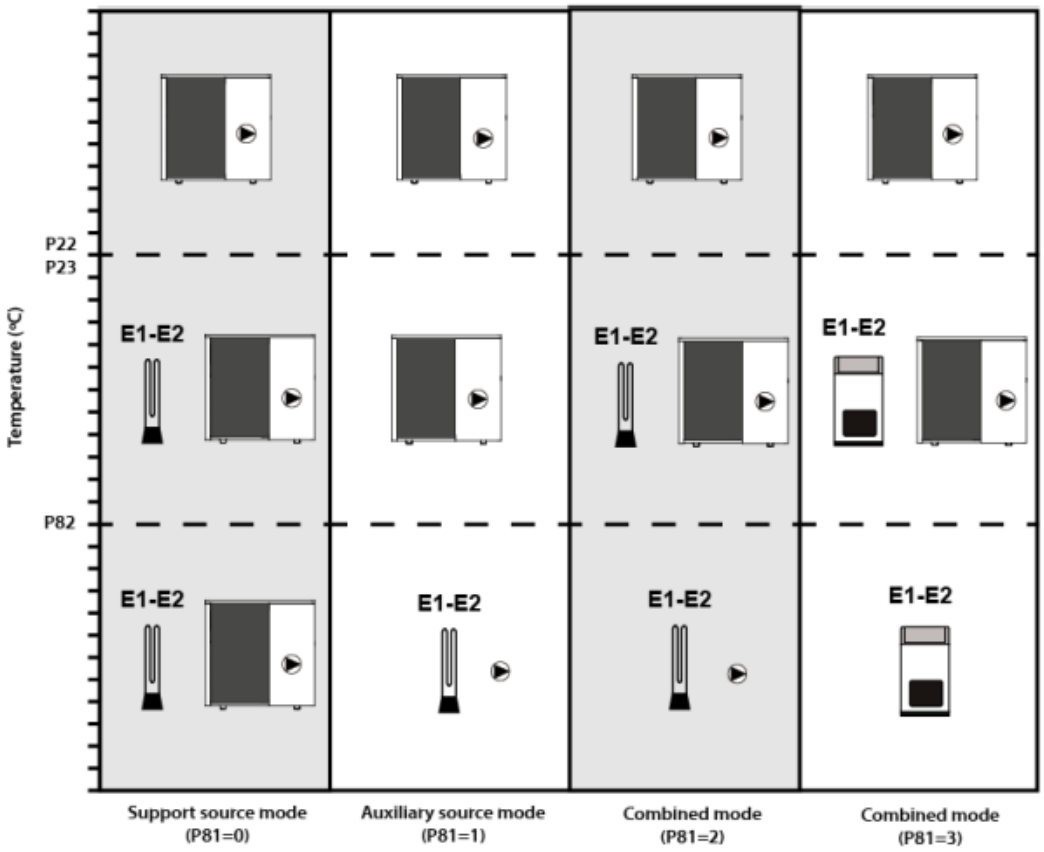
Domusa Duel Clima HT

Supplementary Heating Logic



Standard Booster Element: P81 = 0	**Replacement Element: P81 = 1**	**Booster then Replacement Element: P81 = 2**	**Booster then Replacement Boiler: P81 = 3**
The heat pump will activate **E1** & **E2** Contacts at $T_{outdoor}$ set point **P22** (Heating) and **P23**(DHW) & running the circulation pump.	The heat pump will activate **E1** & **E2** Contacts at **P82** $T_{outdoor}$ & running only the circulation pump. In this state the DHW is heated with heat pump until setpoint **P35** then **E1** contact is closed.	The heat pump will activate **E1** & **E2** the $T_{outdoor}$ set point **P22** (Heating) and **P23**(DHW) & switch to supplementary only at **P82,** $T_{outdoor}$ for System and DHW & running the circulation pump.	The heat pump will activate **E1** & **E2** Contacts at **P82,** $T_{outdoor}$ set point **P22** (Heating) and **P23**(DHW) & switch to supplementary only at **P82,** $T_{outdoor}$ for System and DHW. No circulation pump.
Where the heat pump model is shown that HP will be running, where the pump is shown only, the heat pump will only be running its internal and external pumps. **E1** = DHW backup contact, **E2** = heating backup contact. The activation time delay for E1 & E2 is set with **P36** = 15min by default.			

Standard Booster Element: P81 = 0

For situations where a low amount of additional heat is required, the standard booster element mode is the most cost-effective solution. In this mode the heat pump will activate the contacts **E1** and **E2** for DHW and heating respectively when the heat pump reads an outdoor temperature of **P22** for DHW and **P23** for heating. Once the outdoor air temperature falls below **P22/P23** the heat pump delays the activation of the external heat source for **P36** (in minutes) or aborts if flow setpoint is reached. We recommend the time delay is set to 30 minutes for low load scenarios (1-3kW) by default and this should allow for temporary demand calls.
In this mode the heat pump will always operate with both the compressor and circulation pump.

Replacement Element: P81 = 1

The replacement mode will operate the same logic as the booster mode however the changeover point to activate **E1** and **E2** is controlled completely by **P82. P82** is the outdoor temperature set at which the external heat source replaces the heat pump. The heat pump will continue to run the circulation pump.
The heat pump delays the activation of the external heat source for **P36** (in minutes) or aborts if flow setpoint is reached. We recommend the time delay is set to 30 minutes.
This mode prioritises heating DHW with the heat pump until DHW maximum setpoint **P35** is meet, then **E1** contact will be energised, and the external heat source will take over.

Booster then Replacement Element: P81 = 2

Booster than replacement operates as booster using **P22** and **P23** outdoor temperature setpoints for DHW and heating activating the contacts **E1** and **E2** respectively. Once the outdoor temperature reaches **P82** setpoint, the heat pump will deactivate the compressor and continue the circulation pump and external heat source demand.
The heat pump delays the activation of the external heat source for **P36** (in minutes) or aborts if flow setpoint is reached. We recommend the time delay is set to 30 minutes for low load scenarios (1-3kW).

Booster then Replacement Boiler: P81 = 3

P22 and **P23** are used as outdoor temperature setpoints for DHW and heating **E1** and **E2** contact activation points. Then once the outdoor temperature reaches **P82**, the heat pump will then be shut off and will continuing the external heat source demand. The heat pump delays the activation of the external heat source for **P36** (in minutes) or aborts if flow setpoint is reached. We recommend the time delay is set to 30 minutes for low load scenarios by default (1-3kW), this should allow for temporary demand calls.
P81 = 3 can be used in scenarios where optimisation for running cost is desired with hybrid systems. **P22** and **P23** can be selected at the switch point for electrical cost with **COP** (Coefficient of performance) to the boiler fuel cost.
The heat pump internal and external pumps will be deenergised when at **P22** or **P23** setpoints.