eliwell

by Schneider Electric

EN

# V800
# /P1 /P2 / P3 /P4


## Driver for electronic expansion valve

## PRODUCT INFORMATION

# ⚠ DANGER

**HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH**

- Disconnect all power from all devices including connected devices, prior to removing any covers or doors, or installing or removing any accessories, hardware, cables, or wires.
- Always use a properly rated voltage sensing device to confirm the power is off where and when indicated.
- Replace and secure all covers, accessories, hardware, cables and wires and verify the earthing connections on all earthed devices.
- Use this equipment and all connected products only at the specified voltage.

**Failure to follow these instructions will result in death or serious injury.**

# ⚠ WARNING

**UNINTENDED EQUIPMENT OPERATION**

- Use appropriate safety interlocks where personnel and/or equipment hazards exist.
- Install and operate this equipment in an enclosure appropriately rated for its intended environment.
- Power line and output circuits must be wired and fused in compliance with local and national regulatory requirements for the rated current and voltage of the particular equipment.
- Do not use this equipment in safety-critical machine functions.
- Do not disassemble, repair, or modify this equipment.
- Do not connect wires to unused terminals and/or terminals indicated as “No Connection (N.C.)”.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

## FLAMMABLE REFRIGERANT GASES

This equipment is designed to operate in non-hazardous areas and where applications which generate - or could potentially generate - hazardous atmospheres have been isolated. Install this equipment only in areas and with applications known to be constantly free from hazardous atmospheres.

### ⚠ DANGER

**HAZARD OF EXPLOSION**

- Install and use this equipment in non-hazardous locations only.
- Do not install or use this equipment in applications which could generate hazardous atmospheres, such as those using flammable refrigerants.

**Failure to follow these instructions will result in death or serious injury.**

For information regarding the use of control equipment in applications capable of generating hazardous materials, please contact the regulatory office or the local, regional or national certification authority.

## AVAILABLE MODELS, COMPONENTS & ACCESSORIES

| Code | Model | Valve control | RS485 | Notes |
|---|---|---|---|---|
| **EVD2A43BSC000** | V800/P1 | Imax = 300mA at 230 Vac | Yes | AC Output • on-board RS485 |
| **EVD2A43BXC000** | V800/P2 | Imax = 300mA at 230 Vac | No | AC Output |
| **EVD2A53BSC000** | V800/P3 | Imax = 300mA at 230 Vdc | Yes | DC Output • on-board RS485 |
| **EVD2A53BXC000** | V800/P4 | Imax = 300mA at 230 Vdc | No | DC Output |

| Code | Model | Description | Notes |
|---|---|---|---|
| **ID34DR4SCDH00** | ID985/V | Electronic controller for ventilated refrigeration units with V800 driver management via LAN serial connection | See 9MAX0017 manual |
| **WK1400100N000** | IWK/V | Remote terminal for parameter configuration, I/O display, alarms etc. | See 9IS60000 instructions<br>See User Interface |

| Code | Model | Description | Notes |
|---|---|---|---|
| **EVK2A43BXC010** | - | Standard Kit | includes<br>1 x ID985/V<br>1 x V800/P2<br>**SN8P0X3002** 1 x NTC 'FAST' probe<br>**TD420030B** 1 x ratiometric probe |
| **EVK2A43BXC020** | - | Starter Kit | includes<br>1 x ID985/V<br>1 x V800/P2<br>**SN8P0X3002** 1 x NTC 'FAST' probe<br>**TD420030B** 1 x ratiometric probe<br>**CCA0BUI02N000** 1 x USB Copy Card<br>**DMP1000002000** 1 x Device Manager CD<br>1 x Device Manger interface |
| **DMI100x002000** | Device Manager Interface | USB/TTL hardware interface for use in conjunction with the Device Manager software | x=1: End User<br>x= 2: Service<br>x= 3: Manufacturer |

## COMPATIBLE VALVES LIST

Eliwell has electrical compatibility with following PULSE valves

| Brand | Model | Brand | Model |
|---|---|---|---|
| **Eliwell by Schneider Electric** | PXV | **ALCO** | EX2 |
| **Danfoss** | AKV10 | **PARKER** | HP130 |
| **Danfoss** | AKV15 | **PARKER** | DS1120 |
| **Danfoss** | AKV20 | / | |
| **Danfoss** | AKV20 | | |
| **Danfoss** | AKVA ($NH_3$) | | |

**Note : V800 Driver delivers to the valve the same voltage as its own supply voltage**
**Select carefully the suitable valve coil depending on the local power distribution network**
For use with different valves please contact Eliwell Technical Customer Support

## MECHANICAL ASSEMBLY

The device is designed for mounting on DIN guides.

The admissible ambient temperature range for correct operation is between –10 and 55 °C.

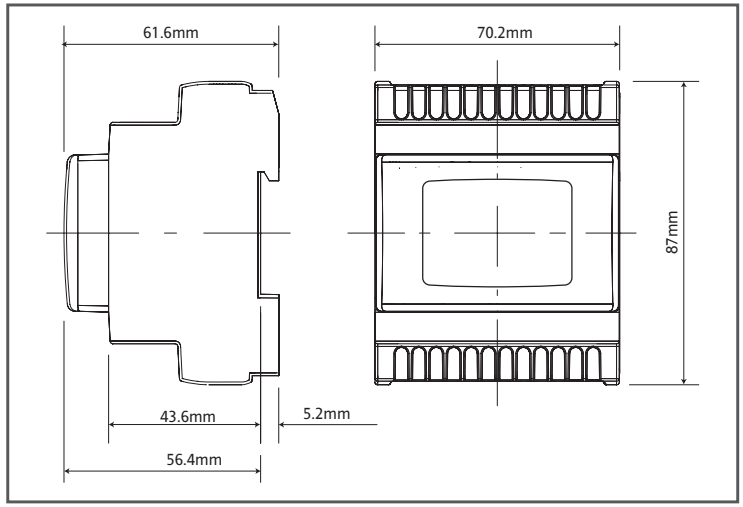
Also avoid fitting the device in places where there is high humidity and/or dirt; it is suitable for use in environments with an ordinary or normal level of pollution. Keep the area around the instrument cooling slots adequately ventilated.

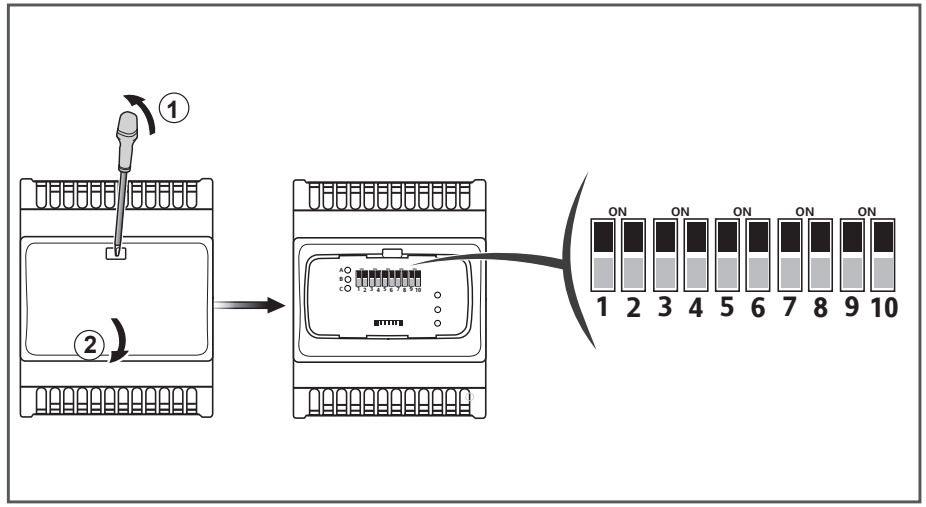
**Access to dip switches and connector for USB Copy Card / IWK/V**

Remove the door (see figure below right) using a slotted screwdriver or the nail of your index finger.

Configure the dip switches and/or connect the USB Copy Card or connect IWK/V.

After having made the configurations, close the front panel of the keypad by pressing it with your fingers.



## ELECTRICAL CONNECTIONS

**Important! Make sure the machine is switched off before working on the electrical connections.** The instrument is equipped with screw-on terminal boards for connection of electrical cables with a diameter of 2.5 $mm^2$ (one conductor only per terminal for power connections): for the capacity of the terminals, see the label on the instrument. The relay outputs are voltage free. Do not exceed the maximum permitted current; for higher loads, use a contactor with sufficient power capacity.

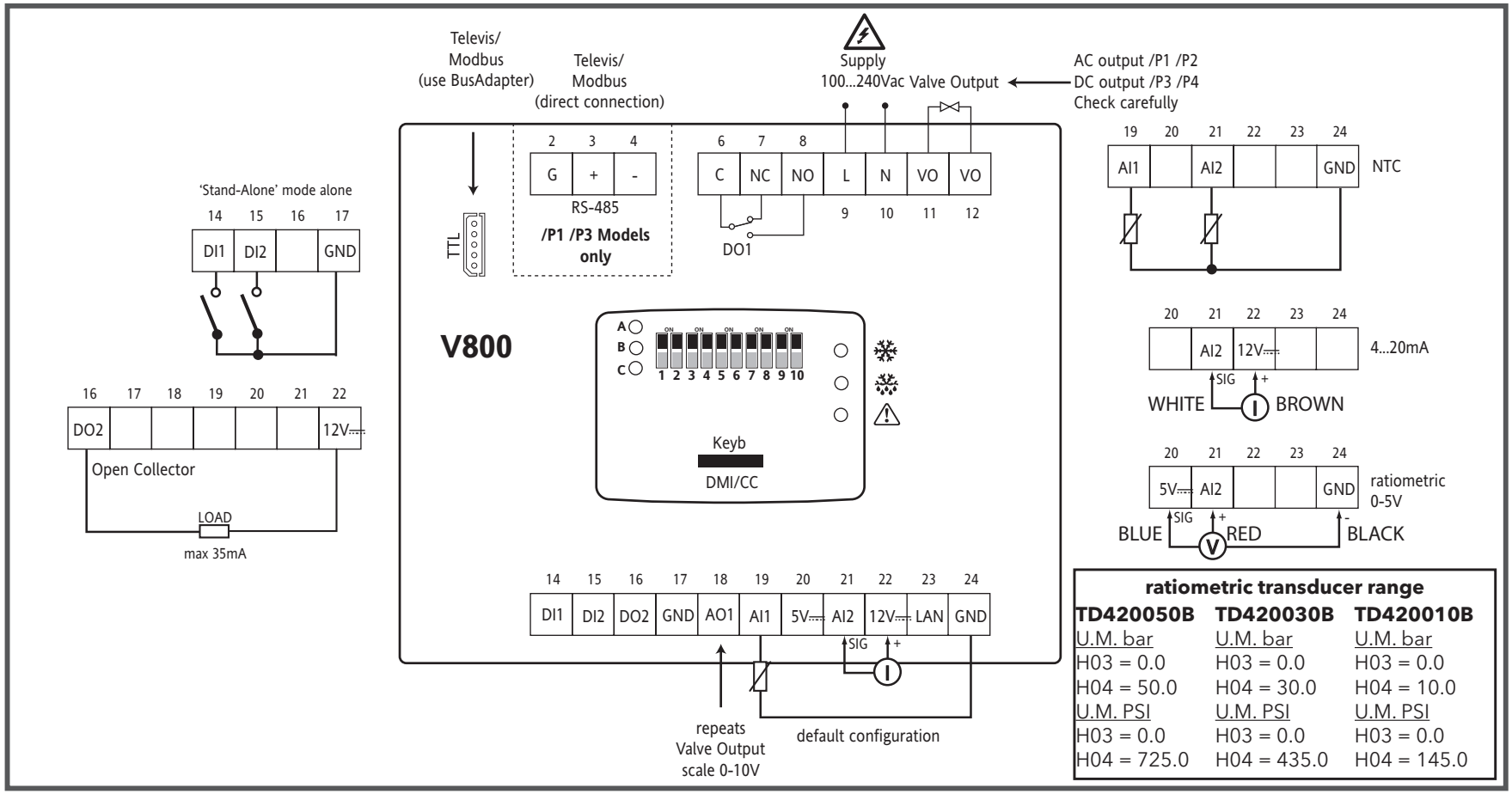
Make sure that power supply is of the correct voltage for the instrument. NTC probes have no connection polarity and can be extended using a normal bipolar cable (note that if the probes are extended this influences the device's electromagnetic compatibility - EMC: take great care with the wiring). Probe cables, power supply cables and serial cables should be routed separately from power cables. The pressure/ratiometric probe has a connection polarity which must be observed.

### Wiring diagram description

| Terminal | Label | Description | Notes | Par. / Notes |
|---|---|---|---|---|
| 2-3-4 | **RS485** | Televis/Modbus serial port | models /P1 /P3 only | models /P1 /P3 only |
| 6-7-8 | **DO1** | Relay output | (6= C; 7= NC; 8= NO) | H21 |
| 9-10 | **Supply** | Power Supply 100...240V~ | (9= L; 10= N) | - |
| 11-12 | **Valve Output** | Valve Output | (11= VO; 12= VO) | AC Valve Output models /P1 /P2<br>DC Valve Output models /P3 /P4 |

| Terminal | Label | Description | Notes | Par. / Notes |
|---|---|---|---|---|
| 14 | **DI1** | Digital input 1 | it is strictly prohibited to connect the Digital Input to a power source | H11, H30 |
| 15 | **DI2** | Digital Input 2 | | H12, H30 |
| 16 | **DO2** | Open Collector Output | - | H22 |
| 17 | **GND** | Ground | - | - |
| 18 | **AO1** | Analogue Output | - | repeat in 0-10V scale VO valve output (terminals 11-12) |
| 19 | **AI1** | Analogue Input 1 | overheating probe | H00 configurable NTC/4...20mA* |
| 20 | **5V⎓** | Probes Power Supply | | **Power supply for ratiometric probe (terminal 21) |
| 21 | **AI2** | Analogue Input 2 | saturation probe | H01 configurable NTC/4...20mA*/0-5V (ratiometric)**/ LAn (remote, shared pressure transducer) |
| 22 | **12V⎓** | Probes Power Supply | - | *Power supply for 4...20mA current input (terminals 19/ 21) |
| 23-24 | **LAN** | Powered serial port | ID985/V connection | - |
| **DMI/CC** | | Serial port for connection to • USB Copy Card / • IWK/V | See DipSwitch | - |
| **TTL** | | Serial port for connection to Televis / Modbus | - | PtS, dEA, FAA, PtY, Ptb |

# WIRING DIAGRAM



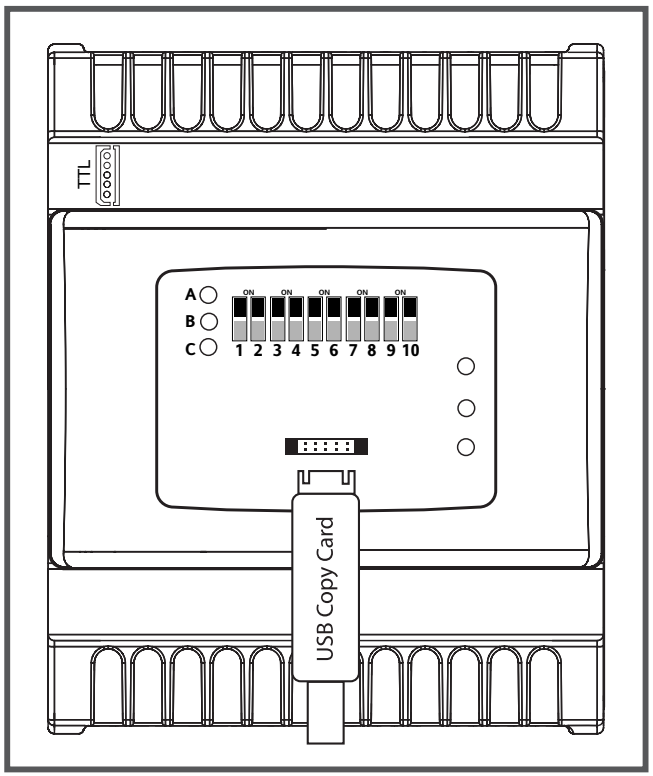

**ratiometric transducer range**

| TD420050B | TD420030B | TD420010B |
|---|---|---|
| U.M. bar | U.M. bar | U.M. bar |
| H03 = 0.0 | H03 = 0.0 | H03 = 0.0 |
| H04 = 50.0 | H04 = 30.0 | H04 = 10.0 |
| U.M. PSI | U.M. PSI | U.M. PSI |
| H03 = 0.0 | H03 = 0.0 | H03 = 0.0 |
| H04 = 725.0 | H04 = 435.0 | H04 = 145.0 |

# CIRCUIT DIAGRAM - V800 with open door

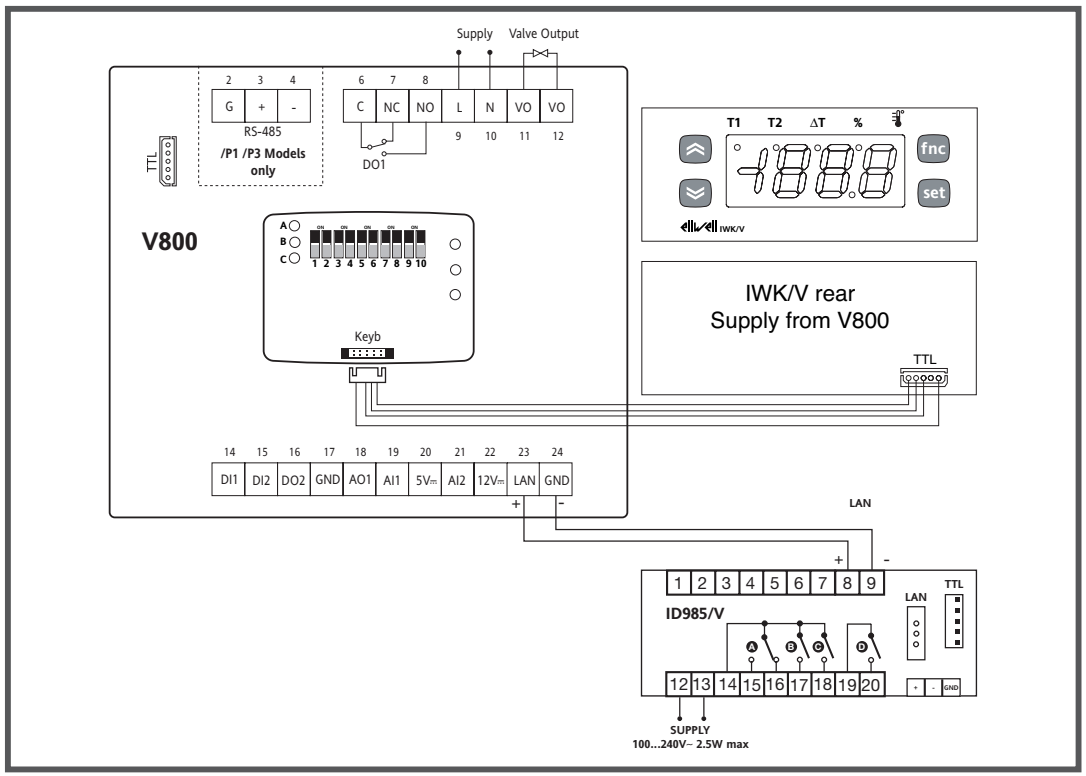
## USB Copy Card connection

• Display DipSwitch and use of DMI/CC connector for USB/Copy Card




## IWK/V / LAN connection

• Display DipSwitch and use of Keyb connector for IWK/V.
• Display LAN connection with ID985/V



## TECHNICAL DATA

The product also complies with the following harmonized standards: EN 60730-1 and EN 60730-2-9

| | |
|---|---|
| Construction of control: | Electronic automatic Incorporated Control |
| Purpose of control: | Operating control (non-safety related) device |
| Type of action: | 1.B |
| Pollution class: | 2 |
| Overvoltage category: | II |
| Rated pulse voltage: | 2500 V |
| Power supply: | 100...240 Vac (±10%) 50/60 Hz |
| Power draw (maximum): | 3 VA coil consumption excluded. |
| Environmental operating conditions: | Temperature: -10...55 °C (23 ... 149 °F)<br>Humidity: 10…90 %RH (non-condensing) |
| Transportation and storage conditions: | Temperature: -30...85 °C (-22...185 °F)<br>Humidity: 10…90 %RH (non-condensing) |
| Software class: | A |
| Environmental front panel rating : | Open type |

| Loads: | **Label** | **Type** | **EU** |
|---|---|---|---|
| | DO1 | Relay | NO 5 A - NC 2 A 250 Vac |
| | DO2 | Open Collector | max current 35 mA.<br>Load shall be supplied through 12V available on terminal 22 |

Analog output: 1 output 0-10V max. load 20 mA.

# FURTHER INFORMATION

## Input Characteristics

| | |
|---|---|
| Measurement range: | -55...140 °C (-67...284 °F) |
| Accuracy: | better than 1 % of full-scale +1 digit. |
| Resolution: | 1 or 0,1 °C/°F |
| Buzzer: | YES (depending on model) |
| Analog inputs: | • 1 NTC configurable input / 4...20mA<br>• 1 NTC configurable input / 4...20mA / 0-5V / LAn (remote,shared pressure transducer) |
| Digital inputs: | 2 configurable voltage-free inputs |

## Mechanical Characteristics

| | |
|---|---|
| Terminals: | screw-on for cables with a diameter of 2.5 $mm^2$ |
| Connectors: | • TTL (DMI/CC) for connection to USB Copy Card or IWK/V remote terminal.<br>• TTL for Televis / Modbus connections<br>**models /P1 /P3 only**: RS485 for direct connection to Televis / Modbus LAN: for connection to powered 3-wire interface.<br>Max. distance 100 m |

**NOTE**: The technical specifications stated in this document regarding the measurement (range, accuracy, resolution, etc.) refer strictly to the instrument and not to any accessories provided, such as the probes.

## CONDITIONS OF USE - PERMITTED USE

For safety reasons, the device must be installed and used according to the instructions provided. In particular, parts carrying dangerous voltages must not be accessible in normal conditions.
The device must be adequately protected from water and dust with regard to the application, and must only be accessible using tools (with the exception of the front panel).
The device is suitable for use in household refrigeration appliances and/or similar equipment and has been tested for safety aspects in accordance with the harmonised European reference standards. It is rated:

- according to its construction, as an independently mounted automatic electronic control device;
- in terms of automatic operating characteristics, as a type 1B controller;
- in terms of software class and structure, as a Class A controller.

**PROHIBITED USE** Any use other than that expressly permitted is prohibited.
Note that the relay contacts provided are of a functional type and subject to failure: any protection devices required by product standards, or suggested by common sense for obvious safety requirements, must be installed externally to the instrument.

## LIABILITY AND RESIDUAL RISKS

ELIWELL CONTROLS SRL declines any liability for damage due to:

- installation/uses other than those expressly specified and, in particular, failure to comply with the safety requirements of established standards and/or instructions specified in this document;
- use on panels that do not provide adequate protection against electric shocks, water or dust when assembled;
- use on panels allowing access to dangerous parts without having to use tools;
- tampering with and/or modification of the product;
- installation/use on panels which are not compliant with current standards and regulations.

## USER INTERFACE

To operate on V800 use a IWK/V remote terminal connected to the TTL connector (DMI/CC) and supplied directly from V800.
Connect the cable supplied with the IWK/V to the connector housed inside the door on the front panel.

### IWK/V Keys

<table>
<tr><th colspan="2">Key</th><th>Description</th><th colspan="2">Key</th><th>Description</th></tr>
<tr><td rowspan="2"></td><td rowspan="2">UP</td><td>Scrolls through menu items</td><td rowspan="2">fnc</td><td rowspan="2">fnc</td><td rowspan="2">Exits the menu (ESC)</td></tr>
<tr><td>Increases values</td></tr>
<tr><td rowspan="2"></td><td rowspan="2">UP</td><td rowspan="2">Displays values:<br>• %: valve opening percentage<br>• ΔT: overheating<br>• T2: saturation temperature<br>• T1: overheating temperature<br>LED ON when the corresponding value appears on the display</td><td rowspan="4">set</td><td rowspan="4">set</td><td rowspan="2">Displays alarms - if alarms active</td></tr>
<tr></tr>
<tr><td rowspan="3"></td><td rowspan="3">DOWN</td><td>Scrolls through menu items</td><td>Accesses menus</td></tr>
<tr><td>Decreases values</td><td>press for at least 5 secs.<br>Opens the programming menu</td></tr>
<tr><td>Displays values - See UP key</td><td>Confirms commands</td></tr>
</table>

## LED Table

| | LED | colour | ON | blinking | | OFF | Notes |
|---|---|---|---|---|---|---|---|
|  | EEV (PXV) | green | valve control | valve closed<br>setpoint reached | | / | EEV (PXV)<br>LED OFF<br>means no power supply |
|  | Defrost | yellow | defrost ON<br>(valve closed) | / | no serial connection | / | Defrost |
|  | Alarm | red | NA | Alarm | | / | Alarm |

## DipSwitch Table

| | Dip1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Function** | **Upload / Download parameters from Copy Card** | | | | | | | | | |
| **Upload** | **ON** | **OFF** | | | | | | | | / |
| **Download** | **OFF** | **ON** | | | | | | | | / |
| **Protocol** | **Protocol Selection** | | | | | | | | | |
| **LAN** | | | **OFF** | | | | | | | / |
| **Televis*/Modbus**<br>***Set Ptb parameter = 96 (96000 baud)** | | | **ON** | | | | | | | / |

| | | Dip1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Refrigerant | Refrigerant selection | | | | | | | | | |
| 0 | R404A | | | | OFF | OFF | OFF | | | | / |
| 1 | R22 | | | | ON | OFF | OFF | | | | / |
| 2 | R410A | | | | OFF | ON | OFF | | | | / |
| 3 | R134A | | | | ON | ON | OFF | | | | / |
| 4 | R744 ($CO_2$) | | | | OFF | OFF | ON | | | | / |
| 5 | R507A | | | | ON | OFF | ON | | | | / |
| 6 | refrigerant customisable via USB Copy Card / Device Manager Default setting R717($NH_3$) | | | | OFF | ON | ON | | | | / |
| 7 | set from parameter H10 | | | | ON | ON | ON | | | | / |
| | Slave address | Network address selection | | | | | | | | | |
| 1 | 1 | | | | | | | OFF | OFF | OFF | / |
| 2 | 2 | | | | | | | ON | OFF | OFF | / |
| 3 | 3 | | | | | | | OFF | ON | OFF | / |
| 4 | 4 | | | | | | | ON | ON | OFF | / |
| 5 | 5 | | | | | | | OFF | OFF | ON | / |
| 6 | 6 | | | | | | | ON | OFF | ON | / |
| 7 | reserved DO NOT use | | | | | | | OFF | ON | ON | / |
| 8 | reserved DO NOT use | | | | | | | ON | ON | ON | / |
| Note: Dip10 is NOT used | | | | | | | | | | | |

## ACCESSING AND USING THE PROGRAMMING MENU

Parameters are organised into menus and viewed by keeping the ‘set’ key pressed for more than 5 seconds.
Upon access the first folder will be shown.
1. Scroll through the folders using “UP” and “DOWN” keys until you find the label for the desired folder
2. Press and release “set” key
3. Scroll through the parameters using “UP” and “DOWN” keys until you find the label for the parameter you want to change
4. Press and release “set” key
5. Set the desired value using “UP” and “DOWN” keys
6. To confirm the value press “set” key or let a timeout occur (15 seconds).

Note: Switch the device off and on again every time you change the parameter configuration.

## ALARMS MENU

### Active alarm

Press and release the ‘set’ key. If there is an active alarm condition, the ‘AL’ folder label will appear (see ‘Alarms’ section).

## USB COPY CARD

The USB Copy Card is an accessory connected to the DMI/CC serial port and is used for quick programming of the device parameters (upload and download a parameter map to one or more devices of the same type). The operations are performed as follows:

- insert USB Copy Card in the suitable connector with device ON
- set DipSwitch 1 and 2, which are housed inside the door, as described in the following table
- wjen completed remove the USB Copy Card
- set DipSwitch to OFF position

### Dip Switch USB Copy Card

| Upload / Download parameters from USB Copy Card | | |
|---|---|---|
| **Function** | **Dip1** | **2** |
| **Upload** | **ON** | **OFF** |
| **Download** | **OFF** | **ON** |

**UPLOAD: device --> USB Copy Card** This operation uploads the programming parameters to the USB Copy Card.
NOTE: USB Copy Card will be formatted before use
**DOWNLOAD: USB Copy Card --> device** This operation downloads the programming parameters to the device.

**USB Copy Card Dip Switch LED**

| LED | | UPLOAD | | | DOWNLOAD | | |
|---|---|---|---|---|---|---|---|
| | colour | in progress | completed correctly | failed | in progress | completed correctly | failed |
| A | green | blinking | ON | ON | / | / | / |
| B | green | / | / | / | blinking | ON | ON |
| C | yellow | / | / | blinking | / | / | blinking |

NOTE:
• after the parameters have been downloaded, the device uses the downloaded parameter map settings.

## SUPERVISION

The protocol can be modified without using the IWK/V remote terminal by positioning DipSwitch 3, which is housed inside the door, as described in the next page table:

**LAN**

The LAN function makes it possible to link up to 4 ID985/V devices connected to V800 in a network (see ID985/V manual, code 9MAX0017). The maximum distance between one device and the other must not exceed 7 metres, while the maximum distance between the first and the last device in the network must be approximately 50m.

**Televis/Modbus**

The connection to Televis**System** / Modbus RTU can take place:
• via TTL serial port. It is necessary to use the TTL/RS485 converter Bus**Adapter 130** or **150**
• **models /P1 /P3 only** directly via RS485 serial port.

(To configure the device for this purpose, open the folder identified by the ‘Add’ label and use parameters:
• PtS to select the Televis**System** / Modbus RTU protocol
    • Televis**System**: dEA and FAA.
    • Modbus RTU: dEA / FAA / PtY for the parity / Ptb for the baud rate.
NOTE: the connection serial port between the devices is powered.

## Dip Switch Protocol Selection

| Protocol Selection | | LED C |
|---|---|---|
| Protocol | 3 | yellow |
| LAN | OFF | OFF |
| Televis/Modbus | ON | ON |

**LAN**
DipSwitch3=OFF only for use with IWK/V
**NOTE: TTL port shall NOT be connected to any device**

**Televis/Modbus**
DipSwitch3=ON per Televis/Modbus supervision or use with DMI/CC
**NOTA: IWK/V shall NOT be connected**

## ALARMS

| Label* | Fault | Cause | Effects** | Remedy |
|---|---|---|---|---|
| **Err** | Probe<br>AI1 or AI2<br>error | See E1/E2 | **Display ΔT**<br>• Display label Err / Icon ΔT permanently on<br>- - -<br>• Recording of label Ex in folder AL<br>x=1 or 2 | See E1/E2 |
| **---** | Probe<br>AI1 or AI2<br>not configured | Probe<br>AI1 or AI2<br>not configured | | Configure probe.<br>See H00/H01 |
| **E1**<br>**(1E1/2E1)** | Overheating<br>probe<br>faulty<br>AI1 | • measured values are outside operating range<br>• probe faulty/short-circuited/open | **Display T1**<br>• Display label E1 / Icon T1 permanently on<br>- - -<br>• Recording of label E1 in folder AL | • check probe type NTC/4..20mA (see H00)<br>• check the probe wiring<br>• replace probe |

| Label* | Fault | Cause | Effects** | Remedy |
|---|---|---|---|---|
| **E2 (1E2/2E2)** | Saturation probe faulty AI2 | • measured values are outside operating range<br>• probe faulty/short-circuited/open | **Display T2**<br>• Display label E2 / Icon T2 permanently on<br>- - -<br>• Recording of label E2 in folder AL | • check probe type (see H01)<br>• check the probe wiring<br>• replace probe |
| **HOt (1HP/2HP)** | MOP Alarm | | • Recording of label HOt in folder AL | |
| **tHA (1HO/2HO)** | Maximum Valve Opening Alarm | • maximum valve opening % >= U02 for a time longer than U05 | | |
| **EA (1EA/2EA)** | External alarm | • activation of digital input (configured as external alarm). See par. H11/H12 | • Recording of label EA in folder AL | • if the alarm is silenced, the regulators remain blocked until the next deactivation of the digital input.<br>• wait for deactivation of the digital input. |

| Label* | Fault | Cause | Effects** | Remedy |
|---|---|---|---|---|
| **E7 (1E7/2E7)** | LAN alarm between V800 and ID985/V | • Master/Slave communication failure. | • Recording of label E7 in folder AL | |

* LABEL
• the first label indicates display via IWK/V (e.g. E1)
• the second label (in brackets) indicates display via ID985/V (e.g. 1E1). The number 1/2 indicates the connected V800 driver (max 2)

**EFFECTS
Refers to IWK/V remote terminal

NOTE E7
• Error E7 is signalled after around 20 seconds in the 'LAN error' condition, in order to prevent interference on the LAN network resulting in a communication failure.
• Error E7 is also signalled in the case of address conflicts when:
a) the Slave number set on the MASTER is different from the actual number of SLAVES in the network
b) 2 or more Slaves have the same address.
LAN alarms and address conflicts are displayed alternately with the temperature value or probe error normally displayed both on the Master and on the Slaves.

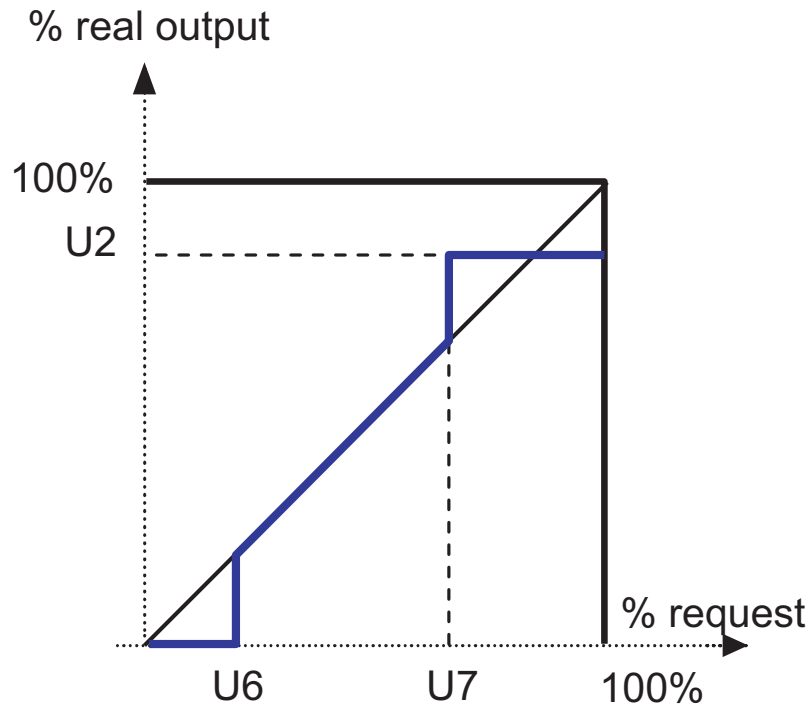
## FUNCTIONING

V800 is an electronic expansion PULSE valve controller. It controls the minimum overheating vale read on evaporator output.
The regulation value is the percentage of valve opening which is commutated in the percentage of VO output opening depending on following parameters:

- U01 is the PWM period i.e. open/close valve sum time;
- U02 is the maximum valve opening %;
- U06 is the minimum valve useful opening %;
- U07 is the maximum valve useful opening %.

If the regulator drives an output greater or equal than U07, th real output will be U02.
If the regulator drives an output lower or equal than U06, the real output will be 0.

If the regulator drives a request greater or equal than U07, for a time greater than U05 a maximum opening alarm shows up to signal a critical plant condition.



# REGULATION

## PID / H60

V800 calculates the real overheating by using the two analogue inputs overhaeting and saturaion probes.
Through a PID controller it modulates the valve opening to reach OLt setpoint The algorithm is dynamic:  the effective overhaeting value could not reach setpoint or temporarirly decreases under setpoint value. Evaporator liquid leakage may occours: in this case increase Setpoint OLt to prevent it.
PID configuration parameters will be automatically uploaded by the device by selecting plant type defined by H60.

## MOP (Maximum Operating Pressure)

MOP regulation defines a threshold set by pressure setpoint HOt. If the threshold has been exceeded for tAP period, an MOP alarm will show up.
MOP regulation can be disabled:

- via HOE parameter
- at power -on / after defrost for an HdP period

## APPLICATIONS

### Stand-Alone

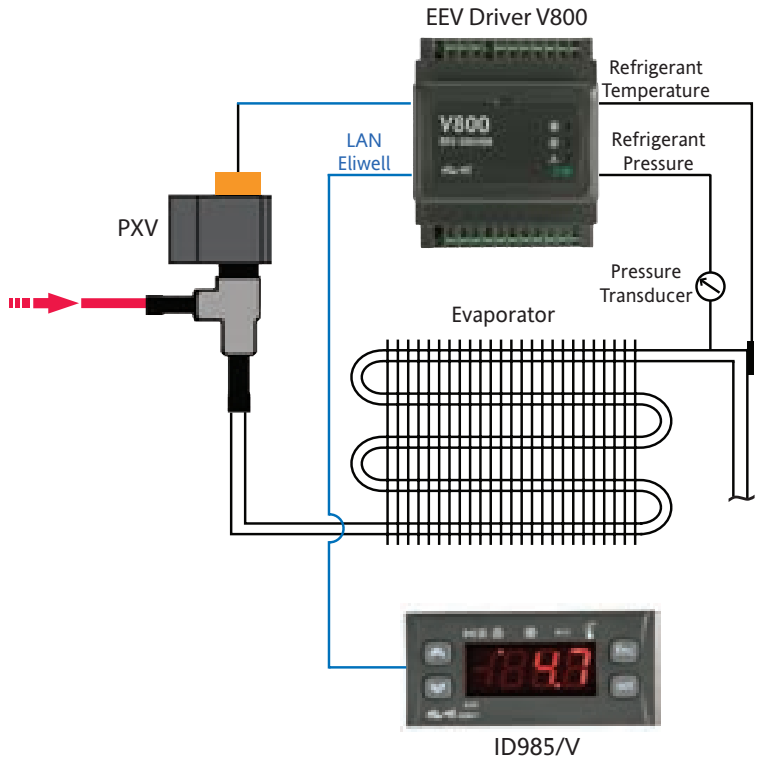
• The driver (EEV Driver V800) controls the electronic expansion valve
• The V800 driver receives the commands for defrosting and control of the EEV (PXV) from digital inputs (see par. H11/H12)
Note: set H30=di (Digital input)

### Typical application

See diagram opposite.
• The driver (EEV Driver V800) controls the electronic expansion valve EEV (PXV)
• The V800 driver receives the commands for defrosting and control of the EEV (PXV) from ID985/V via LAN Eliwell.*
If there is no communication, V800 closes the EEV (PXV) valve and signals the alarm.
• ID985/V controls the refrigerated cabinet (ducted showcase)

*Note : if the digital input DI1 and DI2 are configurated, i.e. H11 and/or H12 ≠ 0 (not enabled), then they will have priority on the commands received from Eliwell LAN.

## Typical application

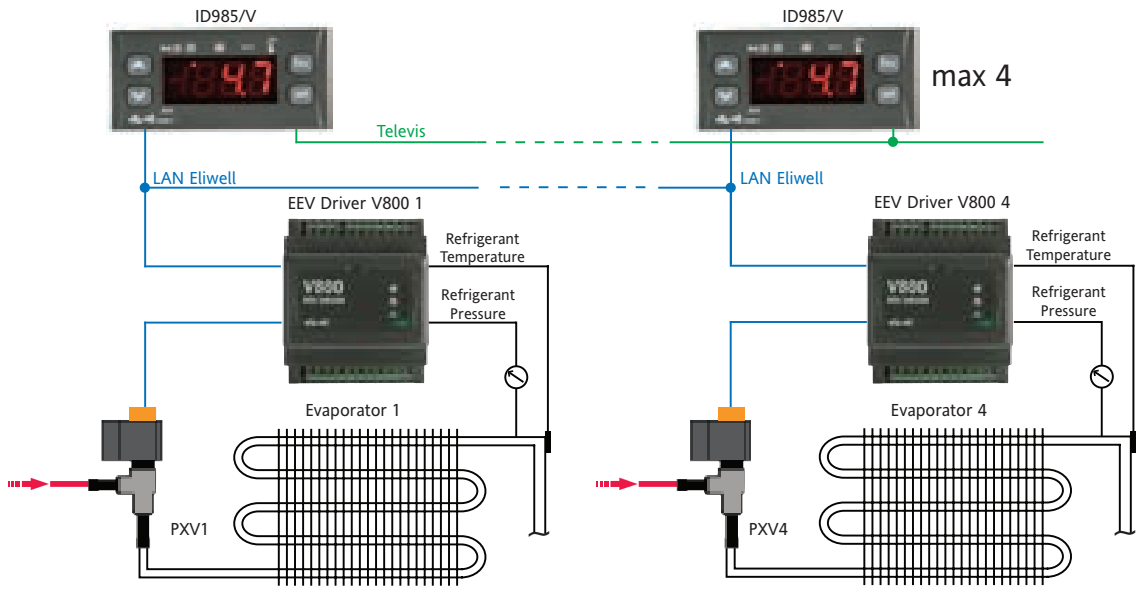


## Application with multiple V800 drivers / ID985/V controllers

The network manages a maximum of 4 V800 drivers + 4 ID985/V controllers
Each V800 driver is controlled by the corresponding ID985/V controller via LAN Eliwell.
• Driver 1 (EEV Driver V800 1) controls electronic expansion valve 1 (PXV1)
...
• Driver 4 (EEV Driver V800 4) controls electronic expansion valve 4 (PXV4)
• The drivers receive the commands for defrosting and control of the corresponding EEVs (PXV) from the corresponding ID985/V controllers via LAN Eliwell.* see note at page 25
•The network address is configured:
• via Dip Switch for each V800;
• via keyboard for each ID985/V.
If there is no communication, V800 closes the EEV (PXV) valve and signals the alarm.

### NOTE

The configurations with at least 2 ID985/V makes it possible to use a single shared pressure transducer. The V800 driver to which it is physically connected must have network address 1 (see Dipswitch / LAn). All others must have a network address different from 1 and it is essential to set parameter H01=LAn (remote).



## Application with 2 V800 drivers - 1 ID985/V controller

The network manages a maximum of (2 drivers V800 + 1 ID985/V) x 3:

• Driver 1 (EEV Driver V800 1) controls electronic expansion valve 1 (PXV1)

• Driver 2 (EEV Driver V800 1) controls electronic expansion valve 2 (PXV2): set on ID985/V second evaporator (H43=2EP / H21...H24=9, see 9MAX0017 user manual)

• Drivers 1&2 receive the commands for defrosting and control of the corresponding EEVs (PXV) from the ID985/V controller via LAN Eliwell.* see note at page 26

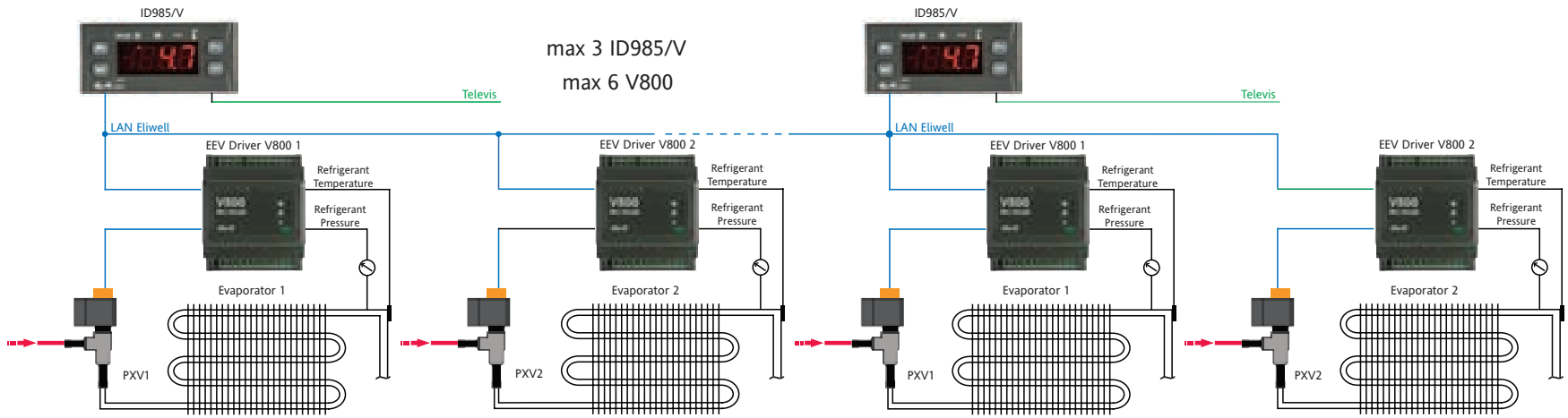
• The network address is configured:

• via Dip Switch for V800;

• via keyboard for ID985/V.

If there is no communication, V800 closes the EEV (PXV) valve and signals the alarm.

• ID985/V controls the refrigerated cabinet (ducted showcase) and manages the defrosting of the two sections



## PARAMETER TABLE

| FOLD | PAR. | DESCRIPTION | RANGE | DEF. | U.o.M. | VAL |
|---|---|---|---|---|---|---|
| **At1** | | **PULSE OUTPUT** | | | | |
| At1 | U01 | PWM period. | 3...10 | 6 | sec | |
| At1 | U02 | maximum valve opening %. | 0...100 | 100 | number | |
| At1 | U03 | valve actuation % after blackout for time set by OtF.<br>NOTE. Calculated automatically but modifiable for first startup. | 0...100 | 0 | number | |
| At1 | U04 | valve actuation % after defrost for time set by OtF.<br>NOTE. Calculated automatically but modifiable for first startup. If %=0 is defined by U03 | 0...100 | 0 | number | |
| At1 | U05 | Valve operating time at maximum opening for alarm signal. If the valve is at maximum opening (see U02) for a time longer than U05, the alarm is activated | 0...255 | 60 | min | |
| At1 | U06 | minimum valve useful opening %. | 0...100 | 0 | number | |
| At1 | U07 | maximum valve useful opening %. | 0...100 | 100 | number | |
| **CnF** | | **CONFIGURATION** | | | | |
| CnF | H00 | Overheating probe configuration. diS = disabled; ntC= NTC; 420= 4...20mA | diS/ntC/420 | ntC | number | |
| CnF | H01 | Saturation probe configuration. diS = disabled; ntC= NTC; 420= 4...20mA; rA=ratiometric transducer; LAn = remote (shared pressure transducer). See Application with multiple V800 drivers / ID985/V controllers. | diS/ntc/420/ rA/LAn | 420 | number | |
| CnF | H03 | Lower current/voltage limit for input. | -14.5...1000.0 | -0.5 | bar/PSI | |
| CnF | H04 | Upper current/voltage limit for input. | -14.5...1000.0 | 7.0 | bar/PSI | |

| FOLD | PAR. | DESCRIPTION | RANGE | DEF. | U.o.M. | VAL |
|---|---|---|---|---|---|---|
| CnF | H05 | Pressure measurement unit. | PSi/bAr | bAr | flag | |
| CnF | H06 | Temperature measurement unit. | C/F | C | flag | |
| CnF | H10 | Select refrigerant.<br>To use only if DipSwitch Refrigerant selection = 7. If not H10 will be ignored.<br>404=R404A; R22=R22; 410=R410a; 134=R134a; 744=R744 (C02); 507=R507a;<br>PAr=R717($NH_3$) is the default setting but refrigerant can be personalised via USB Copy Card or software Device Manager.<br>717=R717; 290=R290; 407=R407a; 448=R448a; 449=R449a; 450=R450a; 513=R513A; | 404/.../PAr<br>717/.../513 | 404 | number | |
| CnF | H11 | Configurability and polarity of digital input DI1. 0= disabled; ±1 = ON/OFF driver; ±2 = Defrosting; ±3 = Alarm.<br>The '+' sign indicates that the input is active with closed contact.<br>The '-' sign indicates that the input is active with open contact. | -3...3 | 0 | number | |
| CnF | H12 | Configurability and polarity of digital input DI2. Same as H11. | -3...3 | 0 | number | |
| CnF | H15 | Valve opening % during probe error. | 0...100 | 0 | number | |
| CnF | H21 | Configurability of digital output DO1. diS = disabled; SOL = solenoid valve; AL = Alarm. | dIS/ SOL/AL | SOL | number | |
| CnF | H22 | Configurability of Open Collector output DO2. Same as H21. | dIS/ SOL/AL | diS | number | |
| CnF | H30 | Command from digital input or serial port. di= Digital Input (Stand-Alone mode only);<br>LAn = Eliwell LAn*; rEt= remote (Softgate/Modbus)*<br>*Note : If H11 and or H12 ≠0, digital input DI1 and DI2 will have priority on the commands received from LAN/Televis Serial | di/LAN/rEt | LAn | number | |

| FOLD | PAR. | DESCRIPTION | RANGE | DEF. | U.o.M. | VAL |
|---|---|---|---|---|---|---|
| CnF | H60 | Plant Type. 0, 5...16 = NOT USED.<br>1 = ducted showcases and quick variation evaporator pressure (e.g. step control);<br>2 = ducted showcases and controlled/gradual evaporator pressure (e.g. INVERTER control);<br>3 = showcases with compressor on board;<br>4 = showcases with compressor on board and renewing exchanger. | 0...16 | 1 | number | |
| **Add** | | **COMMUNICATION** | | | | |
| Add | PtS | Protocol selection. t= Televis; d=Modbus. | t/d | t | flag | |
| Add | dEA | Index of the device within the family (valid values from 0 to 14). | 0...14 | 0 | number | |
| Add | FAA | Device family (valid values from 0 to 14). The pair of values FAA and dEA are the network address of the device and are given in the format 'FF.DD' (where FF=FAA and DD=dEA). | 0...14 | 0 | number | |
| Add | PtY | Modbus parity bit.<br>n= none; E=Even; o=odd | n/E/o | E | number | |
| Add | Ptb | Baud rate.<br>12=1200 baud; 24=2400 baud; 48=4800 baud; 96=9600 baud; 192=19200 baud; 38400=384 baud. If PtS= t (Televis) set Ptb to 96= 9600 baud. | 12/.../384 | 96 | number | |
| **OP** | | **MAXIMUM OPERATING PRESSURE (MOP)** | | | | |
| OP | HOE | Enable MOP. n= MOP disabled; y = MOP enabled. | n/y | n | flag | |
| OP | HdP | MOP disable time. MOP activation delay on startup or on reset after a defrosting cycle. | 0...999 | 0 | sec | |
| OP | HOt | Evaporator temperature upper threshold. | -60.0...100.0 | 0.0 | °C/°F | |

| FOLD | PAR. | DESCRIPTION | RANGE | DEF. | U.o.M. | VAL |
|---|---|---|---|---|---|---|
| OP | tAP | Minimum time that temperature upper threshold is exceeded for alarm activation.<br>If the HOt threshold is exceed for a time longer than tAP the MOP alarm is activated. | 0...255 | 180 | sec | |
| **OH** | | **OVERHEATING** | | | | |
| OH | OLt | Overheating lower threshold. | 0.0...100.0 | 8.0 | °C/°F | |
| OH | OtF | Valve opening freezing timer. | 0...1999 | 0 | sec | |
| **diS** | | **DISPLAY** | | | | |
| diS | PA1 | PAssword 1.<br>When enabled (value other than 0), this is the access key to the User parameters (USr). | 0...1999 | 0 | number | |
| diS | ndt | number display type. Display with decimal point.<br>n = no (integers only); y = yes (display with decimal point). | n/y | Y | flag | |
| diS | CA1 | Calibration 1. Saturation probe calibration. Positive or negative temperature value added to the value read from the overheating probe. | -12.0...12.0 | 0 | °C/°F | |
| diS | CA2 | CAlibration 2. Overheating probe calibration. Positive or negative temperature value added to the value read from the saturation probe. | -12.0...12.0 | 0 | °C/°F | |
| CnF | rEL | Firmware rELease. Device version. Reserved: read-only parameter. | / | / | / | |
| CnF | tAb | tAble of parameters. Reserved: read-only parameter. | / | / | / | |
| The following folders and corresponding parameters are visible from the ID985/V Configuration menu and not from the IWK/V remote terminal. EE0 refers to driver 1, EE1 to driver 2 | | | | | | |
| EE0/EE1 | FSS | Device screen. Read-only parameter. | / | / | number | |

| FOLD | PAR. | DESCRIPTION | RANGE | DEF. | U.o.M. | VAL |
|---|---|---|---|---|---|---|
| EE0/EE1 | rEL | Device version. Read-only parameter. | / | / | number | |
| EE0/EE1 | PEr | Valve opening %. Read-only parameter. | | | | |
| EE0/EE1 | PSH | Overheating probe value. Read-only parameter. | | | | |
| EE0/EE1 | PSA | Saturation probe value. Read-only parameter. | | | | |
| EE0/EE1 | SHt | Overheating temperature. Read-only parameter. | | | | |
| EE0/EE1 | Adr | Enable valve driver. Indicates the address of the controlled valve. 0 = disabled. | 0...6 | 1 (EE0)<br>0 (EE1)* | number | |

FOLD = FOLDER (e.g. DEF folder includes the DEFrost parameters); PAR. = PARAMETER;

DEF. = DEFAULT; VAL= VALUE: to be entered manually, if necessary with the user's personalised settings (if different from the default settings).

* value <>0 for **Application with 2 V800 drivers - 1 ID985/V controller** (see relevant paragraph)

## DISCLAIMER

by Schneider Electric

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