O	O	O	O	-	-	-
115 Vac	O	O	O	O	O	O	O	O	O	-	-	-
12 Vac/Vdc	X	X	X	X	X	X	X	X	X	X	X	X
12/36 Vac/Vdc	O	O	O	O	O	O	O	-	-	-	-	-

(1) only male

ID 961(A), 961 LX

The ID 961 series is designed for refrigeration units operating in the normal temperature range. It has an input for a PTC temperature probe (NTC can be selected through a software setting) and an 8A relay output for compressor control. The defrost cycles are controlled by stopping the compressor at defined intervals for a set time. The temperature value from the probe is displayed on an LED screen, using two digits and a minus sign. The controller is equipped, standard, with a TTL connection for use with the "Copy Card," an accessory that allows the quick programming of parameters. Additional options include a 16A (1hp) or 20A (2hp) compressor relay and an Alarm Buzzer. The ID 961 LX model has an input for an NTC temperature probe as standard, and includes the Televis connection option, as well as a programmable digital input. Its LED displays 3 digits with a plus or minus sign, and the decimal point is selectable.

ID 961(A)

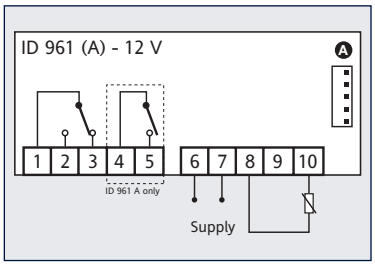
NTC PTC · COPY CARD · 12 volt · 1 hp · 2 hp

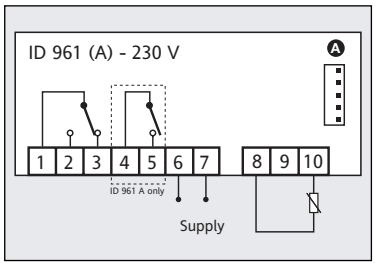
TERMINALS

1 - 2	N.O. compressor relay output
1 - 3	N.C. compressor relay output
4 - 5	Alarm relay output
6 - 7	Power supply
8 - 10	Probe 1 input (thermostat)
A	TTL input for Copy Card

NOTE: Default user settings

wiring diagrams



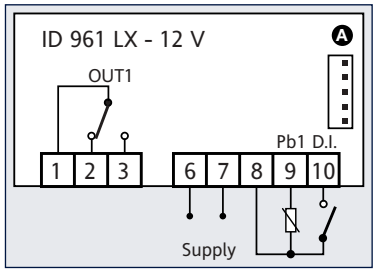


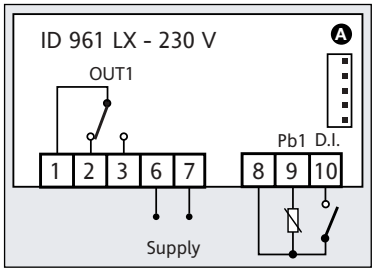
ID 961 LX

NTC PTC · COPY CARD · 12 volt · TELEVIS · haccp · 1 hp · 2 hp

WIRING

1 - 2	N.C. compressor relay output
1 - 3	N.O. compressor relay output
6 - 7	Power supply
8 - 9	Probe input (thermostat)
8-10	Digital input
A	TTL input for Copy Card and for connection to Televis**System**





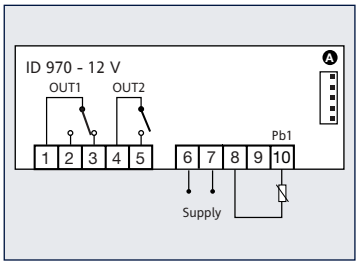
ID 970, 970 LX

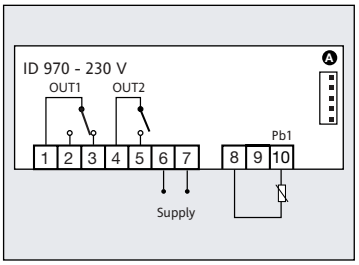
The ID 970 series is designed for refrigeration units operating in the normal temperature range. It has an input for a PTC temperature probe (NTC can be selected through a software setting), as well as two output relays: one 8A for compressor control and one 8A for defrost control. The defrost cycles are controlled by stopping the compressor at defined intervals for a set time. The temperature value from the probe is displayed on an LED screen, using three digits and a minus sign. A decimal point is also available and can be selected through a parameter setting. The controller is equipped, standard, with a TTL connection for use with the "Copy Card," an accessory that allows the quick programming of parameters. Additional options include a 16A (1hp) or 20A (2hp) compressor relay. The ID 970 LX model has an input for an NTC temperature probe as standard, and includes the Televis connection option, as well as a programmable digital input.

ID 970

TERMINALS	
1	Defrost relay output common
2	N.O. defrost relay output
3	N.C. defrost relay output
4 - 5	Compressor relay output
6 - 7	Power supply
8 - 10	Probe input (thermostat)
A	TTL input for Copy Card

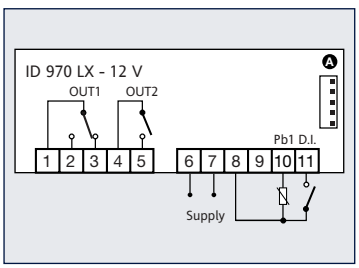
wiring diagrams

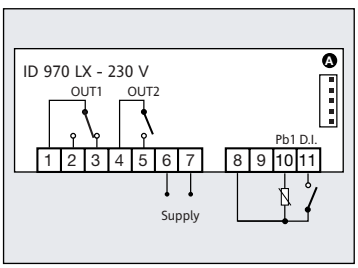




ID 970 LX

TERMINALS	
1	Defrost relay output common
2	N.O. defrost relay output
3	N.C. defrost relay output
4 - 5	Compressor relay output
6 - 7	Power supply
8 - 10	Probe input (thermostat)
8 - 11	Digital input
A	TTL input for Copy Card and for connection to Televis**System**





ID 971, 971 LX

temperature (Ptc-Ntc)

The ID 971 series is designed for refrigeration units operating in either the normal temperature range or a low temperature range. It has two inputs for a PTC temperature probe (NTC can be selected through a software setting): one for space temperature and one for defrost termination temperature. It also has two output relays: one 8A for compressor control and one 8A for defrost control. The defrost cycles are controlled by stopping the compressor at defined intervals for a set time. The temperature value from the probe is displayed on an LED screen, using three digits and a minus sign. A decimal point is also available and can be selected through a parameter setting. The controller is equipped, standard, with a TTL connection for use with the "Copy Card," an accessory that allows the quick programming of parameters. Additional options include a 16A (1hp) or 20A (2hp) compressor relay. The ID 971 LX model has an input for an NTC temperature probe as standard, and includes the Televis connection option, as well as a programmable digital input.

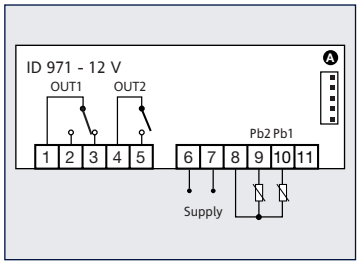
ID 971

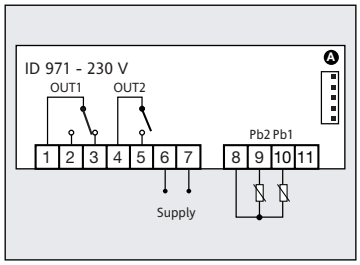
NTC PTC · COPY CARD · 1 hp · 2 hp · 12-36 volt

TERMINALS

1	Defrost relay output common
2	N.O. defrost relay output
3	N.C. defrost relay output
4 - 5	Compressor relay output
6 - 7	Power supply
8 - 9	Probe input 2 (evaporator)
8 - 10	Probe input 1 (thermostat)
A	TTL input for Copy Card

wiring diagrams



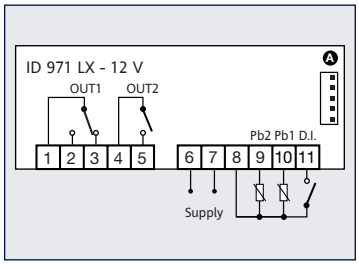


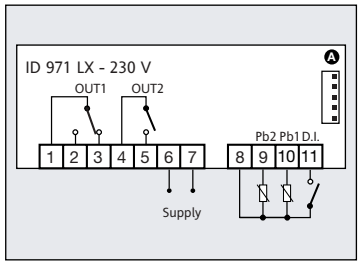
ID 971 LX

NTC PTC · TELEVIS · COPY CARD · 1 hp · 2 hp · 12-36 volt

TERMINALS

1	Defrost relay output common
2	N.O. defrost relay output
3	N.C. defrost relay output
4 - 5	Compressor relay output
6 - 7	Power supply
8 - 9	Probe input 2 (evaporator)
8 - 10	Probe input 1 (thermostat)
8 - 11	Digital input
A	TTL input for Copy Card and for connection to Televis**System**





ID 974, 974 LX

The ID 974 series is designed for refrigeration units operating in either the normal temperature range or a low temperature range. It has two inputs for a PTC temperature probe (NTC can be selected through a software setting): one for space temperature and one for defrost termination temperature. It also has three output relays: one 8A for compressor control, one 8A for defrost control, and one 5A for evaporator fan control. The defrost cycles are controlled by stopping the compressor at defined intervals for a set time. The temperature value from the probe is displayed on an LED screen, using three digits and a minus sign. A decimal point is also available and can be selected through a parameter setting. The controller is equipped, standard, with TTL connections for use with the "Copy Card," an accessory that allows the quick programming of parameters. Additional options include an audible alarm, a 16A (1hp) compressor relay with an 8A fan relay, and an HACCP temperature alarm recording. The ID 974 LX model has an input for an NTC temperature probe as standard, and includes the Televis connection option, as well as a programmable digital input.

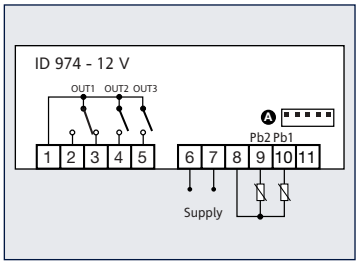
ID 974

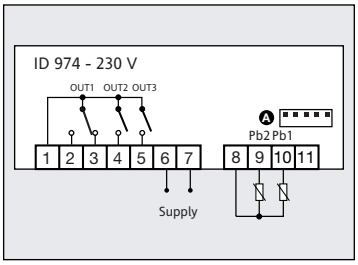
TERMINALS	
1	Relay outputs common
2	N.O. defrost relay output
3	N.C. defrost relay output
4	Compressor relay output
5	Fans relay output
6 - 7	Power supply
8 - 9	Probe input 2 (evaporator)
8 - 10	Probe input 1 (thermostat)
A	TTL input for Copy Card

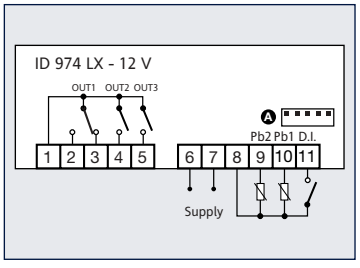
ID 974LX

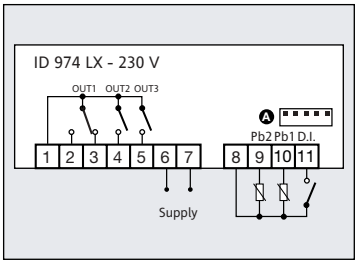
TERMINALS	
1	Relay outputs common
2	N.O. defrost relay output
3	N.C. defrost relay output
4	Compressor relay output
5	Fans relay output
6 - 7	Power supply
8 - 9	Probe input 2 (evaporator)
8 - 10	Probe input 1 (thermostat)
8 - 11	Digital input
A	TTL input for Copy Card and for connection to Televis**System**

wiring diagrams









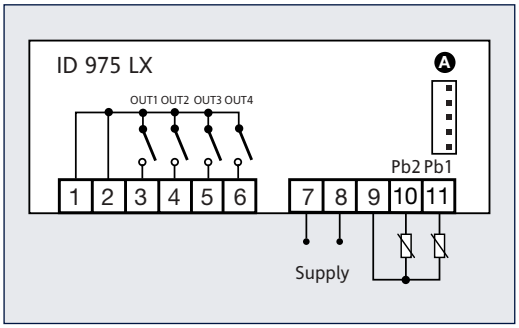
ID 975 LX

The ID 975 LX controller is designed for refrigeration units operating in either the normal temperature range or a low temperature range. It has two inputs for a PTC temperature probe (NTC can be selected through a software setting): one for space temperature and one for defrost termination temperature. It also has four output relays: one 8A for compressor control, one 8A for defrost control, one 5A for evaporator fan control, and one 5A for control of alarm, lights or other auxiliary output. The defrost cycles are controlled by stopping the compressor at defined intervals for a set time. The temperature value from the probe is displayed on an LED screen, using three digits and a minus sign. A decimal point is also available and can be selected through a parameter setting. The controller is equipped, standard, with TTL connections for use with the "Copy Card," an accessory that allows the quick programming of parameters. The ID 975 LX model has an input for an NTC temperature probe as standard, and includes the Televis connection option, as well as a programmable digital input.

ID 975 LX

TERMINALS	
1-2-3	Defrost relay output
1-2-4	Compressor relay output
1-2-5	Fan relay output
1-2-6	Alarm relay output
7-8	Power supply
9-10	Probe input 2 (evaporator)
9-11	Probe input 1 (thermostat)
A:	TTL input for Copy Card and connection to Televis system

wiring diagram



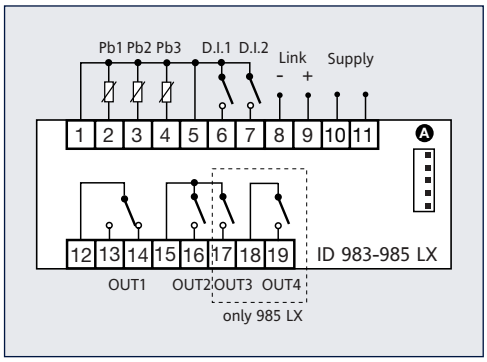
ID 983 LX, 985 LX

The ID 985 LX controller is provided with three analog inputs: two inputs for NTC temperature probes (PTC can be selected through a software setting), one to control space temperature and another to control defrost termination, and a third input to display an additional temperature value. It also has four digital relay outputs: one 8A for compressor control, one 8A for defrost control, one 5A for evaporator fan control, and one 5A for control of alarm, lights or other auxiliary output. Two digital inputs can be configured for remote activation of defrost mode, reduced setpoint, auxiliary charge, or an alarm signal. A Real-time Clock (RTC) is standard. The defrosting cycle can be stopped at a set time interaval, or at a defined end cycle temperature when the appropriate probe is placed on the evaporator. The temperature value from the probe is displayed on an LED screen, using three digits and a minus sign. A decimal point is also available and can be selected through a parameter setting. Both the ID 985 LX and ID 983 LX models are equipped, standard, with TTL connections for use with the "Copy Card," an accessory that allows the quick programming of parameters, as well as for the Televis connection. HACCP temperature alarm recording is an available option on the ID 985 LX. The ID 983 LX includes two relay outputs: one 8A for compressor control and one 8A for defrost control.

ID 983 LX, 985 LX

TERMINALS	
1-2	Probe input 1 (thermostat)
1-3	Probe input 2 (evaporator)
1-4	Probe input 3
5-6	Digital input
5-7	Digital input
8	Link - connection
9	Link + connection
10-11	Power supply
12-13	Defrost relay N.O.
12-14	Defrost relay N.C.
15-16	Compressor relay output
15-17	Fan relay output
18-19	Alarm relay output
A:	TTL input for Copy Card and connection to Televis**System**

wiring diagram



Temperature probes

- 6x30 PTC probe with 59" PVC cable
- 6x40 PTC probe with 59" silicone cable
- 6x40 NTC probe with 59" PVC cable
- 6x40 NTC probe with 59" silicone cable

Description

The Eliwell temperature probes are made from a variety of materials to cover a wide range of temperature intervals, from -76 to 2192 °F.

PTC, NTC, thermocouple, Ni100, and Pt100 sensors are available, protected by a cylindrical capsule made of ABS, steel INOX AISI 304/316, and Inconel®.

The cable sending the signal to the instrument is made of PVC, silicone or Vetrotex and is available in different lengths.

Technical Data

Type of sensor	**Range**
NTC	-58 to 230° F
PTC	-67 to 302° F
Ni100 Thermoresistance	-58 to 302° F
Pt100 Thermoresistance	-112 to 1112° F
Thermocouple J	32 to 1112° F
Thermocouple K	32 to 2192° F

Type of cable	**Range**
PVC Plastic	-22 to 176° F
Silicone	-76 to 392° F
Vetrotex	32 to 662° F

Container material	**Range**
ABS	-22 to 176° F
AISI 304	-112 to 1112° F
Inconel	32 to 2192° F

Switches

Added to models with digital input capability.

Bus Adapter

Order with each controller for connection into the Televis**System**.

Bus Adapter 130 (TTL-RS-485 module with 12V aux. output)
Bus Adapter 150 (TTL-RS-485 module)

Standard Transformers

Transformer 230/12 3 VA

Copy Card

Description

Copy Card is the quick-programming accessory used to rapidly upload and download parameters from the controllers through the serial connection TTL. Operations that may be performed include data uploads and downloads, and reformatting of the copy card for use with controllers having a different parameter format.

Televis

software for monitoring and remote management

Description

The Televis system allows the monitoring and controlling of a refrigeration system, either locally through an on-site PC or remotely via modem.

Through the Televis system's on-screen display, the user can easily and efficiently monitor and control system parameters and alarm indications.

LAYOUT

The Layout mode graphically shows the physical arrangement of the controllers inside a facility and displays basic information for each device.

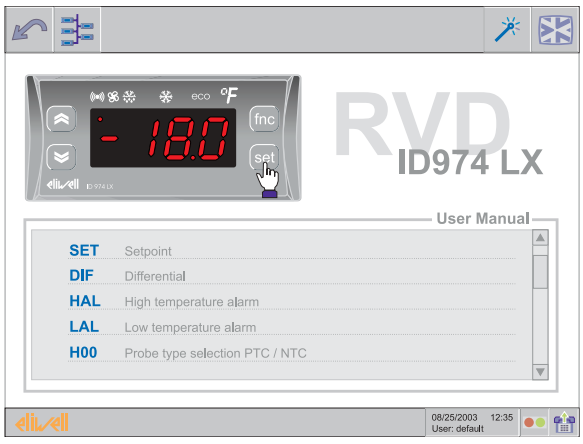
By knowing the location alone, the user can find and access all the controllers at that facility. The program can manage up to 100 different layout sheets.

RVD (Real-time Virtual Display)

The Real-time Virtual Display allows the user to view information from a selected controller on their PC screen.

Most Eliwell controllers are ready for connection to the system using an optically insulated RS485 line, which provides high immunity from disturbances.

The Televis system is capable of automatically recognizing all the controllers connected to the PC. Therefore, when any modifications to the system structure are made, it will reconfigure the display to show the new structure.

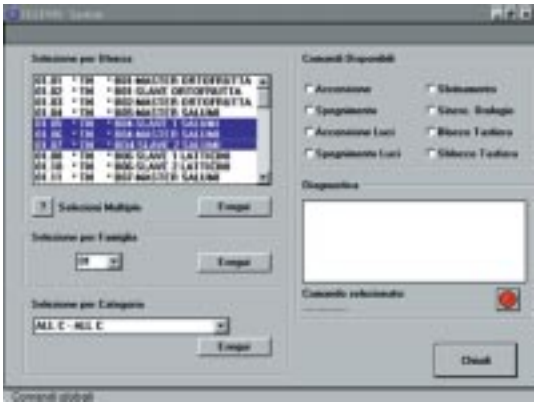


Televis

software for monitoring and remote management

GLOBAL COMMANDS

This function allows commands to be sent to multiple controllers in a single operation. For example, several devices can be turned on or off, or lights controlled by a device can be turned on or off.
A diagnostic section informs the user about the specific results of a command execution for each controller selected.



ALARM MANAGEMENT

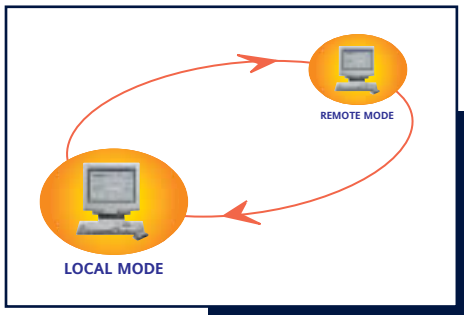
Televis continuously queries the controllers connected to it; collecting data as well as any indicated alarms.

Intuitive panels display the alarm status in real time, presenting a complete view of the system state to the user.

In the event an alarm is received, or a general abnormal situation is sensed, Televis will automatically relay a detailed warning to pre-selected addresses, either via fax or SMS messages, as configured during setup.

RECORDING AND PRINTING

Televis constantly records the system status. Therefore, a user can ask for the temperature of a specific unit or its logged history.



ENABLING REMOTE ACTIONS

One of the most efficient and interesting uses of Televis is the ability to have the complete availability on the system by a remote PC, which is located far from the area where the instruments are installed.
Thanks to a powerful management of the modem and an "intelligent" transmission of messages by telephone, all functions that can be used on a local PC, including the functions for virtual instrument (RVD), will also be available on the Computer placed in a Help Center, enabled to intervene directly as if it was in the installation area. The functions for enabling remote also allows the ability to automatically send fax messages to addresses enabled to intervene without having Computers.

notes

invensys®

Controls Americas
191 E. North Avenue
Carol Stream Illinois 60188 USA
Customer Service Telephone +1 800 951 5526
Customer Service Facsimile +1 630 260 7299
www.icca.invensys.com

For Technical Service
Telephone +1 888 444 1311
Facsimile +1 815 637 5307
ibsus.techsupport@invensys.com

150-1832