

Chapter 5 Terminal Descriptions

TERMINAL DESCRIPTIONS 582/583

1. Drive Healthy (582 only) : Open collector transistor output which is pulled low to indicate drive healthy. 250mA maximum at 24V. Connect external 0V to drive 0V (terminal 11).
This terminal is not used on the 583. See drive healthy relay terminals overleaf.
2. Run : Digital input to enable drive: Switch to +24V to enable. Connection via momentary contact may be employed; see diagram number HJ385167D.
3. Stop : Digital input to stop drive: Momentary open circuit to stop. Leave open circuit if single Run switch (on/off) is employed.
4. Direction : Digital input to control phase rotation: Connect to +24V to reverse direction of motor shaft.

NOTE Digital inputs sink approximately 5mA at 24V.

5. +10V Ref : Precision 10V reference for external potentiometer supply. Maximum loading: 10mA. Short circuit protected.
6. Speed Setpoint : Analogue input to control frequency of 3-phase output.
0 - 10V represents 0 - 100% motor speed.
Nominally 10K potentiometer input.
7. 0V Ref : Zero Volts for analogue references.
8. Ramp Output : Analogue output representing the output frequency of the drive. 0 - 10V represents 0 - 100/120Hz, depending on position of SW1. Maximum loading: 10mA.
9. Trim : Analogue input which may be used as a local trim of the speed to allow drives to be cascaded from a master reference.
0 - 10V represents 0 - 100% speed **increase**.
10. +24V Supply : Unregulated 24V supply for RUN, STOP, DIRECTION switches. Only 20mA available, thus this output is not intended to be used to drive healthy relay.
11. Gnd : Zero volt reference for digital inputs, (RUN, STOP, DIRECTION) and healthy output.

12. } User Option Connections : These pins are specified by the option cards and may be used for a 4 - 20mA input. serial comms or other specialised functions.
13. }
14. }
15. }
16. }

17. } (583 only) : Used to control a 5801 brake unit.
18. }

- Hesto Conn. } (582 only) : Used to control a 5801 brake unit.
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All terminals are suitable for 2.5mm² wire (12 AWG) recommended tightening torque 0.5Nm (4.5 lb-in).

TERMINAL DESCRIPTIONS 5831

1. Run : Digital input to enable drive: Switch to +24V to enable. See diagram number HJ385002D.
2. Stop : Digital input to stop drive: Momentary open circuit to stop. Leave open circuit if single Run switch (on/off) is employed.
3. Direction : Digital input to control phase rotation: Connect to +24V to reverse direction of motor shaft.

NOTE Digital inputs sink approximately 5mA at 24V.

4. +10V Ref : Precision 10V reference for external potentiometer supply. Maximum loading: 10mA. Short circuit protected.
5. Speed Setpoint : Analogue input to control frequency of 3-phase output. 0 - 10V represents 0 - 100% motor speed. Nominally 10K potentiometer input.
6. 0V Ref : Zero Volts for analogue references.
7. Ramp Output : Analogue output representing the output frequency of the drive. 0 - 10V represents 0 - 100/120Hz, depending on position of SW1. Maximum loading: 10mA.
8. Trim : Analogue input which may be used as a local trim of the speed to allow drives to be cascaded from a master reference. 0 - 10V represents 0 - 100% speed **increase**.
9. +24V Supply : Unregulated 24V supply for RUN, STOP, DIRECTION switches. Only 20mA available, thus this output is not intended to be used to drive healthy relay.
10. Gnd : Zero volt reference for digital inputs, (RUN, STOP, DIRECTION) and healthy output.

11. }
 12. }
 13. } User Option : These pins are specified by the option cards and may be used for a 4 -
 14. } Connections : 20mA input. serial comms or other specialised functions.
 15. }

16. } : Used to control a 5801 brake unit.
17. } : See connection diagram HJ385002.

All terminals are suitable for 2.5mm² wire (12 AWG) recommended tightening torque 0.5Nm (4.5 lb-in).

POWER TERMINALS**582**

Input Terminals	:	L1 (L) L2 (N) L3	{	220/240V AC \pm 10% Single phase L and N 3-phase L1, L2, L3
Brake Connections	:	DC + DC -	{	DC Link Positive DC Link Negative
Motor Connections	:	M1 (U) M2 (V) M3 (W)	{	3-Phase 0 to 220/240V AC 0 to 100/120HZ

NOTE: The 582 has no chassis ground except when a gland plate is fitted. Power terminal blocks are suitable for 2.5mm² wire (12 AWG) recommended tightening torque 0.5Nm (4.5 lb-in).

583¹


Input Terminals	:	L1 (L) L2 (N) L3	{	220/240V AC \pm 10% Single phase L and N 3-phase L1, L2, L3
Brake Connections	:	DC + DC -	{	DC Link Positive DC Link Negative
Health Relay Health Relay	}	HEALTH ²		Contact rating 3A 250V AC/30V DC
Motor Connections	:	M1 (U) M2 (V) M3 (W)	{	3-phase 0 to 220/240V AC 0 to 100/120Hz

NOTE: The 583 can be grounded at the heatsink. Power Terminal Blocks are suitable for 4mm² wire (10 AWG) recommended tightening torque 0.5Nm (4.5 lb-in).



5831¹

Input Terminals	:	L1 (L) L2 (N) L3	{	220/240V AC \pm 10% Single phase L and N 3-phase L1, L2, L3
Motor Connections	:	M1 (U) M2 (V) M3 (W)	{	3-phase 0 to 220/240V AC 0 to 100/120Hz
Health Relay Health Relay	}	HEALTH ²		Contact rating 3A 250V AC/30V DC
Brake Connections (Faston Connectors)	:	DC + DC -	{	DC Link Positive DC Link Negative

NOTE: The 5831 can be grounded at the base plate. Power terminal blocks are suitable for 4mm² wire (10 AWG) recommended tightening torque 0.5Nm (4.5 lb-in).

- NOTES:
1. The ground terminal is indicated by the IEC grounding symbol thus:- 
 2. Contacts closed when drive is healthy.

CUSTOMER ADJUSTMENTS

- P1** Low Speed/Frequency Voltage Boost : Rotate clockwise to increase the voltage/frequency ratio at low speed; this gives the motor more low speed torque. Excessive adjustment may cause the current limit to be reached and the motor may not turn.
- V_B
- P2** Current Limit : Rotate clockwise to increase the maximum current available from the drive. If current demand exceeds current limit, the speed/frequency will be reduced to keep the current within this maximum. Adjustment 50% to 150% of rated current. **Note:** Motor may not turn if turned fully anti-clockwise.
- $I \Delta$
- P3** Maximum Speed : Rotate clockwise to increase maximum speed/frequency at which drive will run with 100% speed demand. Adjustment is from 0 - 100/120Hz. In the event of conflict between Minimum and Maximum settings, Maximum will always override.
- $N \Delta$
- P4** Minimum Speed : Rotate clockwise to increase minimum speed/frequency at which drive will run with zero speed demand. Adjustment is from 0 - 100/120Hz.
- $N \nabla$
- P5** Ramp Up Time : Rotate clockwise to increase the time taken to ramp up to speed/frequency. Output adjustment range is either 0.1 - 4 seconds or 2.5 - 100 seconds depending upon position of switch 4.
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- P6** Ramp Down Time : Rotate clockwise to increase the time taken to ramp down to speed/frequency. Output adjustment range is either 0.1 - 4 seconds or 2.5 - 100 seconds depending upon position of switch 5.
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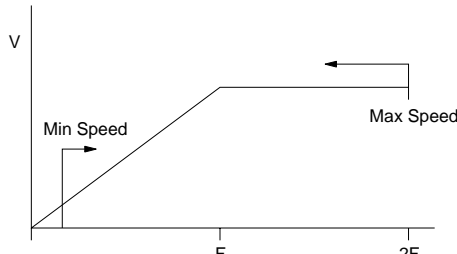
WARNING

THE SIX TRANSISTOR HEATSINKS OF THE 582 ARE LIVE. CARE SHOULD BE TAKEN WHEN MAKING ADJUSTMENTS TO AVOID CONTACT WITH THESE PARTS.

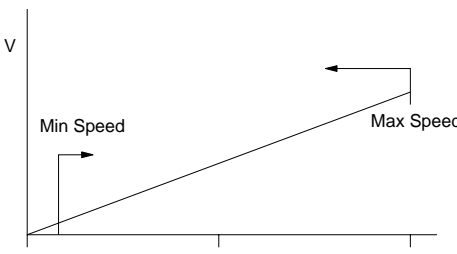
OPTION SWITCHES

Switch positions are only read at power-on, so if any adjustment of switches is required, the power must be removed before doing so.

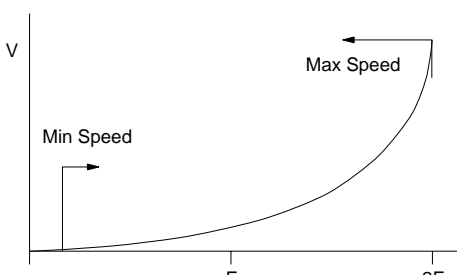
SW1 (OFF) **Base Frequency** : 50Hz
 (ON) : 60Hz

SW2 (OFF) **SW3** (OFF) **Normal** : 

The graph shows voltage (V) on the vertical axis and frequency on the horizontal axis. A linear ramp starts at a point labeled 'Min Speed' and reaches a point labeled 'Max Speed' at frequency '2F'. The base frequency 'F' is marked on the horizontal axis.

SW2 (OFF) **SW3** (ON) **Linear** : 

The graph shows voltage (V) on the vertical axis and frequency on the horizontal axis. A linear ramp starts at a point labeled 'Min Speed' and reaches a point labeled 'Max Speed' at frequency '2F'. The base frequency 'F' is marked on the horizontal axis.

SW2 (ON) **SW3** (OFF) **Fan Law** : 

The graph shows voltage (V) on the vertical axis and frequency on the horizontal axis. A curve starts at a point labeled 'Min Speed' and reaches a point labeled 'Max Speed' at frequency '2F'. The base frequency 'F' is marked on the horizontal axis.

SW2 (ON) **SW3** (ON) **Reserved**

SW4 (OFF) **Ramp Up Range** : 0.1 - 4 sec
 (ON) : 2.5 - 100 sec *to base freq.*

SW5 (OFF) **Ramp Down Range** : 0.1 - 4 sec
 (ON) : 2.5 - 100 sec *to base freq.*

SW6 (OFF) **Reserved** : **THIS SW MUST REMAIN OFF.**

SW7	SW8	<div style="display: inline-block; vertical-align: middle; border-left: 1px solid black; border-right: 1px solid black; border-bottom: 1px solid black; width: 20px; height: 40px; margin-right: 5px;"></div> - Stopping Mode	:	Coast to Stop.
(OFF)	(OFF)		:	Ramp down to Stop.
(OFF)	(ON)		:	Ramp to zero followed by 2 sec DC holding pulse.
(ON)	(OFF)		:	DC Injection Braking. (See Note 2).
(ON)	(ON)		:	

SW9 **Ramp Hold** : This switch should normally be off. (See Note 3).

SW10	SW11	SW12	Power Output	Drive
(OFF)			: 0.37kW	} 582 0.37/0.55kW ¹
(ON)			: 0.55kW	
(OFF)			: 0.55kW	} 582 0.55/0.75kW ¹
(ON)			: 0.75kW	
(OFF)	(OFF)	(ON)	: 0.75kW	} 583 1.1/1.5kW ¹
(ON)	(OFF)	(ON)	: 1.1kW	
(ON)	(ON)	(ON)	: 1.5kW	
(OFF)	(ON)	(OFF)	: 1.5kW	} 583 1.5/2.2kW ¹
(ON)	(ON)	(OFF)	: 2.2kW	
(OFF)	(OFF)	(ON)	: 0.37kW	} 5831 0.75kW ¹
(ON)	(OFF)	(ON)	: 0.55kW	
(ON)	(ON)	(ON)	: 0.75kW	
(OFF)	(OFF)	(ON)	: 0.75kW	} 5831 1.5kW ¹
(ON)	(OFF)	(ON)	: 1.1kW	
(ON)	(ON)	(ON)	: 1.5kW	

NOTES:

1. Controllers are shipped with switches set to the lower rating. Set switches to the required rating before use. Setting of the switches on the 583 1.1/1.5kW version to 2.2kW will cause damage and invalidate the warranty.

2. DC injection braking may be selected by setting switches 7 and 8 to the 'on' position. When a stop command is received, the drive will apply a low frequency braking current to the motor, until the shaft is almost at a standstill. The amount of braking is controlled by the current limit setting.

 DC current is then applied for a short time, to bring the shaft finally to a standstill. This is controlled by the boost adjustment.

3. To achieve very fast ramp up rates, e.g., 0.1 seconds, it may be necessary to set this switch to 'on'.