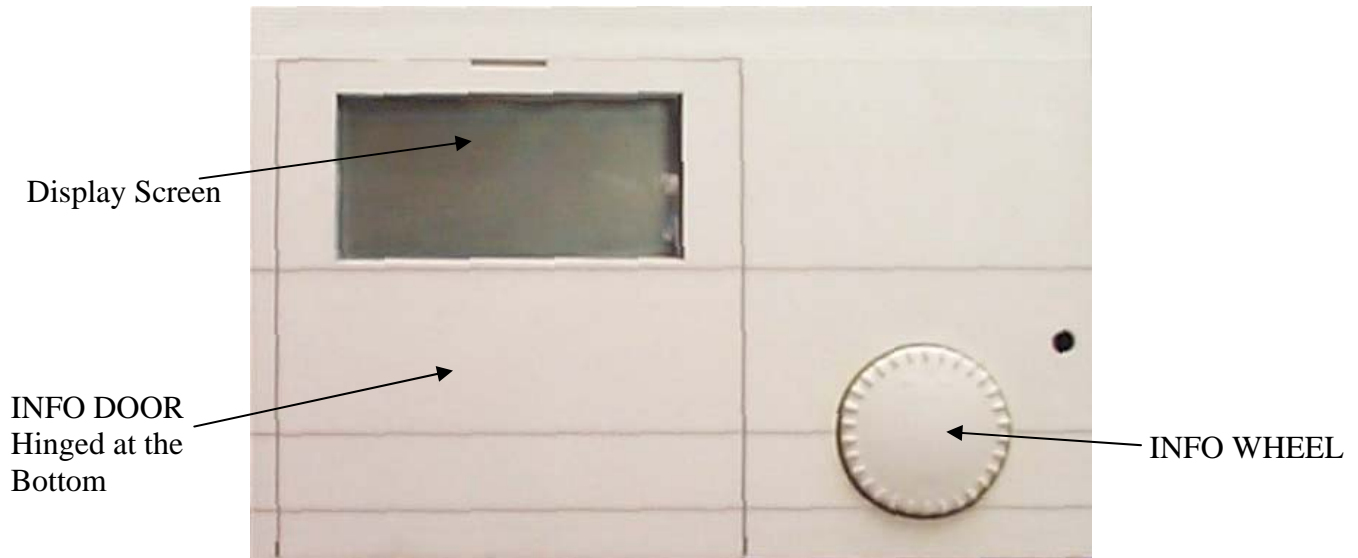




ProCon 28 Controller Quick Reference Guide.

The Krom Schroder KM621 boiler control unit utilized by the ProCon 28 can offer the following control options and adjustable parameters.



The controller has 3 levels of information review and adjustment.

INFO DOOR Closed. General operation information. Boiler status, Flow temperature
Operating mode adjustment via Info Wheel. Standby, Auto, HWS only.
Commissioning mode operation. Low fire, High fire

INFO DOOR Open First Level. Boiler lockout reset.
Boiler control sequence indication.
Operating parameter review. (Comfort levels.)
Operating parameter adjustment. (Comfort levels.)

INFO DOOR Open Second Level. Operating parameter review. (Combustion, Modulation, Pumping.)
(Engineers level via password.) Operating parameter adjustment. (Combustion, Modulation, Pumping.)






Controller interpretation and adjustment.

INFO DOOR Closed. (General operating position.)

Five modes of operation can be selected when the INFO DOOR is closed.

By rotating the INFO WHEEL smoothly but steadily the mode can be altered.

Mode Selection

Symbol	Mode	Description
	STANDBY	All heating and hot water circuits Off. Frost protection active.
	AUTOMATIC	All heating and hot water circuits can be enabled via external system controls
	SUMMER (HWS Only)	Hot water circuits Only can be enabled via external system controls.
	COMMISSIONING LOW	The burner will operate on Low fire continually.
	COMMISSIONING HIGH	The burner will operate on High fire continually.

Rotating the INFO WHEEL smoothly but steadily to the left will eventually place the unit in the STANDBY mode.

Rotating the INFO WHEEL smoothly but steadily to the right will allow the use to select one of the operating modes as detailed above.

Operating Mode Description

STANDBY: -

The unit will not operate in either the heating or hot water production mode.
The unit will be protected via its internal frost protection program that will activate the pump and burner at predetermined external / boiler water temperatures.
The internal pump stand still seizer protection program will be operational.

AUTOMATIC:-

The unit will respond to enable signals from the heating control circuit and the hot water control circuit.

SUMMER (HWS ONLY):-

The unit will only respond to an enable signal from the hot water control circuit.

COMMISSIONING LOW:-

The unit will operate continually on low fire until the flow temperature of the boiler reaches the overheat thermostat cut out temperature. Following this cut out the boiler / controller will require manual resetting once the unit has cooled sufficiently.

COMMISSIONING HIGH:-

The unit will operate continually on high fire until the flow temperature of the boiler reaches the overheat thermostat cut out temperature. Following this cut out the boiler / controller will require manual resetting once the unit has cooled sufficiently.

Additional Screen Information. (INFO DOOR closed.)




The screen of the controller will display the following information in addition to that detailed above.

Boiler Flow Temperature:-

The large numeric indication (To the right of the display screen.) indicates the flow temperature of the appliance in °C.

Boiler Status Indication:-

The following symbols indicate the operating mode of the appliance:

Operating Mode	Symbol	Description
Normal Operation. (Burner not operating.)		The system control circuit has enabled the boiler and the burner is not firing.
Switched Off / Reduced Operation (Night set back temperature activation when combined with indication below.)		The system control circuit has not enabled the boiler.
Normal Operation. (Burner operating.) (Flashing)	 (Flashing)	The system control circuit has enabled the boiler and the burner is firing.

Error Indication:-

If the boiler fails to operate correctly the unit will lock out and require manual intervention to reset the controller.

The following symbol will be displayed on the display  screen:

If this symbol appears on the display screen the unit will require manual resetting.

Prior to resetting the unit a note should be made of the fault code generated by the controller. This will assist the members of the Technical Services Department within the MHS Group to diagnose and advise on a remedy to rectify the fault if required.

The fault indication code and lockout reset button can be found by opening the INFO DOOR. (Hinged at the bottom.)

The screen will be indicating (on the left-hand side) a numeric fault code either single or double digit. (Please make a note of this number.)

To reset the controller the lockout reset button must be pressed, this button has dual functions and is the SQUARE ENTER BUTTON adjacent to the flashing RED LED.

PLEASE NOTE THAT THE LOCKOUT CAN NOT BE RESET IF THE CONTROLLER IS IN THE STANDBY MODE.

Once you have pressed the SQUARE ENTER BUTTON close the INFO DOOR.

The boiler will pass through a number of internal checks and then return to the operating mode chosen by the INFO WHEEL when the INFO DOOR is in the closed position.

The numeric lockout fault indications are listed below: (Short List)

Fault Code	Description	Fault Code	Description
1	Boiler water temperature overheat.	14	HWS Sensor failure / not installed
2	Low system water pressure.	20	Gas valve solenoid failure. V1
4	Ignition failure upon ignition.	21	Gas valve solenoid failure. V2
5	Flame extinguished during operation.	24	Fan speed not satisfactory during pre purge.
7	Flue Gas temperature overheat.	25	Fan speed not satisfactory during ignition.
11	Flame sensed on burner when appliance off.	99	Control module failure

INFO DOOR Open. (First Level Parameter Review and Alteration).

The display has a dual function when the INFO DOOR is open.

Operational Parameter Review and Alteration & Appliance Control Sequence Indication.

Operational Parameter Review and Alteration:-

The operational parameters of the controller can be reviewed and altered as required by utilizing the INFO WHEEL and SQUARE ENTER BUTTON.

Please note Alteration of these parameters will not effect the safe operation of the unit but will effect the potential heat availability of the boiler in either heating or hot water production modes

The operational parameters are listed along the lower edge of the display screen.

The INFO WHEEL can be used to move the indicating ▼ to appear above the parameter that requires reviewing or altering.

Once the indicating ▼ appears above the required parameter the stored setting will be displayed, if the value requires altering the SQUARE ENTER BUTTON must be pressed once. This allows the value to be altered utilizing the INFO WHEEL. Once the desired value has been reached the SQUARE ENTER BUTTON must be pressed to stored the new value.



The list below details the function of each parameter:

#	Name	Description	Min Value	Max Value	Recommended Value
1	Boiler	Actual boiler temperature/target °C	20	90	80
2	Sanitary water	Required hot water storage temperature. °C Adjust to 0 if no HWS is required	0	80	60
3	Room Temperature	Required heated space occupied temperature °C	5	30	20
4	Reduced Temperature	Required heated space unoccupied / reduced temperature °C	5	30	15
5	Outside	Outside air temperature °C	Display Only	Display Only	Display Only
6	Exhaust Fumes	Flue gas temperature °C	Display Only	Display Only	Display Only
7	Heating Curve	Compensated heating slope set point	0.0 Slope Switched Off. (Constant Flow Temperature)	2.6	2.6
8	Fix Value Boiler	Maximum boiler operating temperature	5	90	80
9	Burner Capacity	Actual capacity at which the burner is operating. 25-100%	25	100	100
10	Parameter	Password to Second Level Parameters	0	255	?

Appliance Control Sequence Indication:-

The control sequence of the appliance can be observed with the INFO DOOR in the open position.

The status of the controller can be divided into Inputs and Outputs.

The inputs are detailed on the Left of the display screen.

The outputs are detailed on the Right of the display screen.

To indicate when an input has been received a ◀ will appear adjacent to the respective symbol.

To indicate when an output has been activated a ▶ will appear adjacent to the respective symbol.



The inputs are designated as follows:

Description	Symbol
Flame Signal Received	▶
Inlet Gas Pressure switch activated. (Not Used)	GAS
Combustion Air pressure switch activated. (Not Used)	AIR
Enable signal received	R T
Room control unit activated	◀◊▶

The outputs are designated as follows:

Description	Symbol
The gas valve is being energized.	▶
The ignition spark is being energized.	▶⚡
The combustion fan is being energized.	▶
The internal pump is being energized.	▶
The unit is in HWS operation. (Hot Water Production Mode)	▶

Boiler Ignition Sequence Numeric Indication:-

With the INFO DOOR open the boiler ignition sequence can be witnessed, indicated by numeric notation displayed on the left hand side of the display screen.

The numeric indications are designated as follows:

Sequence Number	Description
3	Fan operating at pre purge rate
4	Ignition spark generation
5	Gas valve activation
6	Flame stabilization and rectification
-	Burner released to modulate

Having completed the parameter review / update, the First Level can be exited by closing the INFO DOOR.

INFO DOOR Open. (Second Level Parameter Review and Alteration).

Following the insertion of the correct password the Second Level parameter review and alteration level is accessible.

The parameters contained within the Second Level effect the safe operation of the appliance and should only be adjusted by a qualified heating engineer that has been trained by the MHS Group PLC.

The operational parameters of the controller can be reviewed and altered as required by utilizing the INFO WHEEL and SQUARE ENTER BUTTON.

During the alteration of the Second Level parameters the ▼ indicator will remain above the Password setting.

Each parameter is identified by a numeric display that appears on the left hand side of the display screen.

By utilizing the INFO WHEEL in a clockwise direction the stored values can be reviewed. If a setting requires updating the SQUARE ENTER BUTTON must be pressed and the revised value entered via the INFO WHEEL.

Once the required value is displayed the SQUARE ENTER BUTTON must be pressed to store the new setting.

Having completed the parameter review / update, the Second Level can be exited by either turning the INFO WHEEL in an anti clockwise direction or by closing the INFO DOOR.

The list below details the function of each parameter:

#	Description	Min Value	Max Value	Recommended Value
11	Maximum Flow Temperature	20	95	80
12	Modulation Hysteresis Boiler Off	0	30	8
13	Anti Cycle OFF Time Minimum	0	30	3
14	Boiler Control Parameter P-Share (KP)	0	255	40
15	Boiler Control Parameter 1/s Reset time (KTN)	0	100	10
16	Boiler Control Parameter Deviation (KTd)	0	100	18
17	Combustion Fan Speed Minimum	0	166	25
18	Combustion Fan Speed Ignition (Heating)	0	166	34
19	Combustion Fan Speed Maximum (Heating)	0	166	100
20	Pump Post Run Time Minimum	0	60	10 (61 = Continuous)
21	Pump Capacity Burner Off (Not Used)	0	100	20
22	Pump Capacity Minimum Burner On (Not Used)	0	100	30
23	Pump Capacity Maximum Burner On (Not Used)	0	100	100
24	Pump Capacity HWS (Not Used)	0	100	100
25	Hysteresis HWS	0	20	8
26	HWS Flow Temperature Increase Above Set Point	5	30	20
27	Combustion Fan Speed Ignition (HWS)	0	166	50
28	Combustion Fan Speed Maximum (HWS)	0	166	100
29	HWS Pump Post Run Time Minimum	0	100	3
30	Fan Speed Control Parameter P Share (KP)	0	100	10
31	Fan Speed Control Parameter 1/s Reset Time	0	255	100

	(KTN)			
32	Frost Protect With Outside Air Sensor	-9	10	1
33	Frost Protection With Boiler Flow Sensor	5	10	5
34	Cascade Address	0	8	0
35	Relay Activation Program	1	11	11
36	Building Construction Heat Losses	1	40	23
37	*Boiler Options Computer Link Access Only	0	255	17