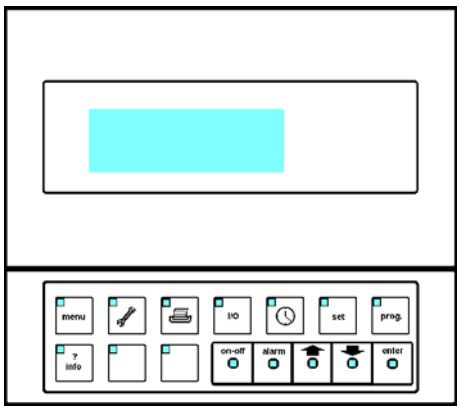
EN ***User manual***

QSR

microprocessor control



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Caution

It is recommended that:

- the manual is retained for the entire service life of the machine;
- the user reads the manually carefully before carrying out any operations on the machine;
- the control is used exclusively for the purpose for which it is intended; incorrect use of the control shall release the manufacturer from any liability.

Operations on the Microprocessor which are not password protected may be carried out by the final user.
Operations which are password protected should be carried out by a qualified technician using the passwords given on the last page of this manual. This page may be detached and retained by those persons authorised to service the machine.

To identify the software version installed in the control, refer to the Maintenance Menu.

IMPORTANT: The manufacturer reserves the right to modify this manual at any time.
For the most comprehensive and updated information, the user is advised to consult the manual supplied with the machine.

Index

1 – Introduction

The Microprocessor Control's front panel is positioned on the front of the Dryer (see Fig. 1).
The Microprocessor's interface board (see Fig. 8/Fig. 9) is positioned within the Dryer's electrical panel.
The Dryer's electrical drawing gives full details concerning the interface's layout.

N.B.: On starting the Microprocessor the default language is English. It is possible to change the language following the procedure (see para. 5.1).

1.1 – Preliminary operations

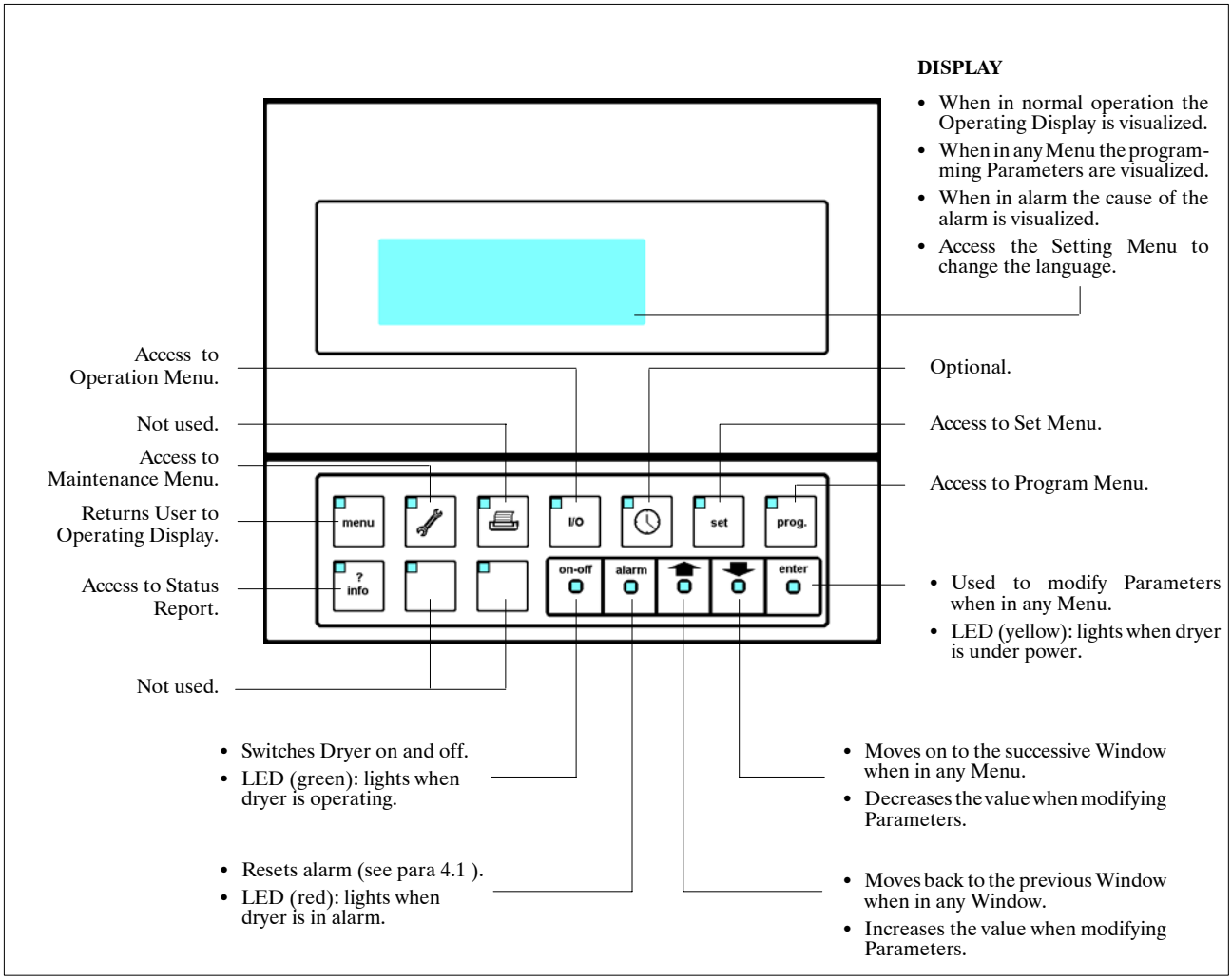
The Microprocessor Control arrives already installed in its housing and programmed with the Factory Settings listed in CHAP. 3.
The unit can be started as described in para. 5.2 (refer also to the Dryer manual).
On starting the Microprocessor the display will briefly indicate the software version installed.

2 – Front panel

2.1 – Front panel layout

All operations are controlled from and displayed on the front panel, as in Fig. 1.

Fig. 1 – Front panel

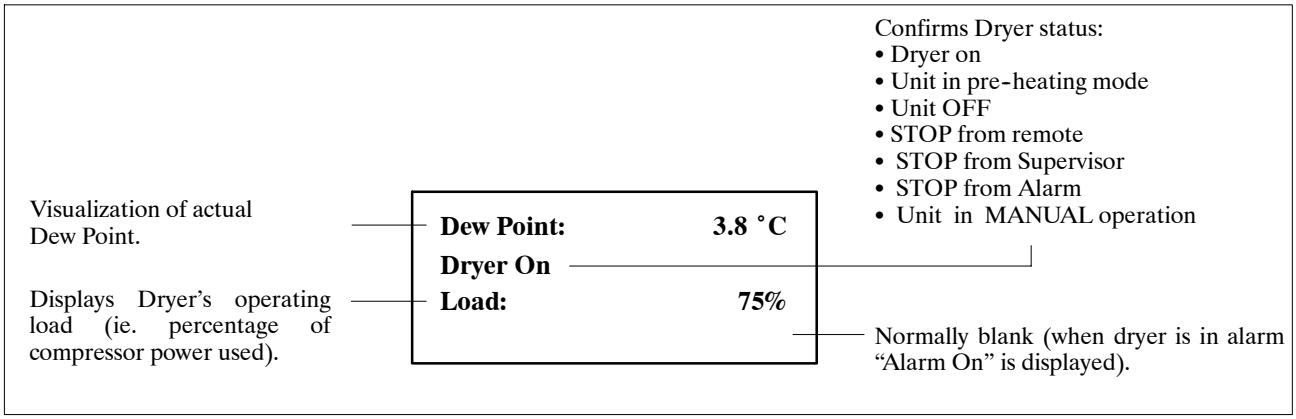


2.2 – Operating Display

During normal operation the Operating Display is visualized, which shows the principal information concerning Dryer operation, as in Fig. 2.

NB: To return to the Operating Display, simply press (menu) (this procedure is valid at all times).

Fig. 2 – Operating Display



3 – Menus

3.1 – Glossary:

Menu:
Menus are used to allow the User to program the Microprocessor. There are 4 Menus (see para. 3.5), divided so as to group similar activities together.

Window:
Each Menu consists of several Windows. A Window is a set of information visualized on the Display.

Parameter:
The visualized information is called a Parameter. Parameters are the data used by the Microprocessor to determine Dryer operation. The Dryer arrives with pre–programmed Parameters (see factory settings, para. 3.5). If necessary the Parameters can be user programmed as described in para. 3.4.
NB: Normally a single window displays a single parameter.

3.2 – Password

The "Maintenance" and "Program" Menus are protected by Passwords. If the correct Password is not inserted it will not be possible to access the respective Menu. The Password is inserted as described in Fig. 3.

3.3 – Moving around a Menu

The Windows within the Menu are positioned as a chronological list. Using ⊙ and ⊙ it is possible to move up and down the list, passing from one Window to the next.

3.4 – Changing a Parameter

To change a Parameter, first move to the corresponding Window in which that Parameter is situated. Then proceed as in Fig. 4.

Fig. 3 – Password sequence

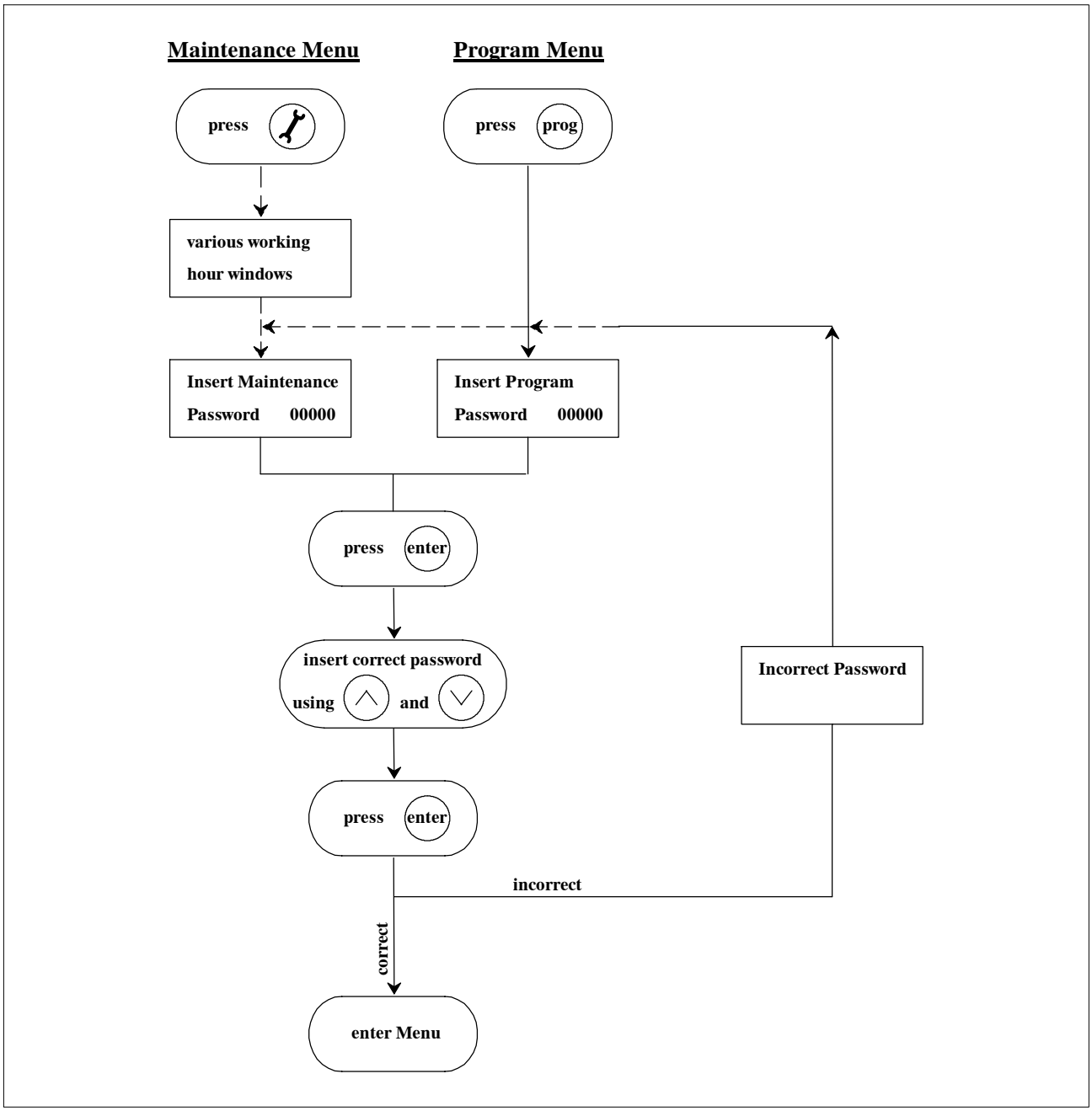
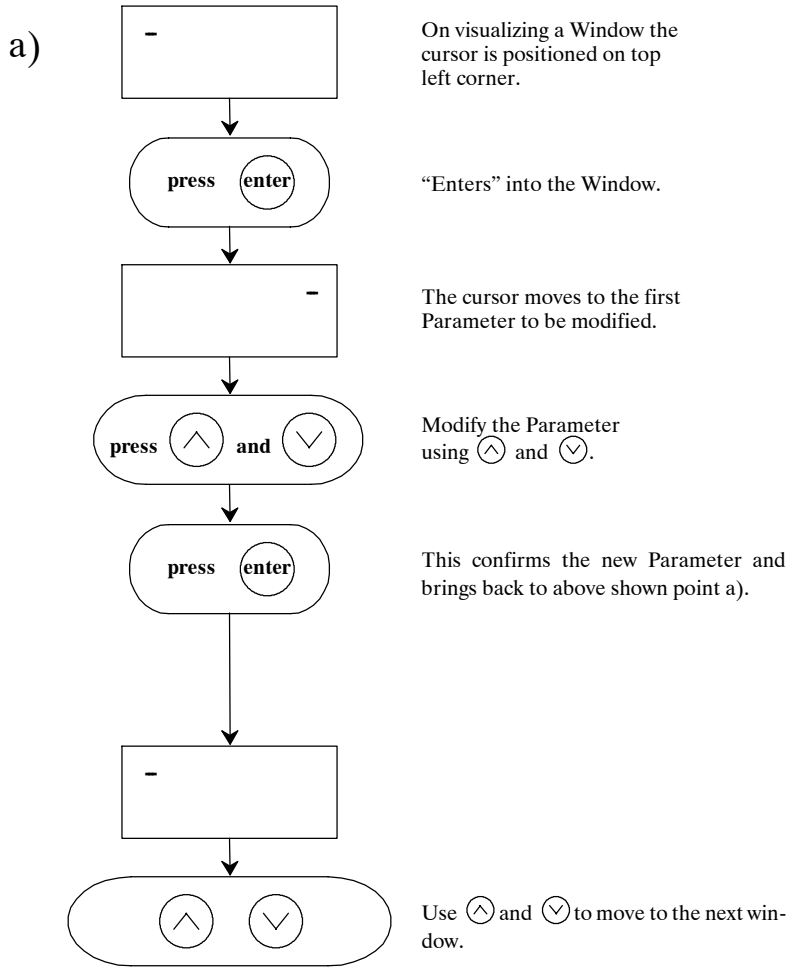


Fig. 4 – Changing a Parameter within a Menu



3.5 – Menus

The 4 Menus can be accessed by pressing the appropriate button on the front panel (see para 2.1).

NB: Once inside a Menu, it is possible to move between its Windows using ⊙ and ⊙ .

3.5.1 – Maintenance Menu

Window	Parameter explanation	Range	Factory set
Maint.1A/9 Dryer Working Hours: 000000	Total Dryer working hours.	0–999999	–
Maint.1B/9 Working Hours Compressor 1: 000000	Working hours compressor 1.	0–999999	–
Maint.1C/9 Working Hours Compressor 2: 000000	Working hours compressor 2.	0–999999	–
Maint.2/9 Software: ECDRYI001A Rel.:1.101 31/08/06	Explanation of software release: software code; version; release date.	–	–
Maint.3/9 Enter Maintenance Password 00000	User must enter Maintenance Password (as described in para. 3.2) to continue.	1–32000	on removable back page
Maint.4/9 Maintenance Interval Hours: 000000	Allows User to program a Warning message after x hours informing that maintenance is required.	1–999999	20000
Maint.5A/9 Reset Dryer Working Compressor 1: No	Resets the Working hours counters in Window no. Maint. 1B/9.	YES–NO	NO
Maint.5B/9 Reset Dryer Working Compressor 2: No	Resets the Working hours counters in Window no. Maint. 1C/9.	YES–NO	NO
Maint.6/9 Enable Remote On/Off No Remote On/Off	Allows Dryer to be started and stopped either using the remote on/off contact or an external Supervisor system.	YES–NO YES–NO	NO NO
Maint.7/9 Keyboard On/Off Block: No	Keyboard On/Off block.	YES–NO	NO
Maint.8/9 Reset Alarm Status Report : No	Removes all data from the Status Report (see CHAP. 6) and resets it to zero.	YES–NO	NO
Maint.9/9 New Maintenance Password: 00000	Allows Maintenance Password to be modified (NB: keep a record of the new Password as the old one will be invalidated).	1–32000	N.A.

3.5.2 – Operation Menu

Window	Parameter explanation	Range	Factory set
I/O 01/35 Air Dew Point Temperature: 000.0°C	Current reading of Dew Point temperature in the air circuit.	–	–
I/O 02/35 Air lnlet Temperature: 000.0°C	Current reading of dryer air intel temperature.	–	–
I/O 03/35 Refrigerant circuit Suction Temperature: 000.0°C	Current reading of refrigerant temperature in suction.	–	–
I/O 04/35 Refrigerant circuit Discharge Temperature: 000.0°C	Current reading of refrigerant temperature in discharge.	–	–
I/O 05/35 Ambient Temperature 000.0°C	Current reading of ambient temperature (QSR280–350).	–	–
I/O 06/35 Compressor Oil Temp. 000.0°C	Current reading of compressor carter oil temperature (QSR280–350).	–	–
I/O 07/35 Refrigerant Circuit Suction Pressure: 00.00Bar	Current reading of refrigerant pressure in compressor suction.	–	–
I/O 08/35 Refrigerant Circuit Discharge Pressure: 00.00Bar	Current reading of refrigerant pressure in compressor discharge.	–	–
I/O 09/35 Digital Input 1 Low Pressure Switch Cxxxxxxxxxxxx	Digital input no. 1: Low Pressure Switch O = Contact Open C = Contact Closed	–	–
I/O 10/35 Digital Input 2 Compr. 1 Protection xCxxxxxxxxxxx	Digital input no. 2: Compressor 1 Thermal Protection O = Contact Open C = Contact Closed	–	–
I/O 11/35 Digital Input 2 Compr. 2 Protection xCxxxxxxxxxxx	Digital input no. 3: Compressor 2 Thermal Protection O = Contact Open C = Contact Closed	–	–
I/O 12/35 Digital Input 4 HT Thermostat Alarm xxxCxxxxxxxxx	Digital input no. 4: High Temperature Alarm O = Contact Open C = Contact Closed	–	–
I/O 13/35 Digital Input 5 AUTO/MANUAL command xxxxCxxxxxxxx	Digital input no. 5: Automatic operation or dryer Manual O = Contact Open C = Contact Closed	–	–

cont.

Window	Parameter explanation	Range	Factory set
I/O 14/35 Digital Input 6 User Alarm xxxxxCxxxxxxxx	Digital input no. 6: User Alarm O = Contact Open C = Contact Closed	–	–
I/O 15/35 Digital Input 7 Fan Alarm xxxxxxCxxxxxxx	Digital input no. 7: Fan Thermal Alarm O = Contact Open C = Contact Closed	–	–
I/O 16/35 Digital Input 8 Not Used xxxxxxxCxxxxxx	Not used	–	–
I/O 17/35 Digital Input 9 Not Used xxxxxxxCxxxxxx	Not used	–	–
I/O 18/35 Digital Input 10 Alarm/Warning Reset xxxxxxxxxCxxxx	Digital input no. 10: This causes the active Alarms/Warnings reset O = Contact Open C = Contact Closed	–	–
I/O 19/35 Digital Input 11 Remote ON signal xxxxxxxxxxCxxx	Digital input no. 11: Remoto On Command O = Contact Open C = Contact Closed	–	–
I/O 20/35 Digital Input 12 Remote OFF signal xxxxxxxxxxxCxx	Digital input no. 12: Remoto OFF Command O = Contact Open C = Contact Closed	–	–
I/O 21/35 Digital Input 13 High Pressure Alarm xxxxxxxxxxxxCx	Digital input no. 13: High Pressure Switch O = Contact Open C = Contact Closed	–	–
I/O 22/35 Digital Input 14 Electr. Drain Alarm xxxxxxxxxxxxxC	Digital input no. 14: Electronic Drain Alarm O = Contact Open C = Contact Closed	–	–
I/O 23/35 Digital Output 1 Compressor 1 Oxxxxxxxxxxxx	Digital output no. 1: Compressor 1 Command O = Contact Open C = Contact Closed	–	–
I/O 24/35 Digital Output 2 Compressor 2 xOxxxxxxxxxxx	Digital output no. 2: Compressor 2 Command (QSR130–225) Capacity Solenoid Valve Relay (QSR280–350) O = Contact Open C = Contact Closed	–	–
I/O 25/35 Digital Output 3 Air-Air Drain xxOxxxxxxxxxx	Digital output no. 3: Condensate drain dryer air–air side O = Contact Open C = Contact Closed	–	–
I/O 26/35 Digital Output 4 Air-Refrig. Drain xxxOxxxxxxxxx	Digital output no. 4: Condensate drain dryer air–refrigerant side O = Contact Open C = Contact Closed	–	–

cont.

Window	Parameter explanation	Range	Factory set
I/O 27/35 Digital Output 5 Fan 1 xxxxOxxxxxxxx	Digital output no. 5: Fan 1 Command (QSR130−225) Not Used (QSR280−350) O = Contact Open C = Contact Closed	−	−
I/O 28/35 Digital Output 6 Fan 2 xxxxxOxxxxxxx	Digital output no. 6: Fan 2 Command (QSR130−225) Not Used (QSR280−350) O = Contact Open C = Contact Closed	−	−
I/O 29/35 Digital Output 7 Fan 3 xxxxxxOxxxxxx	Digital output no. 7: Fan 3 Command (QSR130−225) Not Used (QSR280−350) O = Contact Open C = Contact Closed	−	−
I/O 30/35 Digital Output 8 Dryer ON signal xxxxxxxOxxxxx	Digital output no. 8: Dryer On Signal Exchange contact	−	−
I/O 31/35 Digital Output 9 Refr. Solenoid Valve xxxxxxxxOxxxx	Digital output no. 9: Refrigerant solenoid valve	−	−
I/O 32/35 Digital Output 10 Not Used xxxxxxxxxOxxx	Not Used	−	−
I/O 33/35 Digital Output 11 Not Used xxxxxxxxxxOxx	Not Used	−	−
I/O 34/35 Digital Output 12 General Alarm xxxxxxxxxxxOx	Digital output no. 12: General Alarm signal O = Contact Open C = Contact Closed	−	−
I/O 35/35 Digital Output 13 General Warning xxxxxxxxxxxxO	Digital output no. 13: General Warning signal O = Contact Open C = Contact Closed	−	−

3.5.3 − Set Menu

Window	Parameter explanation	Range	Factory set
Set 01/13 Select Language Seleziona Linguaggio EN	Allows to select one of the available languages.	EN − IT	EN
Set 02/13 Timed Drain 1: Time Off 000sec	Timed drain 1 (before evaporator). Programming time Off.	40−990	170
Set 03/13 Timed Drain 1: Time On 000sec	Timed drain 1 (before evaporator). Programming time On.	1−30	4

cont.

Window	Parameter explanation	Range	Factory set
Set 04/13 Timed Drain 1: Force Manually No	Manually force for test or if faulty. The On and Off parameters are ignored if electronic drains are present.	YES – NO	NO
Set 05/13 Timed Drain 2: Time Off 000sec	Timed drain 2 (after evaporator). Programming time Off.	40 – 990	300
Set 06/13 Timed Drain 2: Time On 00sec	Timed drain 2 (after evaporator). Programming time On.	1 – 30	3
Set 07/13 Timed Drain 2: Force Manually No	Manually force for test or if faulty. The On and Off parameters are ignored if electronic drains are present.	YES – NO	NO
Set 08/13 Automatic Restart after Blach-out No	Permits Dryer to restart automatically after a power supply interruption.	YES – NO	NO
Set 09/13 Metric/Imperial Data Temperature °C	Permits the visualization of temperature in °C or °F.	°F – °C	°C
Set 10/13 Metric/Imperial Data Pressure Bar	Permits the visualization of pressures in bar or psi.	psi – bar	bar
Set 11/13 Alarm Siren ON Time: 000sec (0=Continuously ON)	Defines the time for which the alarm siren remains on (0 = remains on till <alarm> button is pressed).	0 – 900	0
Set 12/13 Supervisor Network Adress: 000	For use with external Supervisor. Address identifies the dryer.	0 – 900	0
Set 13/13 Communication Speed: 1200bps(RS485/RS422)	For use with external Supervisor. Speed depends upon Supervisor characteristics.	1 – 1200	1200

3.5.4 – Program Menu

Window	Parameter explanation	Range	Factory set
Enter User Password 00000	User must enter Program Password (as described in para. 3.2) to continue.	1 – 32000	on removable back page
PGM 01/26 High Dew Point Temp. Warning 00.0°C	Defines Set Point for intervention of Dew Point High Temperature Warning.	–22 ... +86°F (–30 ... +30°C)	86 (30)

cont.

Window	Parameter explanation	Range	Factory set
PGM 02/26 Low Dew Point Temp. Alarm 00.0°C	Defines Set Point for intervention of Dew Point Low Temperature Alarm.	−22 ... +104°F (−30 ... +40°C)	32 (0)
PGM 03/26 High Dew Point Warning Delay: 00min	Delay between when Set point is superseded and Warning is activated.	1−15 min.	10
PGM 04/26 High Air Inlet Temp. Warning: 00.0°C	Set Point for intervention of Air inlet High Temperature Warning.	+50 ... +210°F (+10 ... +98.9°C)	122 (50)
PGM 05/26 Low Suction Temp. Warning: 00.0°C	Set Point for for intervention of Suction Low Temperature Warning.	−22 ... +104°F (−30 ... +40°C)	30.2 (−1)
PGM 06/26 Low Discharge Temp. Warning: 00.0°C	Set Point for intervention of Discharge Low Temperature Warning.	+86 ... +204°F (+30 ... +95.6°C)	113 (45)
PGM 07/26 High Disch. Pressure Warning: 00.0Bar	Set Point for intervention of Discharge High Pressure Warning.	108 ... +435 psi (7.4 ... +30 bar)	297.2 (20.5)
PGM 08/26 Low Suction Press. Warning: 0 0.0Bar	Set Point for intervention of Suction Low Pressure Warning.	−34 ... +101 psi (−2.3 ... +7 bar)	58.0 (4.0)
PGM 09/26 User Alarm: Effect: Warning	Permits the User to install a personalized alarm. Refer also to para. 5.5.	Warning, Stop	Warning
PGM 10/26 User Alarm: Delay: 000sec	Permits the User to install a personalized alarm. Refer also to para. 5.5.	0−600 sec.	0
PGM 11/26 User Alarm: Reset: MAN.	Permits the User to install a personalized alarm. Refer also to para. 5.5.	MANUAL, AUTO	MANUAL
PGM 12/26 Low Suction Temp. Alarm: 00.0°C	Defines Set Point for intervention of Suction Low Temperature Alarm.	−22 ... +104°F (−30 ... +40°C)	28.4 (−2)
PGM 13/26 High Suction Temp. Alarm: 00.0°C	Defines Set Point for intervention of Suction High Temperature Alarm.	−22 ... +104°F (−30 ... +40°C)	77 (25)
PGM 14/26 High Suction Temp. Alarm Delay: 00min	Delay between when Set point is superseded and Alarm is activated.	1−10 MIN.	3

cont.

Window	Parameter explanation	Range	Factory set
PGM 15/26 High Discharge Temp. Warning: 000.0°C	Defines Set Point for intervention of Discharge High Temperature Warning.	86–204°F (30–95.6°C)	248 (120)
PGM 16/26 Low Ambient Temp. Warning: 000.0°C	Defines Set Point for intervention of Low Temperature Ambient Warning (QSR280–350).	–22 ... +104°F (–30 ... +40°C)	35°F (2°C)
PGM 17/26 Low Pressure Alarm Delay At Start Up 00min	Delay between when Set point is superseded and Alarm is activated on dryer start up.	1–10 min.	3
PGM 18/26 Low Pressure Alarm Delay in Operation 000sec	Delay between when Set point is superseded and Alarm is activated during dryer operation.	1–240 sec.	15
PGM 19/26 Analog out 0-10VDC Condensing Pressure Enabled : Yes	Analog outlet 0–10V Enabling proportional to the Condensation Pressure (see para. 5.6.1).	YES–NO	YES
PGM 20/26 Analog out 0-10VDC Condensing Pressure Min Press.: 000.0Bar	Pressure value corresponding to 0V (see para. 5.6.1).	72,5–435,0 psi (5,0–30,0 bar)	–
PGM 21/26 Analog out 0-10VDC Condensing Pressure Max Press.: 000.0Bar	Pressure value corresponding to 10V (see para. 5.6.1).	72,5–435,0 psi (5,0–30,0 bar)	–
PGM 22/26 Analog out 0-10VDC Remote Dew Point Enabled: Yes	Analog outlet 0–10V Enabling proportional to the Dew Point Temperature.	YES–NO	YES
PGM 23/26 Analog out 0-10VDC Remote Dew Point Min Temp.: 000.0°C	Temperature value corresponding to 0V.	–22 ... +104°F (–30 ... +40°C)	0°C
PGM 24/26 Analog out 0-10VDC Remote Dew Point Max Temp.: 000.0°C	Temperature value corresponding to 10V.	–22 ... +104°F (–30 ... +40°C)	10°C
PGM 25/26 Analog out PWM Condensing Pressure Enabled: Yes	Analog outlet PWM Enabling reproducing the Condensation Pressure (see para. 5.6.2).	YES–NO	YES
PGM 26/26 Analog out PWM Remote Dew Point Enabled: Yes	Analog outlet PWM Enabling reproducing the Dew Point Temperature (see para. 5.6.2).	YES–NO	YES

4 – Alarms

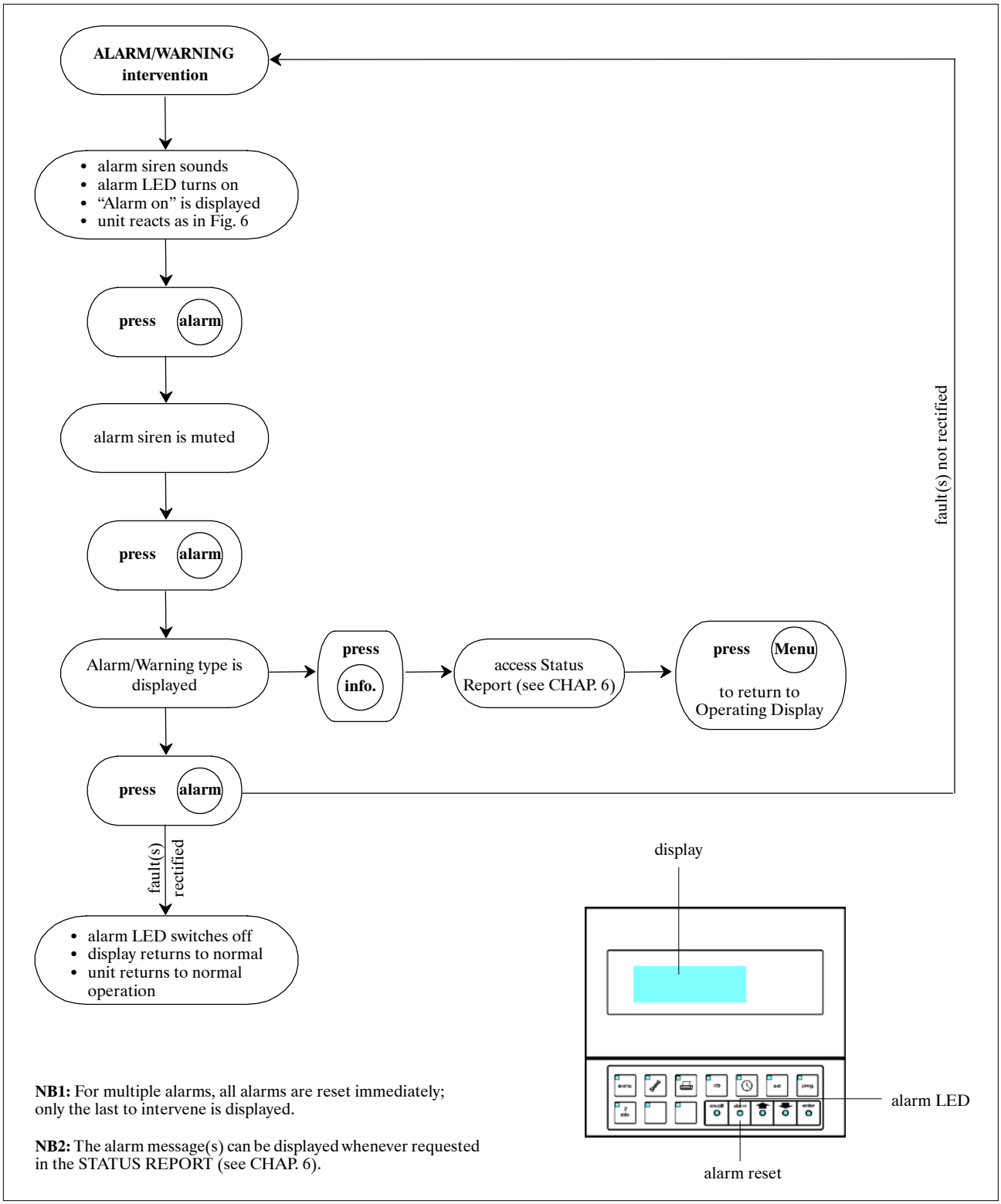
The Dryer features numerous Alarms and Warnings to ensure correct operation.
Warnings do not effect Dryer operation, whilst Alarms partially or totally block Dryer operation.

NB: A voltage free General Alarm contact is provided, to allow remote Alarm signaling (refer to Dryer's electrical diagram).

4.1 – Resetting Alarms/Warnings

Fig. 5 outlines the procedure to be applied to reset an Alarm or Warning.

Fig. 5 – Alarm resetting



NB1: For multiple alarms, all alarms are reset immediately; only the last to intervene is displayed.

NB2: The alarm message(s) can be displayed whenever requested in the STATUS REPORT (see CHAP. 6).

4.2 – Alarms/Warnings

Fig. 6 list all Alarms and Warnings, as well as explaining their effect on Dryer operation.

Fig. 6 – Alarms/Warnings

Alarm code	Alarm/Warning description	Intervention delay	Action
AL01	Permanent memory error	Immediate	Dryer off
AL02	Dew point sensor fault	Immediate	Dryer off
AL03	Air inlet temperature sensor fault	Immediate	Signal only
AL04	Discharge pressure sensor fault	Immediate	Signal only
AL05	Suction pressure sensor fault	Immediate	Dryer off
AL06	Suction temperature sensor fault	Immediate	Signal only
AL07	High Dew Point Warning	Programmable at Dryer start–up (std. = 5 min), immediate during operation	Signal only
AL08	Low Dew Point Alarm	Immediate	Dryer off
AL09	High air inlet temperature Warning	Immediate	Signal only
AL10	Low suction temperature Warning	Immediate	Signal only
AL11	Low suction temperature Alarm	Immediate	Dryer off
AL12	Low discharge temperature Warning	5 minutes at Dryer start–up, immediate during operation	Signal only
AL13	High discharge temperature Warning	Immediate	Signal only
AL14	High discharge temperature Alarm	Immediate	Dryer off
AL15	High discharge pressure Warning	Immediate	Signal only
AL16	High discharge pressure Alarm	Immediate	Dryer off
AL17	High suction temperature Alarm	Programmable at Dryer start–up (std. = 3 min), immediate during operation	Dryer off
AL18	Low suction pressure Warning	Programmable at Dryer start–up (std. = 3 min), immediate during operation	Signal only
AL19	Low suction pressure Alarm	Programmable at Dryer start–up (std. = 3 min), immediate during operation	Dryer off
AL20	Compressor 1 thermal protection Alarm (QSR130–225)	Immediate	Compressor off
AL21	Compressor 2 thermal protection Alarm (QSR130–225)	Immediate	Compressor off
AL22	Low oil differential pressure (QSR280–350)	Immediate (delay already present in pressostatic switch)	Dryer off
AL23	Electronic drains error warning	Immediate	Signal only
AL25	User alarm	Programmable 0–600 sec.	See para. 5.5
AL26	Programmed maintenance due – Warning	Immediate	Signal only
AL27	Ambient temperature sensor fault alarm	Immediate at unit start up	Dryer off
AL28	Low ambient temperature warning	Immediate	Signal only
AL29	Antifreeze alarm	Immediate	Dryer off
AL30	Carter temperature sensor fault alarm	Immediate at unit start up	Dryer off
AL31	Ambient temperature sensor fault warning	Immediate during unit operation	Signal only
AL32	Carter temperature sensor fault warning	Immediate during unit operation	Signal only

5 – Operation

5.1 – Language selection

Access the Set Menu – Window "Set 01/13" and select one of the languages available.

5.2 – Remote Start/Stop

If the Dryer is under power and in stand–by (yellow LED within "Enter" button lit up) the Dryer can be started and stopped using "on–off". When operating the green LED within the "on–off" button is lit up.

5.2.1 – Avvio/Arresto remoto

Remote start/stop is enabled in the Maintenance Menu, "Manut. 6/9" window (refer to par. 3.5.1).
4 settings are possible:

- **No remote ON/OFF:** the On–Off Remote Contact and the Supervisor are ignored and the Dryer must be started/stopped from the front panel.
- **Yes remote ON/OFF:** the Dryer can be started/stopped remotely and from the front panel. If stopped remotely, the message "STOP from remote" is displayed. Press the panel On/Off button to turn the machine OFF. Pressing the On/Off button on the panel again puts the machine in "STOP from Remote": a machine stopped from remote cannot be started from the panel. With this setting the supervisor is ignored.
  NB: After setting, the Dryer must be started from the front panel only the first time.
- **Local ON/OFF buttons:** the dryer can also be started/stopped by the two buttons possibly present on the front panel.
  If present, these buttons are connected to the digital inputs ID11–ID12.
  By selecting the "Local ON/OFF buttons" option, these digital inputs have the same functions and the same priority as the ON/OFF button on the keypad.
  To use the digital inputs ID11–ID12 for remote control, the "Yes remote ON/OFF" option must be selected.
  When the "Local ON/OFF buttons" option is activated, the control ignores commands from the Supervisor.

  Caution: For safety reasons, to avoid untimely starting, DO NOT use the inputs ID11–ID12 for remote command with the "Local ON/OFF buttons" option activated.
- **Yes Supervisor ON/OFF:** the Dryer can be started/stopped from the Supervisor and from the front panel. If stopped from the Supervisor, the message "STOP from Supervisor" is displayed. Press the On/Off button on the panel to turn the machine OFF. Pressing the On/Off button on the panel again puts the machine in "STOP from Supervisor": a machine stopped from Supervisor cannot be started from the panel. With this setting the Remote Control digital input is ignored.

  NB: For safety reasons, use of the ON/OFF commands from Remote and Supervisor must be accompanied by an emergency stop on the Dryer.

5.3 – Operation

Once started, the Dryer has been pre–programmed to operate autonomously, without the need for any further programming.

5.3.1 – Compressor operation

When the dryer is on, the compressor always runs. In units with a multi–stage compressor (i.e., with partialisation capability), compressor operation is controlled by measuring the refrigerant suction pressure. If the refrigerant suction pressure rises above a pre–set level, one or two stages (depending on the model) are inserted one at a time.
These will be de–inserted if the refrigerant suction pressure drops below another pre–set level. A hot gas By–pass valve prevents freezing in conditions of very low load. In this way the Dryer obtains an accurate Dew Point control. In multi–stage compressors, after a certain number of hours of continuous work in partialisation mode, all stages are inserted for a few minutes, in order to mantain the efficiency of the compressor.

5.4 – Condensate Drains

The Dryer features two condensate drains: drain 1 is positioned after the air–to–air heat exchanger and before the evaporator; drain 2 is positioned after the evaporator. Two drain options are offered, timed or electronic.

5.4.1 – Timed drain

The drain control parameters (time off and time on) are programmed in the Set menu (see para. 3.5.3).
it is possible to manually activate (or force) the drain, again in the Set Menu, to verify its operation, or in case the drain is defective.

5.4.2 – Electronic drain

The electronic drain operates without any need for programming (and as such the off and on Parameters in the Set Menu are ignored).

5.5 – User alarms

The Dryer is equipped with one User Alarm. This is programmed in the Program Menu (see para. 3.5.4), as follows:

- **Effect:**
  - **Warning:** Alarm message and siren, but no effect on Dryer operation.
  - **Alarm:** As per Warning, but stops Dryer.
- **Delay:**
  - Allows a delay for the Alarm intervention to be programmed (in the range 0–600 secs.).
- **Reset:**
  - **MANUAL:** The alarm must be manually reset for the Dryer to restart (if effect was set as "Alarm").
  - **AUTO:** The Dryer automatically restarts when the alarm cause has been resolved (if effect was set as "Alarm").

5.6 – Analogue outputs

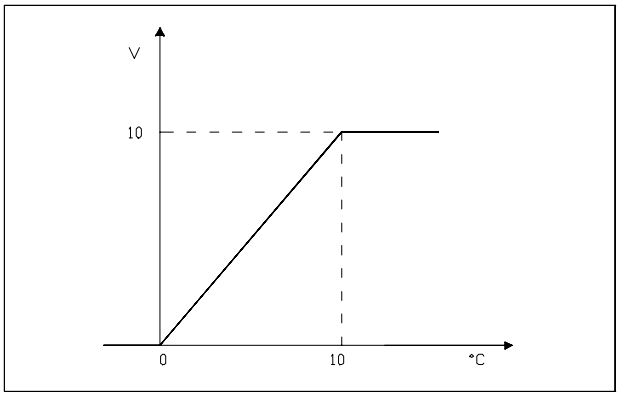
The control has 4 analogue outputs named Y1, Y2, Y3, Y4 which reproduce the condensation pressure and Dew Point. The analogue outputs Y1, Y2 supply a 0–10V type signal whereas the outputs Y3, Y4 supply a PWM–type signal (Pulse Duration Modulation).

5.6.1 – 0–10V type analogue outputs

Output Y1: supplies a voltage signal of variable amplitude from 0 to 10V proportional to the Dryer Condensation Pressure.
Enable analogue output Y1: Programme Menu – Window "PGM 19/26".
Pressure value setting corresponding to Vout=0V: Programme Menu – Window "PGM 20/26"
Pressure value setting corresponding to Vout=10V: Programme Menu – Window "PGM 21/26".

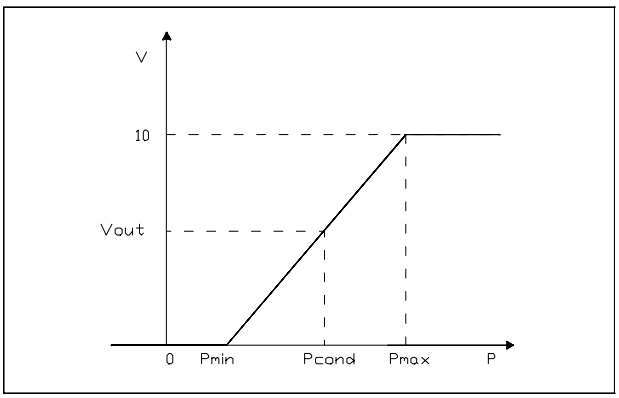
Output Y2: supplies a voltage signal of variable amplitude from 0 to 10V proportional to the Dryer Dew Point.
Enable analogue output Y2: Programme Menu – Window "PGM 22/26".
Temperature value setting corresponding to Vout=0V: Programme Menu – Window "PGM 23/26".
Temperature value setting corresponding to Vout=10V: Programme Menu – Window "PGM 24/26".

Example: by setting the range limits Tmin = 0 °C and Tmax = 10 °C the relationship between output voltage and measured temperature is shown in the figure below.



In this case an output voltage of 5V corresponds to a temperature of 5°C.

Example: with reference to output Y2, setting the range limits Pmin = 15 Bar and Pmax = 20 Bar (values for R407C refrigerant) gives the relationship shown in the figure below.



A Vout = 5V gives:
Vout / 10 = (Pcond – Pmin) / (Pmax – Pmin) which gives Pcond = 17.5 Bar.

5.6.2 – PWM–type analogue outputs

The analogue outputs Y3, Y4 supply a PWM–type signal representing the Dryer Dew Point and Condensation Pressure.

Enable analogue output Y3:
Programme Menu – Window "PGM 25/26".

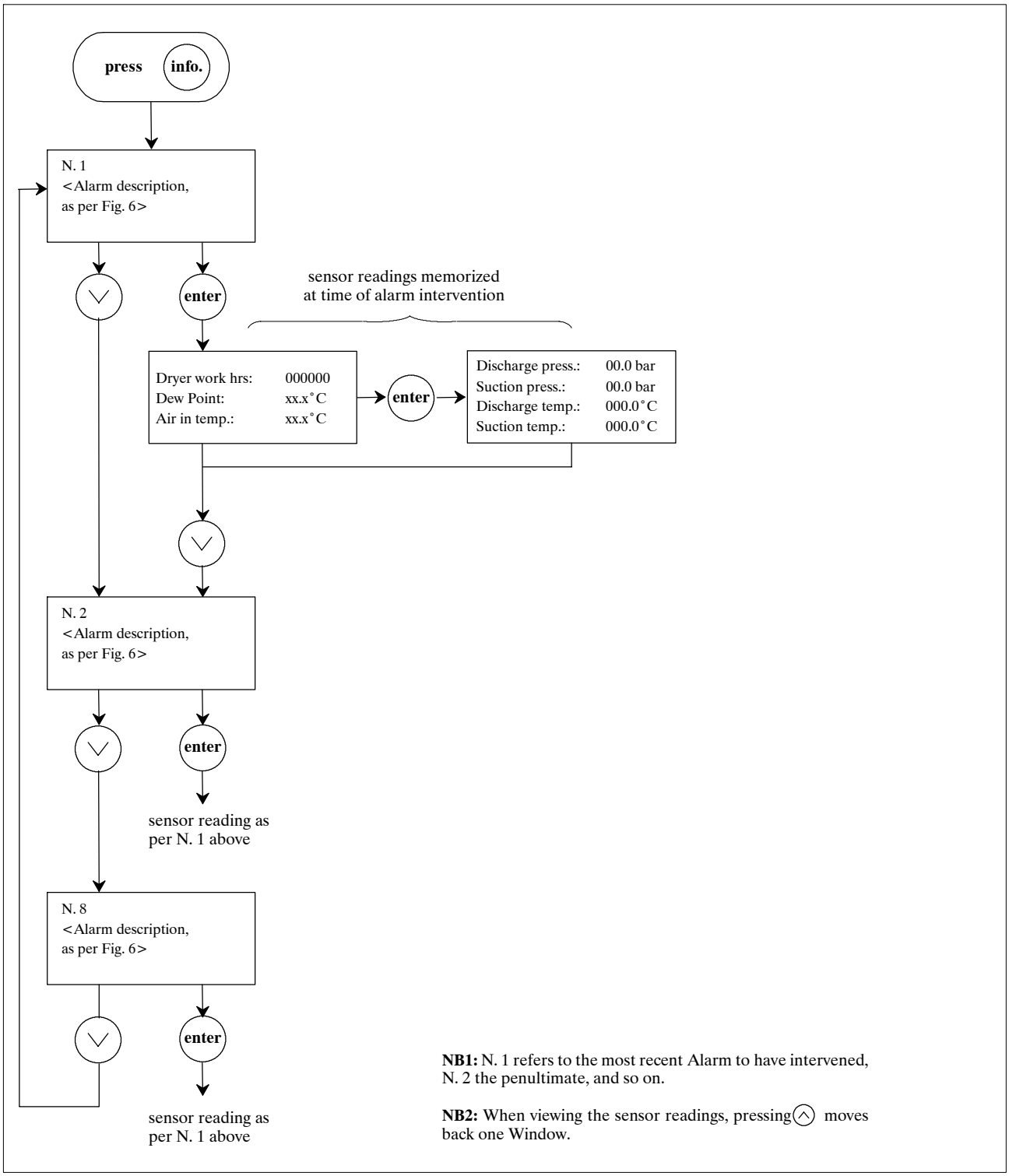
Enable analogue output Y4:
Programme Menu – Window "PGM 26/26".

6 – Status Report

Status Report lists the 8 most recent alarms, and memorizes all sensor reading at the time of each of these intervening.
Status Report can be accessed at any time, and operates as described in Fig. 7.

Status Report can be reset in the Maintenance Menu (see para. 3.5.1), in which case all information is erased.
To exit Status Report (and return to the Operating Display) simply press “Menu”.

Fig. 7 – Status Report



7 – Spare parts

We recommend the use of original spare parts. When ordering parts, quote the part code, as well as the unit's model number and serial number.

Code	Description
275697	Electronic Card (A1)
275754	Local Display (A2)
275224	NTC sensor (6 m)
275559	Refrigerant discharge temperature sensor
275277	6–way telephone cable (1.5 m)
275689	RS485 Serial Card (opt.)
275304	Low pressure trasducer (P1)
275306	High pressure trasducer (P2)

Fig. 8 – Interface board (QSR130–225)

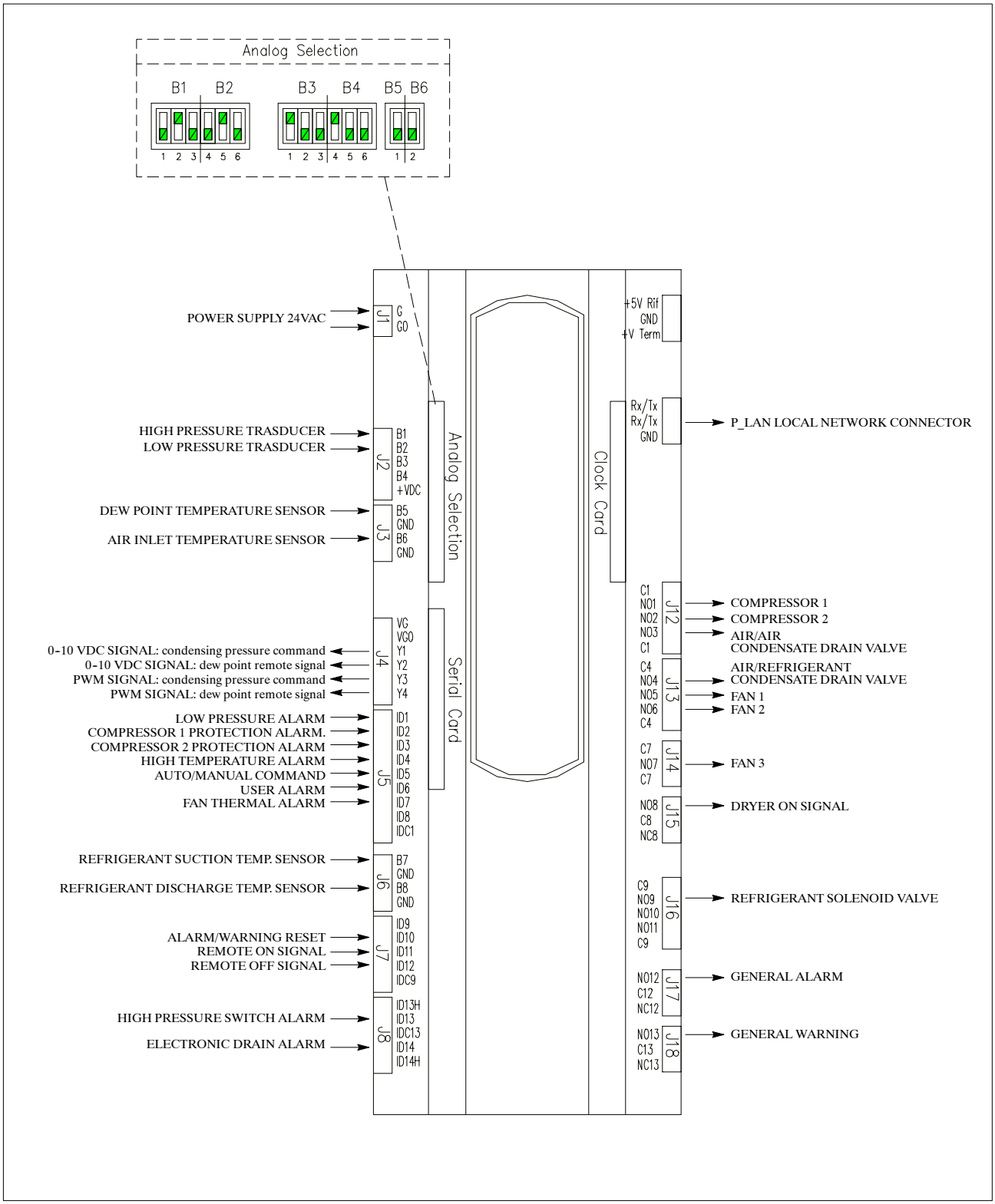
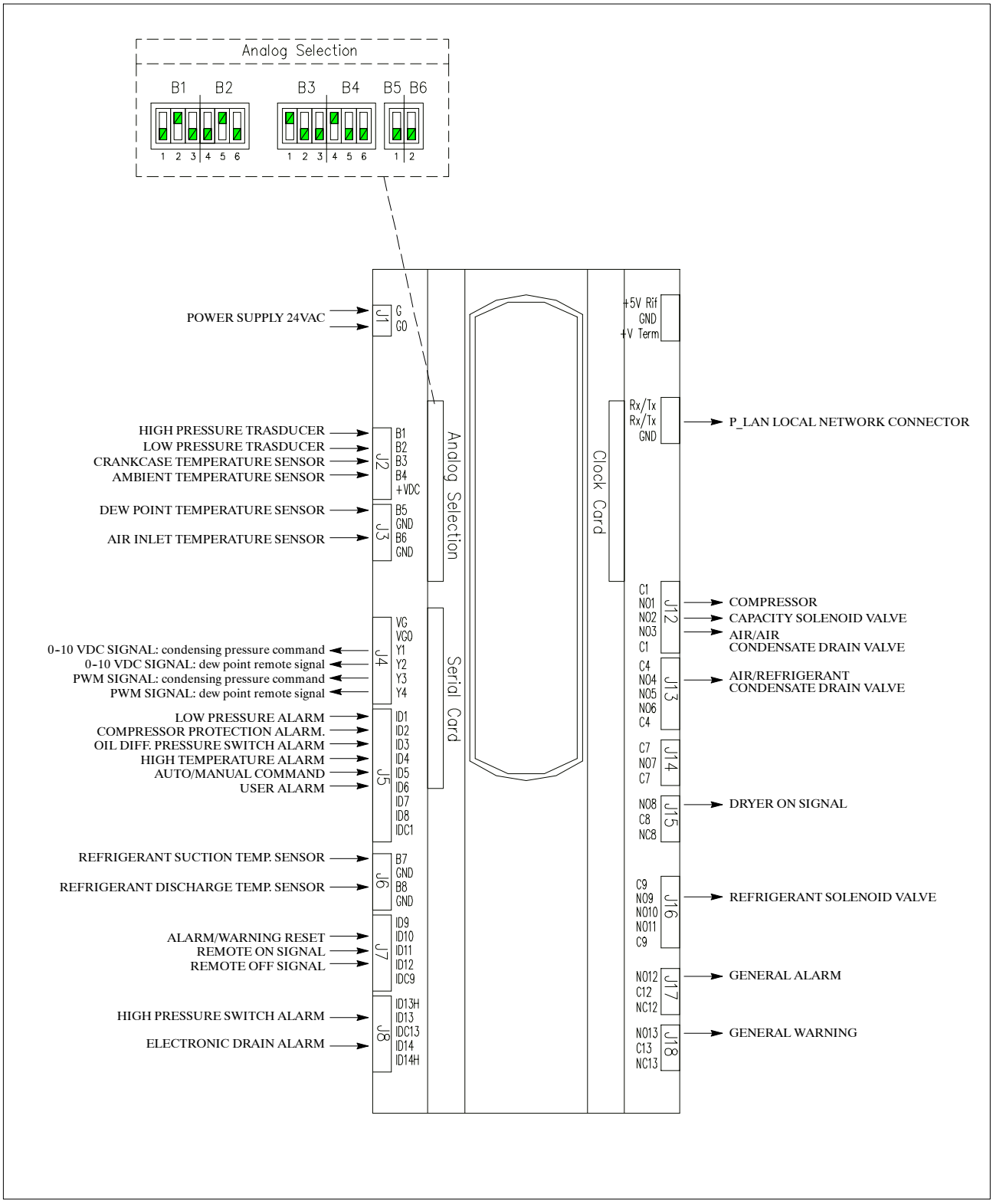


Fig. 9 – Interface board (QSR280–350)



(IT) Informazioni riservate all'assistenza tecnica

N.B.: L'utente può staccare questa pagina dal manuale affinché le password restino note solo alle persone autorizzate a riparare l'unità.

Password

Le seguenti Password forniscono accesso ai Menu (vedere CAP. 3):

Password Menu Manutenzione	00501
Password Menu Programma	00734

(EN) Information for servicing only

N.B.: The user may wish to detach this page from the manual so that the passwords are only known to those persons authorised to service the unit.

Password

The following Passwords give access to The Menus (see CHAP. 3):

Maintenance Menu Password	00501
Program Menu Password	00734

(DE) Information – nur für das Wartungspersonal

Hinweis: Auf Wunsch kann diese Seite aus dem Handbuch entfernt werden, damit die Passwörter ausschließlich dem autorisierten Fachpersonal bekannt sind.

Passwort

Die folgenden Passwörter erlauben den Zugriff auf die genannten Menüs (siehe KAPITEL 3):

Wartungsmenü – Passwort	00501
Programmiermenü – Passwort	00734

(ES) Información sólo para mantenimiento

Nota: El usuario puede separar esta página del manual si desea que las contraseñas sólo sean conocidas por las personas autorizadas para el mantenimiento de la unidad.

Contraseña

Las siguientes contraseñas permiten acceder a los menús (consulte el Capítulo 3):

Contraseña del menú Maintenance	00501
Contraseña del menú Program	00734

(PL) Informacje dla celów serwisowych

Uwaga: Niniejszą stronę można oderwać tak, aby hasła były dostępne wyłącznie dla osób upoważnionych do serwisowania urządzenia.

Hasło

Dostęp do menu można uzyskać przy pomocy następujących haseł (patrz CHAP. 3):

Hasło do menu "Konserwacja"	00501
Hasło do menu "Program"	00734

(CS) Informace vyhrazené servisu

Pozn.: Uživatel může tuto stránku příručky oddělit, aby hesla zůstala k dispozici pouze osobám autorizovaným k opravě zařízení.

Heslo

Následující hesla umožňují přístup k nabídkám (viz kap. 3):

Heslo nabídky Údržba	00501
Heslo nabídky Program	00734

Parker Hiross S.p.A.
Customer Service Centre
Strada Zona Industriale, 4
35020 S. Angelo di Piove (PD) Italy
tel. +39 049 9712.170
fax +39 049 9712.187
e-mail customer.service.hiross@parker.com
website www.dh-hiross.com