AirMaster™

Q1
Software Manual

Contents:

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Section 1: Safety Warning:

Do not operate the Airmaster™ Q1 until you and all personnel concerned have read and understood this software manual

Operation may only be done by trained personnel according to safe engineering practises and with the observance of all relevant local health and safety requirements and regulations.

A requirement of fault-free operation and fulfilment of any right to claim under guarantee is that documentation is observed.

This document is subject to changes without notice, if in doubt, do not proceed!

Section 2: Version Revision notes:

Version	Revision notes
E03	Phase 3 release
E06	Sprint 2

Section 3: General description

3.1 Airmaster™

Airmaster™ sets the standard for pre-programmed logic controllers in air compressor, vacuum and related applications. For nearly 30 years, Airmaster™ products have pioneered developments in compressed air and vacuum application PLC's, ensuring our customers remain at the forefront in their chosen area of expertise. Our continued commitment to product development has positioned Airmaster™ as the global leader and choice solution for compressed air and vacuum application PLC controls.

3.2 Airmaster™ Q1

Airmaster™ Q1 is a 'mid-range' member of the Airmaster™ product family ideally suited to positive displacement rotary screw, vane and piston compressor or vacuum applications. Using the powerful ARM CORTEX-M3 processor from NXP, product features are arranged to ensure a cost effective and feature rich PLC with options that enhance where required.

3.3 Airmaster™ RS485 card option

Airmaster™ RS485 option cards are available where required. Two RS485 option cards can be added to the Airmaster™ Q1. Once installed, the RS485 communication port can support communication with the Airmaster™ Q1 using either the Airbus485™ protocol or the MODBUS RTU protocol.

Airbus485™ is a dedicated application specific protocol uniquely designed to accelerate communication between Airmaster™ and Metacentre™ devices and improves device responsiveness when compared to conventional network protocols such as MODBUS RTU and is of significant benefit in larger device networks (e.g. larger compressed air or vacuum systems)

MODBUS RTU is a proprietary protocol supported by Airmaster™ Q1. In use, the Airmaster™ Q1 operates as a MODBUS slave to a MODBUS Master that has access to the Airmaster™ Q1's RS485 communication port and field bus registers than describe how to interrogate the Airmaster™ Q1's application software. Note: Field bus registers are not supplied with the Airmaster™ Q1 and must be sources separately (consult your product supplier or visit www.controlcompressors.com).

3.4 Airmaster™ ECO card option

An Ethernet card option (ECO) is available where required. A Micro SD card is supplied as part of the ECO card option assembly. One ECO card option can be added to the Airmaster™ Q1. Once installed, the ECO card option can support communication with the Airmaster ™ Q1 over Ethernet using the TCP/IP protocol.

3.5 Airmaster™ XPM card option

Airmaster™ XPM card options are available. Airmaster™ XPM card options provide additional analogue or digital inputs and analogue or relay outputs. XPM card options are DIN rail mounted within the electrical enclosure of the host equipment and communicate with the Airmaster™ Q1 using the Airbus485™ protocol.

3.6 Airmaster™ network card options

Airmaster™ network cards are available. Airmaster™ network cards support networking with network protocols not directly supported by Airmaster™ Q1 e.g. Profibus or DeviceNet etc (consult your product supplier or visit www.controlcompressors.com)

3.7 Metacentre™ system networking

Metacentre™ is the compressor and vacuum system product range of CMC NV. Metacentre™ products are used to fully integrate compressed air or vacuum systems on a production site, optimise air or vacuum generation and manage key aspects of the system with dedicated, but easy to use, visual software. For multiple compressor or vacuum pump installations, Metacentre products can reduce energy usage by well over 30%, typically delivering savings in the tens of thousands of pounds, dollars or Euros per year (consult your product supplier or visit www.metacentre.eu)

Section 4: User interface

4.1 Keypad

Key: image	Key: Function
	Start
	Stop
	Reset
	Enter
	Up
	Down
	Escape

Icon: image	Icon: Function
	Advanced Power Monitoring
	Metacentre™ compatible
	SD Card option

	Airbus485™ compatible
	MODBUS compatible
	Advanced Control Algorithms
	Internal System Control
	Ethernet card option

4.2 Graphic display

The graphic display is intuitively arranged...
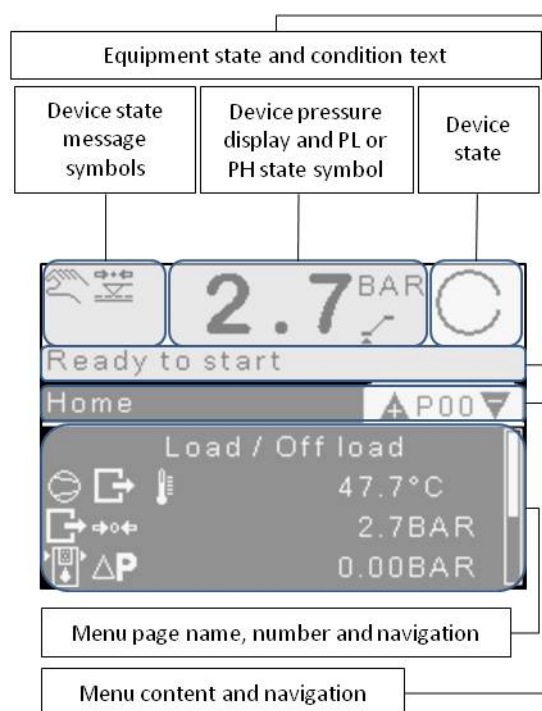
After a period of non-use the graphic display light level will reduce until a key is pressed.

P00 is the default view after power up and where the display will return after a period of non-use.

Use the Up & Down keys to navigate between menus.

Where applicable, the menu item highlighted will toggle between the default menu display and additional menu information.

For example: P00.02

 Control mode
Load / Off load
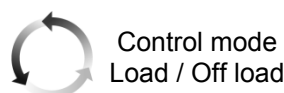
4.3 User Account Controls

Airmaster™ Q1 is supplied with a Default user account, ADMIN user account and 10 additional User accounts. Only the ADMIN user can configure additional User accounts.

The Default user account does not require a PIN code. The Default user can view menus 00 – 09 only. These menus cannot be edited.

All other User accounts are protected via a 4 digit PIN code.

The ADMIN User PIN code is intentionally not printed. If you do not know or require the Admin user PIN code, contact your product supplier. Change the ADMIN user PIN code as necessary. The RESET ADMIN User PIN code feature is intentionally not printed. If you do not know or require the RESET ADMIN User PIN code feature, contact your product supplier.

The ADMIN User name cannot be changed and remains 'ADMIN User'.

Use ADMIN User access to configure additional User accounts and User account preferences as required.

| Item	Edit
P09.03~10.01	Edit user name
P09.02~10.02	User PIN code
P09.02~10.03	Language
P09.02~10.04	Time format
P09.02~10.05	Date format
P09.02~10.06	Pressure unit
P09.02~10.07	Temperature unit
P09.03~10.08 ~ 17	No edit
P09.03~10.18 ~ 32	Access: Not available Read access Edit access

In addition to personal preferences, the ADMIN User can configure menus access rights for each Additional User.

Menu access configuration options are 'Not available' which makes the menu invisible to the User, 'Read access' which makes the menu visible and NOT editable to the User and 'Edit access' which makes the menu both visible and editable to the User.

Note: This software manual describes all software menus. If software menus are not visible, check User access configuration before troubleshooting elsewhere!

To return to Default User, navigate to Menu P09.01 'Default user' and press 'ENTER' whereby the Default user will become the Active user once more

Use ADMIN user access to edit the Default User configuration. Use the parameters menu location to adjust the Default User configuration.

Notes: Understand how to edit the Default User account which is done differently from the ADMIN or the Additional User accounts.

Monitor which User account is active when evaluating configuration or menu access restrictions!

After a period of non-use Airmaster™ Q1 will always return to 'Default User' and 'P00 Home page'.

4.4 Menu Navigation

Menu tabs are arranged sequentially and in a continuous loop.

The graphical interface inverts to identify the 'on screen' navigation location and the navigation location is indicated on the vertical scroll bar.

Additionally the menu tab extends to identify the navigation location. For example...

Item	Description
P02	Menu: Utilisation
P02.10	VSD average RPM
P02.10.01	AVG RPM 1 – 25%

Note: menu content items are only visible when the device is appropriately configured!

Menu items are indexed sequentially and without omission. If a menu item is not present it's most likely due to configuration!
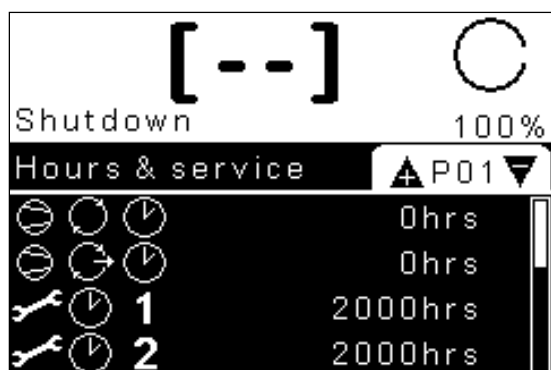
Use the Enter key (enter) and the clear key (exit) to navigate between menu page navigation and menu content navigation.

Entering the menu content area navigates to the first item of the menu. Use the Up and Down keys to navigate between menu content items. Menu content items are vertically assembled and in a continuous loop. For example, below indicates the user has navigated to P01 menu item 06
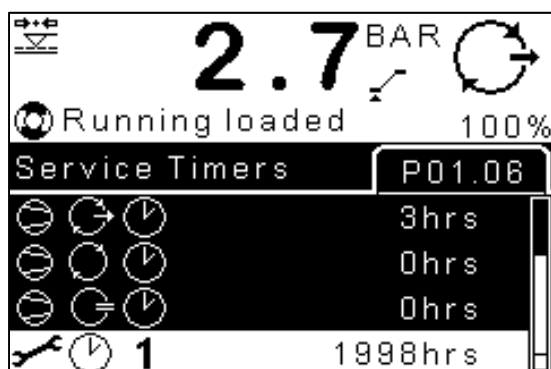
To edit an accessible and editable menu item, navigate to it and press the enter key.
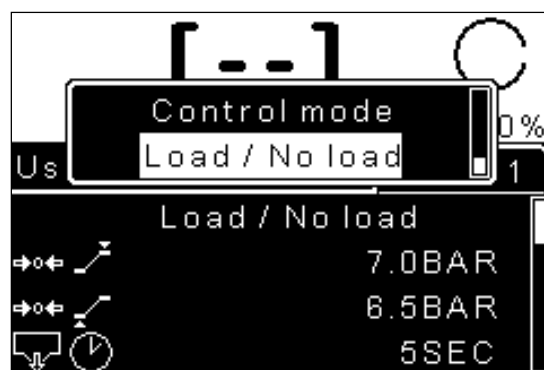
An edit menu popup window will appear. Use the Up and Down keys to select an available option. Press and hold the Up or Down key to increase the speed at which a selectable value is reached. Press the enter key to confirm a selection or use the clear key to exit without making a new selection.

4.5 Menu map (Display menus will vary based on device configuration)

Colour key:	Read only menu	Read and Edit menu (Keyboard or ECO card option)		Read and Edit menu (edit using ECO card option only)
	BLACK = EDIT IN ANY DEVICE STATE, RED = EDIT IN DEVICE STOPPED STATE ONLY			
↵	Press ENTER key to access sub menu item (e.g. P02.10.01)			

P00 – Home	P01 – Service timers	P02 – Utilisation	P03 – Error Log	P04 – Event Log	P05 – Service provider
01 Any active alarm	01 Total hours	01 Status	01 Error 1 ↵	01 Event 1 ↵	01 Company name
02 P00.02 user DEF	02 Load / off load hours	02 Load / offload hours	…	…	02 Street name
03 P00.03 user DEF	03 Load hours	03 MTR STR last HR	50 Error 50 ↵	200 Event 200 ↵	03 Street name
04 P00.04 user DEF	04 Off load hours	04 MTR STR last 24H			04 City
05 Control mode	05 Standby hours	05 Load frequency			05 State / Province
06 COMP OUT TEMP	06 Service hours 1	06 Load % last hour			06 ZIP / Postal
07 EQUIP OUT PRESS	07 Service hours 2	07 Load % last 24 hours			07 Country
08 EQUIP INT PRESS	08 Service hours 3	08 Load time last hour			08 Telephone
09 DIFF pressure	09 Service hours 4	09 Load time last 24 hours			09 Fax
10 DP – Cooling DP	10 Service hours 5	10 VSD average RPM ↵			10 E Mail (local)
11 Main MTR current	11 Weekly service due				11 E Mail (domain)
12 Fan MTR current	12 Annual service due				
13 Time	13 Bi-annual SERV due				
14 Date					
15 Daylight saving					

P06 – Controller Data	P07 – Equipment data	P08 – Message Codes	P09 – Access	P10 – Equip settings 1	P11 – Equip settings 2
01 Controller ID	01 MANUF name	Consult this manual ↵	01 DEFAULT USER ↵	01 Control mode ↵	01 Star delta TRANS ↵
02 Serial number	02 EQUIP model		02 ADMIN USER ↵	02 Allow force offload ↵	02 Load INH time ↵
03 Software ID	03 MDL SER number		03 USER 1 ↵	03 Load pressure ↵	03 Reload INH time ↵
04 Software version	04 MDL rated PRESS		04 USER 2 ↵	04 Off load pressure ↵	04 Off load run time ↵
05 Software time	05 MDL rated output		05 USER 3 ↵	05 Run period ↵	05 Stop MIN time ↵
06 Software date	06 MDL YR MANUF		06 USER 4 ↵	06 Offload period ↵	06 Vent time ↵
07 Software copyright	07 COMP SER NUM		07 USER 5 ↵	07 Cooling DP ↵	07 AUTO restart INH ↵
	08 COMP YR MANUF		08 USER 6 ↵	08 RS485: 1 CONFIG ↵	08 CNDS drain open ↵
	09 MTR SER NUM		09 USER 7 ↵	09 RS485: 2 CONFIG ↵	09 CNDS drain INT ↵
	10 MTR YR MANUF		10 USER 8 ↵	10 Airbus485™ address ↵	10 MTR STR HR INH ↵
	11 CLR SER NUM		11 USER 9 ↵	11 MODBUS address ↵	11 DP inhibit time ↵
	12 CLR YR MANUF		12 USER 10 ↵	12 MODBUS baud rate ↵	12 Service hours 1 ↵
	13 PV inspect date			13 MODBUS parity ↵	13 Service hours 2 ↵
				14 MODBUS data bits ↵	14 Service hours 3 ↵

				15 MODBUS end bits ↵	15 Service hours 4 ↵
				16 Start source ↵	16 Service hours 5 ↵
				17 Load source ↵	17 Weekly service ↵
				18 Language ↵	18 Annual service ↵
				19 Time ↵	19 Bi-annual service ↵
				20 Time format ↵	
				21 Daylight saving ↵	
				22 Date ↵	
				23 Date format ↵	
				24 LCD light level ↵	
				25 Pressure unit ↵	
				26 Temperature unit ↵	

P12 – Equip settings 3	P13 – VSD settings	P14 – Motor protection	P15 – Inhibits	P16 – Warning alarm	P17 – IMM stop alarm
01 Parameter reset ↵	01 VSD MAX speed ↵	01 Main MTR protect ↵	01 Operator ↵	01 Service hours 1 ↵	01 COMP OUT TEMP ↵
02 Use custom sensor ↵	02 VSD MIN speed ↵	02 Fan MTR protect ↵	02 Door open ↵	02 Service hours 2 ↵	02 TEMP rise CONFIG ↵
03 PD PRESS range ↵	03 VSD OPT speed ↵	03 Main MTR NOM CURR ↵	03 Low temperature ↵	03 Service hours 3 ↵	03 EQUIP OUT PRESS ↵
04 INT PRESS range ↵	04 VSD offload speed ↵	04 Main MTR SDTTF ↵	04 Internal pressure high ↵	04 Service hours 4 ↵	04 EQUIP INT PRESS ↵
05 Error log reset ↵	05 VSD speed RPM	05 Main MTR ROT lock ↵		05 Service hours 5 ↵	05 PRESS rise CONFIG ↵
06 Event log reset ↵	06 VSD output CURR	06 Main MTR phase IMB ↵		06 Weekly service ↵	06 DIFF pressure ↵
07 Total HRS STR ↵	07 VSD P factor ↵	07 Fan MTR NOM CURR ↵		07 Annual service ↵	07 Motor short ↵
08 Set load hours ↵	08 VSD I factor ↵	08 Fan MTR OVLD INH ↵		08 Bi-annual SERV ↵	08 Motor locked ↵
09 Set off load HRS ↵	09 VSD D factor ↵			09 COMP OUT TEMP ↵	09 Motor overload ↵
10 Set standby hours ↵	10 VSD speed %			10 EQUIP OUT PRESS ↵	10 Motor phase IMB ↵
11 TEMP sensor type ↵	11 VSD MAX RMP rate ↵			11 EQUIP INT PRESS ↵	11 Fan MTR overload ↵
12 INT PRESS SENS ↵				12 DIFF pressure ↵	12 Phase detection ↵
13 ISC available ↵				13 OilAir SEP DP HI ↵	13 Door open ↵
14 P00.02 CONFIG ↵				14 Phase detection ↵	14 Fan motor alarm ↵
15 P00.03 CONFIG ↵				15 Motor starts – hour ↵	15 COOL water alarm ↵
16 P00.04 CONFIG ↵				16 Door open ↵	16 Oil level alarm ↵
				17 CAB filter DP ↵	17 Belt drive alarm ↵
				18 Air filter DP ↵	18 RD alarm ↵
				19 Oil filter DP ↵	19 CONF alarm 1 ↵
				20 SEP filter DP ↵	20 CONF alarm 2 ↵
				21 Fan motor alarm ↵	21 CONF alarm 3 ↵
				22 CNDS Drain alarm ↵	
				23 COOL Water alarm ↵	
				24 Oil level alarm ↵	
				25 RD alarm ↵	
				26 Line FTR DP alarm ↵	
				27 Line FTR drain alarm ↵	

				28 Oil/water SEP ALM ↵	
				29 CONF alarm 1 ↵	
				30 CONF alarm 2 ↵	
				31 CONF alarm 3 ↵	

P18 – I/O CONFIG	P19 – Sensor CONFIG	P20 – Diagnostics	P21 – Run schedule	P80 – ISC Main menu	P81 – ISC Settings
01 AO function ↵	01 EQUIP OUT PRESS ↵	01 Digital input 1 ↵	01 Run schedule ↵	01 ISC enabled ↵	01 ISC # compressors ↵
02 DI2 function ↵	02 EQUIP INT PRESS ↵	02 Digital input 2 ↵	02 Workday edit ↵	02 Load pressure ↵	02 ISC start delay ↵
03 DI2 OK: NO/NC ↵	03 COMP OUT TEMP ↵	03 Digital input 3 ↵	03 Schedule entry ↵	03 Offload pressure ↵	03 ISC damping ↵
04 DI3 function ↵	04 Motor current ↵	04 Digital input 4 ↵	...	04 ISC rotate INT ↵	04 ISC tolerance ↵
05 DI3 OK: NO/NC	05 Fan current ↵	05 Digital input 5 ↵	30 Schedule entry ↵		05 ISC DI1 FCN ↵
06 DI4 function ↵		06 Digital input 6 ↵			06 ISC DI2 FCN ↵
07 DI4 OK: NO/NC ↵		07 Digital input 7 ↵			07 ISC DI3 FCN ↵
08 DI5 function ↵		08 Digital input 8 ↵			08 ISC XPM pressure ↵
09 DI5 OK: NO/NC ↵		09 Analogue input 1 ↵			09 ISC PRESS SENS ↵
10 DI6 function ↵		10 Analogue input 2 ↵			
11 DI6 OK: NO/NC ↵		11 AI 3 - Ohms ↵			
12 DI7 function ↵		12 AI 3 - Amps ↵			
13 DI7 OK: NO/NC ↵		13 AI 3 - Volts ↵			
14 DI8 function ↵		14 Analogue input 4 ↵			
15 DI8 OK: NO/NC ↵		15 Relay output 1 ↵			
16 Relay 5 function ↵		16 Relay output 2 ↵			
17 Relay 6 function ↵		17 Relay output 3 ↵			
18 Relay 7 function ↵		18 Relay output 4 ↵			
19 Relay 8 function ↵		19 Relay output 5 ↵			
		20 Relay output 6 ↵			
		21 Relay output 7 ↵			
		22 Relay output 8 ↵			
		23 Analogue output 1 ↵			
		24 ANAL input CT ↵			
		25 ANAL input CT ↵			
		26 ANAL input CT ↵			
		27 ANAL input CT ↵			
		28 L1 Frequency ↵			
		29 L2 Frequency ↵			
		30 L3 Frequency ↵			
		31 L1 Phase angle ↵			
		32 L2 Phase angle ↵			
		33 L3 Phase angle ↵			
		34 Key switch test ↵			

P82 – ISC Priority					
01 COMP1 priority ↵					
02 COMP2 priority ↵					
03 COMP3 priority ↵					
04 COMP4 priority ↵					
05 COMP5 priority ↵					
06 COMP6 priority ↵					
07 COMP7 priority ↵					
08 COMP8 priority ↵					

4.6 Menu detail

Feature	Menu code	Menu text	Additional information
Home			The home page is the where the display will default after any period of non use. The home page provides routine status and condition information
	P00.01	Any active alarm	Where present, any one active alarm will be displayed. If more than one active alarm exists active alarms will be displayed in chronological order. The active alarm with the highest chronological priority only will be displayed. Active alarms are displayed until action has been taken to remove the alarm condition.
	P00.02	P00.02 user DEF	User defined home page P00.02 display menu item
	P00.03	P00.03 user DEF	User defined home page P00.03 display menu item
	P00.04	P00.04 user DEF	User defined home page P00.04 display menu item
	P00.05	Control mode	The control mode selected
	P00.06	COMP OUT TEMP	The Compressor (Air end or engine) out temperature
	P00.07	EQUIP OUT PRESS	The equipment or package output pressure value
	P00.08	EQUIP INT PRESS	The equipment internal pressure value
	P00.09	DIFF pressure	The differential pressure value (EQUIP INT PRESS - EQUIP OUT PRESS)
	P00.10	DP – Cooling DP	The differential pressure minus cooling differential pressure value (value configured at Menu P10.07)
	P00.11	Main MTR current	The main motor current value
	P00.12	Fan MTR current	The fan motor current value
	P00.13	Time	The current time (configured)
	P00.14	Date	The current date (configured)
	P00.15	Daylight saving	Indicated any active daylight saving
Service Timers			Service timers provide a method of managing device service condition and preventative maintenance programmes that begin from the device commissioning date (i.e. when the device was first put into service). Configure the device commissioning date @ P12.07. Although Load, Offload and Stopped hours can be manually edited or reset @ P12.08 ~ 10, in routine operation Load, Offload and Stopped hours do not require any configuration or adjustment. In addition, eight service timers are available. Five hour timers can be configured for a variety of service functions. A further 3 service timers can be configured for weekly, annual and bi-annual service functions. Enable, disable and / or configure the service timers @ P11.12 ~ 19 and service timer event elapse hour or time @ P16.01 ~ 08

	P12.07	Total HRS STR	Device commissioning date or OFF to disable Total hours menu parameter
	P12.08 ~ 10	Set # hours	Hour configuration of load, off load and standby hours. Manual edit / reset
	P01.02	Load / off load hours	Hour counter, Load / off load hours indicates the number of hours the device has operated in any load or off load state.
	P01.03	Load hours	Hour counter, Load hours indicates the number of hours the device has operated in any load state.
	P01.04	Off load hours	Hour counter, Off load hours indicates the number of hours the device has operated in any off load state.
	P01.05	Stop hours	Hour counter, Standby hours indicates the number of hours the device has operated in any standby state.
	P16.01 ~ 05 ↵	Service hours	Service hours, configure when hours based service timer will elapse warning message on graphical user interface
	P16.06 ↵	Weekly service	Service time, configure when time based service timer will elapse warning message on graphical user interface
	P16.06.01 ↵	AUTO SCH service	The auto schedule service parameter calculates the next service time by adding the service time to the time now.
Service timers	P16.06.02	Year	To manually schedule the Next service time use parameters P16.06.02 – P16.06.05 to configure the Service time required
	P16.06.03	Month	
	P16.06.04	Day	
	P16.06.05	Time	
	P16.06.06	Save	Save the current values configured in P16.06.02 – P16.06.05. Before exiting menu P16.06 you MUST go to menu item P16.06.06 and press ENTER. This will SAVE the current values displayed in P16.16.02 – P16.06.05 to memory. **CAUTION: If you do not SAVE the new values displayed in P16.06.02 – P16.06.06 using P16.06.06 before exiting Menu P16.06, the new values will not be saved!**
	P16.01.07	Annual service	Follow the procedure described above for setting Annual and Bi-annual service
	P16.01.08	Bi-annual service	
	P11.12 ~ 16	Service hours 1 ~ 5	Hour counters, configure assignment using function list Function list: Air filter SERV, Belt drive SERV, Cabinet filters, COMP BRG SERV, ==Cooler SERV==, ELEC SYS SERV, Grease service, MTR bearing SERV, ==Oil service==, Oil filter SERV, ==Dryer SERV==, ==Routine SERV==, Separator SERV, Valves service.
	P01.06 ~ 10	Service hours 1 ~ 5	Hour counters, Service hours, assigned to function list, status
	P11.17 ~ 19	Service time	Time counters, configure for weekly, annual and bi-annual service time
	P01.11 ~ 13	Service time	Time counters, configure for Weekly, Annual and Bi-annual service time, status
Utilisation	Equipment utilisation provides a method of interrogating the devices routine operation. The equipment utilisation menu can provide useful information when diagnosing device efficient operation or reliability.		
	P02.02	Load / offload hours	Hour counter, Load / offload hours indicates the number of hours the device has operated in any load or offload state.
	P02.03	MTR STR last HR	Frequency counter, number of times the device main motor starts in the prior 1 hour of service
	P02.04	MTR STR last 24H	Frequency counter, number of times the device main motor starts in the prior 24 hours of service

Utilisation	P02.05	Load frequency	Frequency counter, number of times the device moves from the offload state to the load state
	P02.06	Load % last hour	Total of load state in the prior 1 hour expressed as a percentage
	P02.07	Load % last 24 hours	Total of load state in the prior 24 hours expressed as a percentage
	P02.08	Load time last hour	Total of load state in the prior 1 hour expressed as time
	P02.09	Load time last 24 hours	Total of load state in the prior 24 hours expressed as time
	P02.10	VSD average RPM ↵	VSD average RPM 1 – 100% expressed as a percentage
	P02.10.01	VSD average RPM ##%	VSD average RPM 1 – 25% expressed as a percentage
	P02.10.02	VSD average RPM ##%	VSD average RPM 26 – 50% expressed as a percentage
	P02.10.03	VSD average RPM ##%	VSD average RPM 51 – 75% expressed as a percentage
	P02.10.04	VSD average RPM ##%	VSD average RPM 76 – 100% expressed as a percentage
Error log	The error log provides a log of error conditions. Error conditions can be grouped into 4 categories; Warning conditions, Immediate stop conditions, Start inhibit conditions and Run inhibit conditions. Each error condition consists of an error code and condition text. A list of error codes and condition text is contained in this publication. When an error condition occurs, the error is immediately logged and stored in the internal memory of the device. In addition to the error condition being logged, additional key data is simultaneously logged and stored with the error condition. The error log stores the previous 50 errors in chronological order beginning with the most recent error condition at menu location P03.01. To view additional key data relating to any error condition, navigate to the error condition in the error log and press 'ENTER'. Then use the 'UP' and 'DOWN' keys to view the key data relating to the error condition.		
	P03.01 ~ 50	Error log 1 – 50	Error condition code and condition text
	P03.##.01	Index	Where ## = 01 to 50, Error index
	P03.##.02	Error code / Description	Where ## = 01 to 50, Error message code and short description of error
	P03.##.03	Time	Where ## = 01 to 50, Time when error occurred
	P03.##.04	Date	Where ## = 01 to 50, Date when error occurred
	P03.##.05	EQUIP status	Where ## = 01 to 50, Equipment status when error occurred
	P03.##.06	EQUIP OUT PRESS	Where ## = 01 to 50, Equipment outlet pressure when error occurred
	P03.##.07	EQUIP INT PRESS	Where ## = 01 to 50, Equipment internal pressure when error occurred
	P03.##.08	COMP OUT TEMP	Where ## = 01 to 50, Compressor outlet temperature when error occurred
	P03.##.09	Motor current	Where ## = 01 to 50, Motor current when error occurred
	P03.##.10	Fan current	Where ## = 01 to 50, Fan current when error occurred
Event log	The event log provides a log of event conditions. Event conditions include. When an event condition occurs, the event is immediately logged and stored in the internal memory of the device. In addition to the event being logged, additional key data is simultaneously logged and stored with the event. The event log stores the previous 200 events in chronological order beginning with the most recent event at menu location P04.01. To view additional key data relating to any event, navigate to the event in the event log and press 'ENTER'. Then use the 'UP' and 'DOWN' keys to view the key data relating to the event.		
	P04.01 ~ 200	Event log 1 – 200	Event
	P04.###.01	Index	Where ### = 001 – 200, Event index
	P04.###.02	Event description	Where ### = 001 – 200, Description of the event
	P04.###.03	Time	Where ### = 001 – 200, Time when event occurred
	P04.###.04	Date	Where ### = 001 – 200, Date when event occurred
	Service provider, Airmaster™ Q1 controller and equipment data are menus that retain specific data regarding the device and the device service provider. Note		

	that these menus cannot be configured from the Airmaster™ keypad. Menus can be configured via a browser (e.g. Internet Explorer) and accessing the menu parameters via an installed Airmaster™ Q1 ECO card option.		
Service provider, Airmaster™ Q1 controller and Equipment data	P05.01	Company name	Service provider, company name
	P05.02	Street name	Service provider, street name
	P05.03	Street name	Service provider, street name
	P05.04	City	Service provider, city
	P05.05	State / Province	Service provider, state or province
	P05.06	ZIP / Postal	Service provider, ZIP or postal
	P05.07	Country	Service provider, Country
	P05.08	Telephone	Service provider, Telephone
	P05.09	Fax	Service provider, Fax
	P05.10	Email (local)	Service provider, Email (local)
	P05.11	Email (domain)	Service provider, Email (domain)
	P06.01	Controller ID	Airmaster™ Q1 part number
	P06.02	Serial number	Airmaster™ Q1 serial number
	P06.03	Software ID	Airmaster™ Q1 software ID
	P06.04	Software version	Airmaster™ Q1 software version
	P06.05	Software time	Time, software version installed
	P06.06	Software date	Date, software version installed
	P06.07	Copyright	Software copyright
	P07.01	MANUF name	Name of the original equipment manufacturer
	P07.02	EQUIP model	Equipment (Compressor package) model
	P07.03	MDL SER number	Model serial number
	P07.04	MDL rated PRESS	Model rated pressure
	P07.05	MDL rated output	Model rated output
	P07.06	MDL YR MANUF	Model year of manufacture
	P07.07	COMP SER NUM	Compressor (air end or compressor engine) serial number
	P07.08	COMP YR MANUF	Compressor (air end or compressor engine) year of manufacture
	P07.09	MTR SER NUM	Main motor serial number
	P07.10	MTR YR MANUF	Main motor year of manufacture
	P07.11	CLR SER NUM	Cooler serial number
	P07.12	CLR YR MANUF	Cooler year of manufacture
	P07.13	PV inspect date	Pressure vessel inspection date
Message Codes	Message codes are used to articulate equipment condition in message code form. Message codes allow information to pass more freely where language restrictions may exist. Message codes are supported by message text. Collectively each message condition		
	P08.01 ~ 86	Code / Text	Message code and message text
Access	See 4.3 User Access Controls. The 'Active: User' is displayed when the operator navigates to P09		

	P09.01 ↵	Default user	Use to return User Access to 'Default user'. Press ENTER. User Account will return to 'Default user and the operator is returned to Menu P09.01
	P09.02 ↵	ADMIN user	Use to enter the ADMIN user account. Press ENTER to access the ADMIN User PIN code sub menu.
	P09.02.02 ↵	User PIN code	The ADMIN User PIN code is a four digit numeric number. Press 'ENTER' to access the ADMIN User PIN code sub menu. The current ADMIN User PIN code is displayed and first digit is selected. Use the UP and DOWN key to configure and then press 'ENTER'. The configured value is committed to memory and the second digit is selected. Complete the process for digits two, three and four. When the operator presses ENTER after configuring digit four, the configured value is committed to memory and the operator is returned to menu P09.##.02
	P09.02.03 ↵	Language	Press ENTER. Configure from language list options. Press ENTER. The configured value has been committed to memory and the operator returned to menu P09.02.03
	P09.02.04 ↵	Time format	Press ENTER. Configure for 24:00 (24 hour) or 12:00 a/p (12 hour AM / PM). Press ENTER. The configured value has been committed to memory and the operator returned to menu P09.02.04.
	P09.02.05 ↵	Date format	Press ENTER. Configure date format display for 'DD/MM/YYYY', 'MM/DD/YYYY' or YYYY/MM/DD'. Press ENTER. The configured value has been committed to memory and the operator returned to menu P09.02.05. DD = Day. For example 21 = the 21st day of the month MM = Month. For example 12 = the 12th Month of the Year or 'December' YYYY = Year. For example 2011
Access	P09.02.06 ↵	Pressure unit	Press ENTER. Configure for 'BAR', 'PSI', 'kPA' or 'MPA'. Press ENTER. The configured value has been committed to memory and the operator returned to menu P09.02.06.
	P09.02.07 ↵	Temperature unit	Press ENTER. Configure for °C or °F. Press ENTER. The configured value has been committed to memory and the operator returned to menu P09.02.07.
	P09.03 ↵	User 1	Use to enter the User 1 user account. Press ENTER to access the User 1 sub menu.
	P09.03~10.01	Edit user name	The User name is an eight digit alpha number value. Press 'ENTER' to access the Edit user name sub menu. The current User name is displayed and first digit is selected. Use the UP and DOWN key to configure and then press 'ENTER'. The configured value is committed to memory and the second digit is selected. Complete the process for digits two, three, four, five, six, seven and eight. When the operator presses ENTER after configuring digit eight, the configured value is committed to memory and the operator is returned to menu P09.03~10.01
	P09.03~10.02	User PIN code	The User PIN code is a four digit numeric number. Press 'ENTER' to access the User PIN code sub menu. The current User PIN code is displayed and first digit is selected. Use the UP and DOWN key to configure and then press 'ENTER'. The configured value is committed to memory and the second digit is selected. Complete the process for digits two, three and four. When the operator presses ENTER after configuring digit four, the configured value is committed to memory and the operator is returned to menu P09.##.02
	P09.03~10.03	Language	Press ENTER. Configure from language list options. Press ENTER. The configured value has been committed to memory and the operator returned to menu P09.03~10.03.
	P09.03~10.04	Time format	Press ENTER. Configure for 24:00 (24 hour) or 12:00 a/p (12 hour AM / PM). Press ENTER. The configured value has been committed to memory and the operator returned to menu P09.03~10.04.
	P09.03~10.05	Date format	Press ENTER. Configure date format display for 'DD/MM/YYYY', 'MM/DD/YYYY' or YYYY/MM/DD'. Press ENTER. The configured value has been committed to memory and the operator returned to menu

Access			P09.03~10.05. DD = Day. For example 21 = the 21st day of the month MM = Month. For example 12 = the 12th Month of the Year or 'December' YYYY = Year. For example 2011
	P09.03~10.06	Pressure unit	Press ENTER. Configure for 'BAR', 'PSI', 'kPA' or 'MPA'. Press ENTER. The configured value has been committed to memory and the operator returned to menu P09.03~10.06.
	P09.03~10.07	Temperature unit	Press ENTER. Configure for °C or °F. Press ENTER. The configured value has been committed to memory and the operator returned to menu P09.03~10.07.
	P09.03~10.08	P00 Home	Locked, No edit 'Read access'
	P09.03~10.09	P01 Service timers	Locked, No edit 'Read access'
	P09.03~10.10	P02 Utilisation	Locked, No edit 'Read access'
	P09.03~10.11	P03 Error log	Locked, No edit 'Read access'
	P09.03~10.12	P04 Event log	Locked, No edit 'Read access'
	P09.03~10.13	P05 Service provider	Locked, No edit 'Read access'
	P09.03~10.14	P06 Controller data	Locked, No edit 'Read access'
	P09.03~10.15	P07 Equipment data	Locked, No edit 'Read access'
	P09.03~10.16	P08 Message codes	Locked, No edit 'Read access'
	P09.03~10.17	P09 Access	Locked, No edit 'Read access'
	P09.03~10.18	P10 Equip settings 1	Configure for 'Not available', 'Read access' or 'Edit access'
	P09.03~10.19	P11 EQUIP settings 2	Configure for 'Not available', 'Read access' or 'Edit access'
	P09.03~10.20	P12 EQUIP settings 3	Configure for 'Not available', 'Read access' or 'Edit access'
	P09.03~10.21	P13 VSD settings	Configure for 'Not available', 'Read access' or 'Edit access'
	P09.03~10.22	P14 Motor protection	Configure for 'Not available', 'Read access' or 'Edit access'
	P09.03~10.23	P15 Inhibits	Configure for 'Not available', 'Read access' or 'Edit access'
	P09.03~10.24	P16 Warning alarm	Configure for 'Not available', 'Read access' or 'Edit access'
	P09.03~10.25	P17 IMM stop alarm	Configure for 'Not available', 'Read access' or 'Edit access'
	P09.03~10.26	P18 I/O CONFIG	Configure for 'Not available', 'Read access' or 'Edit access'
	P09.03~10.27	P19 Sensor CONFIG	Configure for 'Not available', 'Read access' or 'Edit access'
	P09.03~10.28	P20 Diagnostics	Configure for 'Not available', 'Read access' or 'Edit access'
	P09.03~10.29	P21 Run schedule	Configure for 'Not available', 'Read access' or 'Edit access'
	P09.03~10.30	P80 ISC Main menu	Configure for 'Not available', 'Read access' or 'Edit access'
	P09.03~10.31	P81 ISC Settings	Configure for 'Not available', 'Read access' or 'Edit access'
	P09.03~10.32	P82 ISC Priority	Configure for 'Not available', 'Read access' or 'Edit access'
	P09.04 ↵	User 2	Use to enter the User 2 user account. Press ENTER to access the User 2 sub menu. Follow procedures described for User 1.
	P09.05 ↵	User 3	Use to enter the User 3 user account. Press ENTER to access the User 3 sub menu. Follow procedures described for User 1.
	P09.06 ↵	User 4	Use to enter the User 4 user account. Press ENTER to access the User 4 sub menu. Follow procedures described for User 1.
	P09.07 ↵	User 5	Use to enter the User 5 user account. Press ENTER to access the User 5 sub menu. Follow procedures

Access			described for User 1.
	P09.08 ↵	User 6	Use to enter the User 6 user account. Press ENTER to access the User 6 sub menu. Follow procedures described for User 1.
	P09.09 ↵	User 7	Use to enter the User 7 user account. Press ENTER to access the User 7 sub menu. Follow procedures described for User 1.
	P09.10 ↵	User 8	Use to enter the User 8 user account. Press ENTER to access the User 8 sub menu. Follow procedures described for User 1.
	P09.11 ↵	User 9	Use to enter the User 9 user account. Press ENTER to access the User 9 sub menu. Follow procedures described for User 1.
	P09.12 ↵	User 10	Use to enter the User 10 user account. Press ENTER to access the User 10 sub menu. Follow procedures described for User 1.
Equipment settings 1	Equipment settings have been arranged over a series of Equipment setting menus. Menu items are grouped together allowing Administrators to allow menu access to equipment settings menus as appropriate. Equipment settings 1 allow users with access to configure routine operating parameters.		
	P10.01 ↵	Control mode	See 5.0 'Control modes and device state diagram' for a detailed explanation of each control mode. Press ENTER. Configure for 'Load off load', 'Continuous load', 'Pressure decay / off load', 'Dynamic / no load' or 'Variable speed'. Press ENTER. The configured value has been committed to memory and the operator returned to menu P10.01 When selecting 'Variable speed', parameters in menu P13 must be configured accordingly!
	P10.02 ↵	Allow force offload	When active (ON) the feature allows the operator to force the device from the load state to the offload state. Once active, to force off load press and hold the 'START' key and then press the 'DOWN' key. The device will move from the load state to the offload state. The device will remain in the offload state until the force offload condition has been removed. If the offload period expires during the force offload condition the device will vent and move to the started state. To remove the force offload condition repeat the key stroke sequence. Stopping the device will remove the force offload condition. Note: If during a force offload condition the device vents and returns to the started state the operator must remove the force offload condition for the device to move from the started state to the loaded state. Press ENTER. Configure ON or OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P10.02
	P10.03 ↵	Load pressure	Press ENTER. Configure between permissible values. Press ENTER. The configured value has been committed to memory and the operator returned to menu P10.03 ~ 04. The minimum differential between Load pressure and Off load pressure is 0.2 BAR (or other selectable unit of measure)
	P10.04 ↵	Off load pressure	
	P10.05 ↵	Run period	Run period. See 5.0 Control modes: Pressure decay / off load.
	P10.06 ↵	Offload period	Run period. See 5.0 Control modes: Pressure decay / off load.
	P10.07 ↵	Cooling DP	Cooling differential pressure. Press ENTER. Configure between 0.00 BAR and 2.00 BAR (or other selectable unit of measure). Step = 0.01 BAR. Press ENTER. The configured value has been committed to memory and the operator returned to Menu P10.07.

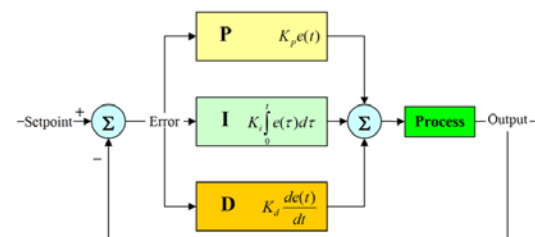|			
	P10.08 ↵	RS485: 1 CONFIG	Press ENTER. Configure between Airbus485™ and MODBUS slave. Press ENTER. The configured value has been committed to memory and the operator returned to menu P10.08
	P10.09 ↵	RS485: 2 CONFIG	Press ENTER. Configure between Airbus485™ and MODBUS slave. Press ENTER. The configured value has been committed to memory and the operator returned to menu P10.09.
	P10.10 ↵	Airbus485™ address	Press ENTER. Configure between 1 and 200. Step = 1. Press ENTER. The configured value has been committed to memory and the operator returned to menu P10.10.
	P10.11 ↵	MODBUS address	Press ENTER. Configure between 1 and 200. Step = 1. Press ENTER. The configured value has been committed to memory and the operator returned to menu P10.11.
	P10.12 ↵	MODBUS baud rate	Press ENTER. Configure between 300, 600, 1200, 1800, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, 115200, 230400, 460800 and 931600. Press ENTER. The configured value has been committed to memory and the operator returned to menu P10.12.
	P10.13 ↵	MODBUS parity	Press ENTER. Configure for 'no parity', 'odd parity', 'even parity', 'zero parity' or 'one parity'. Press ENTER. The configured value has been committed to memory and the operator returned to menu P10.13.
	P10.14 ↵	MODBUS data bits	Press ENTER. Configure between 5 and 8. Press ENTER. The configured value has been committed to memory and the operator returned to menu P10.14.
	P10.15 ↵	MODBUS end bits	Press ENTER. Configure between 1 and 3. Press ENTER. The configured value has been committed to memory and the operator returned to menu P10.15.
Equipment settings 1	P10.16 ↵	Start source	Device start source configuration. Press ENTER. Configure for 'Keypad', 'Equipment DI' or 'Communications'. Press ENTER. The configured value has been committed to memory and the operator returned to menu P10.16. Notes: When configured for Equipment DI, Available digital input must be configured for COMP start / stop When configured for 'Communications' an appropriate RS485 option card must be installed and configured for use.
	P10.17 ↵	Load source	Device Load source configuration. Press ENTER. Configure for 'EQUIP OUT PRESS', 'Equipment DI' or 'Communications'. Press ENTER. The configured value has been committed to memory and the operator returned to menu P10.17. Notes: When configured for Equipment DI, Available digital input must be configured for Remote load enable and Remote load / offload. When configured for 'Communications' an appropriate RS485 option card must be installed and configured for use.
	P10.18 ↵	Language	Press ENTER. Configure from language list options. Press ENTER. The configured value has been committed to memory and the operator returned to menu P10.18.
	P10.19 ↵	Time	Press ENTER. Use UP and DOWN key to set Time. Press ENTER. The configured value has been committed to memory and the operator returned to menu P10.19.
	P10.20 ↵	Time format	Press ENTER. Configure for 24:00 (24 hour) or 12:00 a/p (12 hour AM / PM). Press ENTER. The configured

			value has been committed to memory and the operator returned to menu P10.20.
Equipment settings 1	P10.21 ↵	Daylight saving	Press ENTER. Configure '+0h' or '+1h'. Press ENTER. The configured value has been committed to memory and the operator returned to menu P10.21.
	P10.22 ↵	Date	Press ENTER to access the date edit sub menu.
	P10.22.01 ↵	Edit year	Use UP and DOWN key to set Year
	P10.22.02 ↵	Edit month	Use UP and DOWN key to set Month
	P10.22.03 ↵	Edit day	Use UP and DOWN key to set Day
	P10.22.04 ↵	Save changes	Press 'ENTER' to commit the configured values on P10.22.01 – P10.22.03 to memory. Pressing 'ENTER' commits the configured values to memory are returns the operator to P10.22. Note: You must 'Save changes' for newly configured values in P10.22.01 – P10.22.03 to be stored before leaving the date edit sub menu!
	P10.23 ↵	Date format	Press ENTER. Configure date format display for 'DD/MM/YYYY', 'MM/DD/YYYY' or YYYY/MM/DD'. Press ENTER. The configured value has been committed to memory and the operator returned to menu P10.23. DD = Day. For example 21 = the 21st day of the month MM = Month. For example 12 = the 12th Month of the Year or 'December' YYYY = Year. For example 2011
	P10.24 ↵	LCD Light level	Press ENTER. Configure between 100% and 0%. Press ENTER. The configured value has been committed to memory and the operator returned to menu P10.24.
	P10.25 ↵	Pressure unit	Press ENTER. Configure for 'BAR', 'PSI', 'kPA' or 'MPA'. Press ENTER. The configured value has been committed to memory and the operator returned to menu P10.25.
	P10.26 ↵	Temperature unit	Press ENTER. Configure for °C or °F. Press ENTER. The configured value has been committed to memory and the operator returned to menu P10.26.
Equipment settings 2			Equipment settings have been arranged over a series of Equipment setting menus. Menu items are grouped together allowing Administrators to allow menu access to equipment settings menus as appropriate. Equipment settings 2 allow users with access to configure equipment operating parameters and make adjustment to primary operating parameters.
	P11.01 ↵	Star delta TRANS	Star / Delta contactor transition time adjustment. Press ENTER. Configure between 1 and 30 seconds. Step = 1 second. Press ENTER. The configured value has been committed to memory and the operator returned to menu P11.01
	P11.02 ↵	Load INH time	Load inhibit time. Inhibits the compressor from moving to the initial load state for the initial load inhibit time duration. Press ENTER. Configure between OFF (i.e. not required) and 30 seconds. Step = 1 second. Press ENTER. The configured value has been committed to memory and the operator returned to menu P11.02.
	P11.03 ↵	Reload INH time	Reload inhibit time. Inhibits the compressor from moving to the load state for the reload inhibit time during normal operation. Press ENTER. Configure between OFF (i.e. not required) and 10 seconds. Step = 1 second. Press ENTER. The configured value has been committed to memory and the operator returned to menu P11.03.
	P11.04 ↵	Off load run time	The time the device will continue to run in an offload state. Press ENTER. Configure between 3 and 3600 seconds. Step = 1 second. Press ENTER. The configured value has been committed to memory and the

			operator returned to menu P11.04.
	P11.05 ↵	Stop MIN time	Stop minimum time. The minimum time the device will remain in the stopped state before moving to any new state. Press ENTER. Configure between OFF (i.e. not required) and 60 seconds. Step = 1 second. Press ENTER. The configured value has been committed to memory and the operator returned to menu P11.05.
	P11.06 ↵	Vent time	Vent time (Sometimes described as the blow down time). The period of time required to discharge pressure from the device. Press ENTER. Configure between OFF (i.e. not required) and 600 seconds. Step = 1 second. Press ENTER. The configured value has been committed to memory and the operator returned to menu P11.06.
	P11.07 ↵	AUTO restart INH	Automatic restart inhibit. Use to return the device to the started state in the event of a power source failure. Once the source of power has been restored, the device will decrement the AUTO restart inhibit time and then move to the started state. Press ENTER. Configure between OFF (i.e. not required) and 120 Seconds. Step = 1 second. Press ENTER. The configured value has been committed to memory and the operator returned to menu P11.07.
Equipment settings 2	P11.08 ↵	CNDS drain open	Condensate drain open time. The time the configured relay for 'Drain' will open (i.e. vent moisture via the condensate drain valve)
	P11.09 ↵	CNDS drain INT	Condensate drain interval time. The interval time between condensate drain open events. Device state conditions influence how the condensate drain open and interval times are used. When in the Load state: cycle in accordance with drain open and drain interval time settings. Any elapsed interval time is stored in non-permanent memory when the device is not loaded and the remaining interval time applied when loaded operation is resumed. When not loaded AND in the Started state (optional; active only if offload drain time is set above zero seconds, 0sec = offload drain function disabled). Drain interval time = drain interval time x 10. Drain open time = offload drain time setting. Reset to start of interval time when status change to not loaded, then cycle
	P11.10 ↵	MTR STR HR INH	Main motor starts per hour inhibit. The maximum permissible main motor starts in any one hour. Every time a main motor start event occurs, an entry is made in a 'first in first out' register list. The entry is 3600 seconds and decrements from that value. For every main motor start event to the maximum permissible number of starts in any one hour, an entry is added. When the first entry expires (i.e. after 3600 seconds) the total number of registered main motor starts entries decrements. If the total number of main motor starts registered (motor start events within the last one hour period) equals the number of starts allowed, an adjustment to the off load run time is made. The new off load run time is calculated so that the main motor will continue to run until the number of registered main motor start events within the last one hour period reduces below the maximum permissible, allowing another main motor start event to occur. The 'main motor starts per hour inhibit' function only influences the off load run time, it will not prevent the main motor from starting. If a main motor start is performed after the maximum permissible number of main motor starts have been registered, the oldest register is removed from the list, causing the off load run time to increase. Press ENTER. Configure between OFF (i.e. not required) and 20. Step = 1. Press ENTER. The configured

			value has been committed to memory and the operator returned to menu P11.10.
Equipment settings 2	P11.11 ↵	DP inhibit time	Differential pressure inhibit time. Measures the differential pressure between the Equipment outlet pressure and the Equipment internal pressure. Use the Differential pressure inhibit time to filter instantaneous or short periods of time where the differential pressure alarm or trip levels are exceeded. Press ENTER. Configure between 1 and 600 Seconds. Step = 1 second. Press ENTER. The configured value has been committed to memory and the operator returned to menu P11.11.
	P11.12 ↵	Service hours 1	Configure hour timer for a variety of service functions. Press ENTER. Configure for Air filter SERV, Belt drive SERV, Cabinet filters, COMP BRG SERV, <mark>Cooler SERV</mark>, ELEC SYS SERV, Grease service, MTR bearing SERV, <mark>Oil service</mark>, Oil filter SERV, <mark>Dryer SERV</mark>, <mark>Routine SERV</mark>, Separator SERV, Valves service.. Press ENTER. The configured value has been committed to memory and the operator returned to menu P11.12.
	P11.13 ↵	Service hours 2	Configure hour timer for a variety of service functions. Press ENTER. Configure for Air filter SERV, Belt drive SERV, Cabinet filters, COMP BRG SERV, <mark>Cooler SERV</mark>, ELEC SYS SERV, Grease service, MTR bearing SERV, <mark>Oil service</mark>, Oil filter SERV, <mark>Dryer SERV</mark>, <mark>Routine SERV</mark>, Separator SERV, Valves service.. Press ENTER. The configured value has been committed to memory and the operator returned to menu P11.13.
	P11.14 ↵	Service hours 3	Configure hour timer for a variety of service functions. Press ENTER. Configure for Air filter SERV, Belt drive SERV, Cabinet filters, COMP BRG SERV, <mark>Cooler SERV</mark>, ELEC SYS SERV, Grease service, MTR bearing SERV, <mark>Oil service</mark>, Oil filter SERV, <mark>Dryer SERV</mark>, <mark>Routine SERV</mark>, Separator SERV, Valves service.. Press ENTER. The configured value has been committed to memory and the operator returned to menu P11.14.
	P11.15 ↵	Service hours 4	Configure hour timer for a variety of service functions. Press ENTER. Configure for Air filter SERV, Belt drive SERV, Cabinet filters, COMP BRG SERV, <mark>Cooler SERV</mark>, ELEC SYS SERV, Grease service, MTR bearing SERV, <mark>Oil service</mark>, Oil filter SERV, <mark>Dryer SERV</mark>, <mark>Routine SERV</mark>, Separator SERV, Valves service.. Press ENTER. The configured value has been committed to memory and the operator returned to menu P11.15.
	P11.16 ↵	Service hours 5	Configure hour timer for a variety of service functions. Press ENTER. Configure for Air filter SERV, Belt drive SERV, Cabinet filters, COMP BRG SERV, <mark>Cooler SERV</mark>, ELEC SYS SERV, Grease service, MTR bearing SERV, <mark>Oil service</mark>, Oil filter SERV, <mark>Dryer SERV</mark>, <mark>Routine SERV</mark>, Separator SERV, Valves service.. Press ENTER. The configured value has been committed to memory and the operator returned to menu P11.16.
	P11.17 ↵	<mark>Weekly service</mark>	Press ENTER. Configure for ON or OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P11.17.
	P11.18 ↵	<mark>Annual service</mark>	Press ENTER. Configure for ON or OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P11.18.
	P11.19 ↵	<mark>Bi-annual service</mark>	Press ENTER. Configure for ON or OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P11.19.
Equipment settings 3	Equipment settings have been arranged over a series of Equipment setting menus. Menu items are grouped together allowing Administrators to allow menu access to equipment settings menus as appropriate. Equipment settings 3 allow users with access to configure routine operating parameters.		
	P12.01 ↵	Parameter reset	The default parameters are defined by the application software 'config.' file. The application software config. file is part of the Airmaster™ Q1 software bill of material and is loaded as part of the controllers production. Press ENTER. Select YES. Press ENTER. The Airmaster™ Q1 has been reset to default. Note: The Airmaster™ Q1 will power cycle following a parameter reset.

Equipment settings 3			Note: The Event Log will indicate that a parameter reset to default event was carried out.
	P12.02 ↵	Use custom sensor	Use custom pressure sensor range. The default pressure sensor range is 0 – 16 BAR (or other selectable unit of measure). To use an alternative pressure sensor range press ENTER. Select ON. Press ENTER. The configured value has been committed to memory and the operator returned to Menu P12.02.
	P12.03 ↵	EO PRESS range	Equipment outlet pressure sensor range. Press ENTER. Configure between 5.0 BAR and 100 BAR (or other selectable unit of measure). Press ENTER. The configured value has been committed to memory and the operator returned to Menu P12.03.
	P12.04 ↵	EI PRESS range	Equipment internal pressure sensor range. Press ENTER. Configure between 5.0 BAR and 100 BAR (or other selectable unit of measure). Press ENTER. The configured value has been committed to memory and the operator returned to Menu P12.04.
	P12.05 ↵	Error log reset	Use to purge Error log from memory. Press ENTER', Select 'YES', PRESS 'ENTER'. The Error log has been deleted from memory and the operator has been returned to P12.05. Note: 'NO' will remain the default state following the log reset!
	P12.06 ↵	Event log reset	Use to purge Event log from memory. Press ENTER', Select 'YES', PRESS 'ENTER'. The Event log has been deleted from memory and the operator has been returned to P12.06. Note: 'NO' will remain the default state following the log reset!
	P12.07 ↵	Total HRS STR	Total hours start date. Total hours is intended to synchronise with the device commissioning date and thus provide a controller accessible indication of device 'total in service' hours. Total hours = Load hours plus Off load hours plus Standby hours Load hours = Number of load hours incremented from Total hours start date. Off load hours = Number of off load hours incremented from Total hours start date. Load / Off load hours = Number of load and off load hours incremented from Total start date. Standby hours = Number of Standby hours incremented from Total start date.
	P12.08 ↵	Set load hours	Load hours provides a controller accessible indication of device load hours. The set load hours feature is typically only used to purge pre commissioning load hours from memory or to synchronise with other hour counters.
	P12.09 ↵	Set off load HRS	Off load hours provides a controller accessible indication of device off load hours. The set off load hours feature is typically only used to purge pre commissioning off load hours from memory or to synchronise with other hour counters.
	P12.10 ↵	Set standby hours	Standby hours provides a controller accessible indication of device standby hours. The set standby hours feature is typically only used to purge pre commissioning standby hours hours from memory or to synchronise with other hour counters.
	P12.11 ↵	TEMP sensor type	Configure for Temperature sensor type. Configure for 'NTC', 'PT1000', 'PT100', 'KTY', '4 - 20mA Earth referenced', '4 - 20mA', '0 - 10V'or 'Digital'
	P12.12 ↵	INT PRESS SENS	Equipment internal pressure sensor. When installed use the Internal pressure sensor parameter to enable its use and function in conjunction with Equipment outlet pressure sensor.
	P12.13 ↵	ISC available	Internal system control available. Configure for YES or NO. When enabled, the Airmaster™ Q1 Internal system control menu's become available.

Equipment settings 3	P12.14 ↵	P00.02 CONFIG	P00.02 User defined menu display configuration. Press ENTER. Select menu location from menu list. Press ENTER. The configured value has been committed to memory and the operator returned to menu P12.14.
	P12.15 ↵	P00.03 CONFIG	P00.03 User defined menu display configuration. Press ENTER. Select menu location from menu list. Press ENTER. The configured value has been committed to memory and the operator returned to menu P12.14.
	P12.16 ↵	P00.04 CONFIG	P00.04 User defined menu display configuration. Press ENTER. Select menu location from menu list. Press ENTER. The configured value has been committed to memory and the operator returned to menu P12.14.
VSD settings		Variable speed drive settings manage the relationship between the VSD and the device main motor.	
	P13.01 ↵	VSD MAX speed	Variable speed drives maximum speed. Press ENTER. Configure between 100 and 10,000 RPM. Step = 100 RPM. Press ENTER. The configured value has been committed to memory and the operator returned to menu P13.01.
	P13.02 ↵	VSD MIN speed	Variable speed drives minimum speed. Press ENTER. Configure between 0 and 9900 RPM. Step = 100 RPM. Press ENTER. The configured value has been committed to memory and the operator returned to menu P13.02.
	P13.03 ↵	VSD OPT speed	Variable speed drives optimum speed. Press ENTER. Configure between 100 and 10,000 RPM. Step = 100 RPM. Press ENTER. The configured value has been committed to memory and the operator returned to menu P13.03. Note: Variable speed drive optimum speed is used to broadcast device optimum speed to Metacentre™ system controllers via the Airbus485™ network protocol. Using this parameter and its intelligent software algorithms, Metacentre™ system controllers are able to optimise the utilisation of multiple variable speed drive devices that feature Airmaster™ device controllers.
	P13.04 ↵	VSD off load speed	Variable speed drive off load speed. The drive speed used when the device moves to the off load state. Press ENTER. Configure between 0 and 9900 RPM. Step = 100 RPM. Press ENTER. The configured value has been committed to memory and the operator returned to menu P13.04.
	P13.05	VSD speed RPM	Variable speed drive speed RPM. No edit. Airmaster Q1™ PID output to variable speed drive.
	P13.06	VSD output CURR	Variable speed drive output current. No edit. Airmaster Q1™ PID output to variable speed drive.
	P13.07 ↵	VSD P factor	Variable speed drive proportional loop factor (See diagram below). Press ENTER. Configure between 0 and 100. Press ENTER. The configured value has been committed to memory and the operator returned to menu P13.07.

VSD settings	P13.08 ↵	VSD I factor	Variable speed drive Integration factor (see diagram above). Press ENTER. Configure between 0 and 100. Press ENTER. The configured value has been committed to memory and the operator returned to menu P13.08.
	P13.09 ↵	VSD D factor	Variable speed drive derivative factor (see diagram above). Press ENTER. Configure between 0 and 100. Press ENTER. The configured value has been committed to memory and the operator returned to menu P13.09.
	P13.10	VSD speed %	Variable speed drive speed %. No edit. Airmaster Q1™ PID output to variable speed drive.
	P13.11 ↵	VSD MAX RMP rate	Variable speed drive maximum ramp rate. Press ENTER. Configure between 5% and 100%. Step = 1%. Press ENTER. The configured value has been committed to memory and the operator returned to menu P13.11.
Motor protection	Motor protection is part of Airmaster™ Q1's Advanced Power Monitoring feature. The motor protection feature provides enhanced motor starting and motor overload protection equivalent to Trip Class 10A for the main motor and motor overload protection equivalent to Trip Class 10A for the fan motor of the device as well as current sensor and / or wiring error protection.		
	P14.01 ↵	Main MTR protect	Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P14.01.
	P14.02 ↵	Fan MTR protect	Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P14.02.
	P14.03 ↵	Main MTR NOM CURR	Press ENTER. Configure between 5.0Amps and 1000Amps. Step = 0.1A. Press ENTER. The configured value has been committed to memory and the operator returned to menu P14.03.
	P14.04 ↵	Main MTR SDTTF	Main motor star delta transition time factor is described below. Press ENTER. Configure between 1.1 and 3.0. Step = 0.1. Press ENTER. The configured value has been committed to memory and the operator returned to menu P14.04.
	P14.05 ↵	Main MTR ROT lock	Main motor rotor lock is described below. Press ENTER. Configure between OFF (i.e. not required) and 5.0. Step = 0.1. Press ENTER. The configured value has been committed to memory and the operator returned to menu P14.05.
	P14.06 ↵	Main MTR phase IMB	Main motor phase imbalance. Press ENTER. Configure between 5% and 40%. Press ENTER. The configured value has been committed to memory and the operator returned to menu P14.06.
	P14.07 ↵	Fan MTR NOM CURR	Fan motor nominal current. Press ENTER. Configure between 0.50Amps and 100Amps. Step = 0.01A. Press ENTER. The configured value has been committed to memory and the operator returned to menu P14.07.
	P14.08 ↵	Fan MTR OVLD INH	Fan motor overload inhibit. Press ENTER. Configure between 1 second and 10 seconds. Step = 0.1 second. Press ENTER. The configured value has been committed to memory and the operator returned to menu P14.08.
	For the motor protection feature to function effectively it's important to configure the main motor nominal current at P14.03 and the fan motor nominal current at P14.07. Nominal power can be calculated as follows... $$I = \frac{P \times SF}{V \times PF \times 1.73}$$		

Motor protection	Where… P = motor power (electrical input power), SF = service factor, V = line voltage, PF = power factor or $\cos(\varphi)$ For example… $$\frac{22kW \times 1.1}{400V \times 0.85 \times 1.73} = 41.1A$$ Rotor lock protection and overload protection are never active simultaneously. During a motor start event, rotor lock protection is active for a factor of time determined by the star delta transition time factor parameter at P14.04. Following the aforementioned period of time, rotor lock protection is deactivated and overload protection is simultaneously activated. Rotor lock protection (providing enhanced motor start event protection): Rotor lock protection will immediately stop the main motor if the starting current is too high. The protection has a delay time of 2 seconds to allow current peaks that occur when the main motor is initially started and / or during a main motor star-delta transition event.
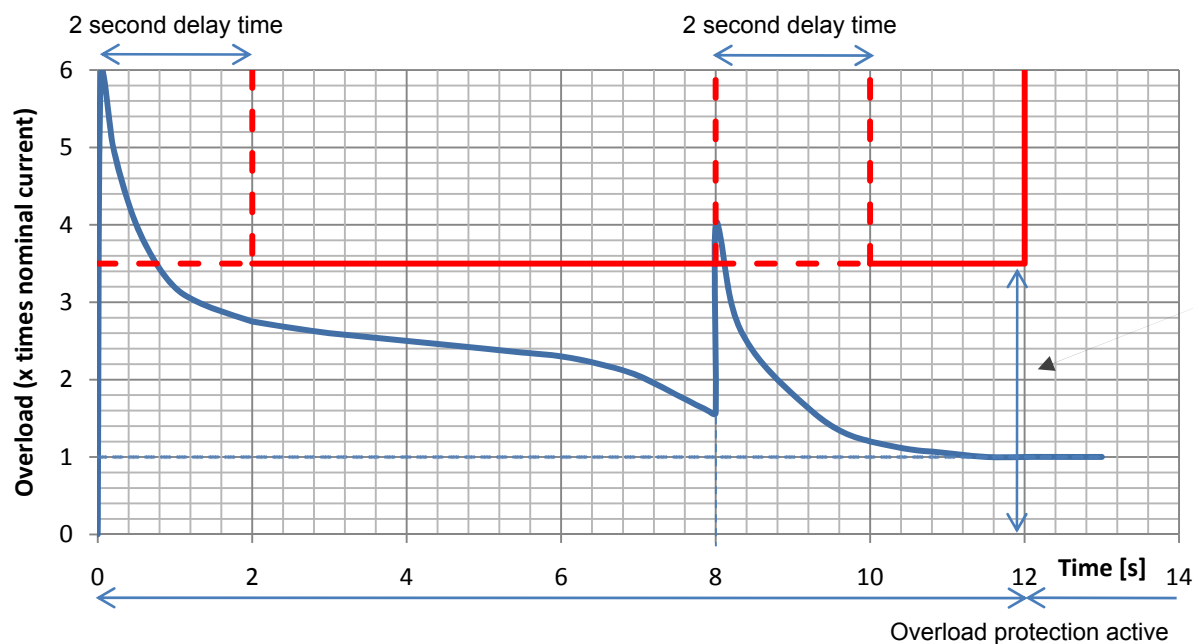
Motor protection	The following parameter value method is provided for guidance only! It can be used to establish a parameter value for the main motor ROT lock parameter at menu P14.05. If in doubt, contact your product supplier!

Typical parameter values are between 2.5 and 4. A simple method of establishing a parameter value is to gradually lower the parameter value until a main motor ROT lock immediate stop event occurs.   The motor should be COLD when using this method to establish a parameter value. Once established, set the parameter value higher (for example... add 1.0) to compensate for performance variation due to general wear and tear, filter blockages and lower device oil temperature.

Overload protection:

Following star delta transition time factor period, overload protection of the main motor is activated. Following the fan motor overload inhibit period, overload protection of the fan motor is activated. The fan motor overload inhibit is intended to allow current peaks that can occur during a fan motor start event.

It is not necessary to configure the characteristics of the overload protection. Instead, overload protection is determined by Airmaster™ Q1 using the configured nominal current for the respective motor...

Overload protection characteristic
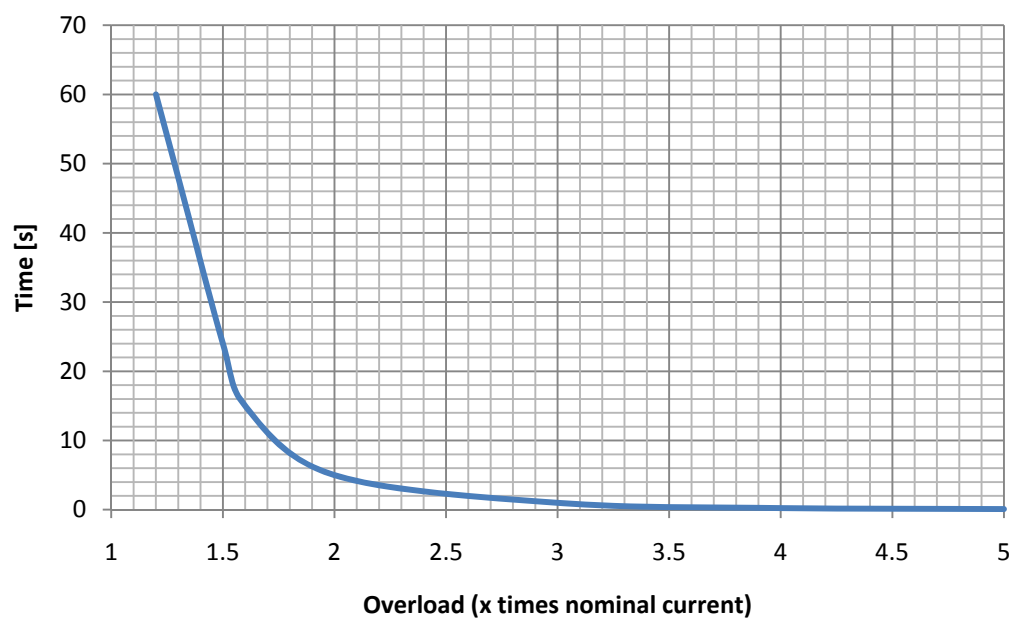
Overload factor	Time [s]
1,2	60
1,3	48
1,5	24
1,6	15
2	5
3	1
4	0,25
5	0,1

Motor protection	Current sensor or wiring error protection: If the measured current is lower than 20% of the nominal current when the respective motor is running, the Airmaster™ Q1 will assume there is a current sensor defect or that there is a wiring fault.		
Inhibits	Airmaster™ Q1 features a variety of menu configurable inhibits that restrict running of the device.		
	P15.01 ↵	Operator	The operator inhibit is intended for operators to intentionally inhibit the device from running Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P15.01.
	P15.02 ↵	Door open	Some devices require the device enclosure door to be closed. To prevent running when the device enclosure doors are open the Door open inhibit can be used to prevent the device from starting. The Door open inhibit uses an assigned digital input as a reference condition. If a digital input has been assigned to 'door open' (see digital input assignment) then the door open inhibit can be used to prevent the device from starting if the digital input is in an alarm state during a start attempt. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P15.02. Note: A digital input must be configured to 'door open' for the door open inhibit feature to function
	P15.03 ↵	Low temperature	To prevent starting during extreme ambient conditions the low temperature inhibit can be used to prevent the device from starting. The low temperature inhibit uses the COMP OUT TEMP sensor value as a reference condition. Press ENTER. Configure between -20°C and +10°C (or other selectable unit of measure). Press ENTER. The configured value has been committed to memory and the operator returned to menu P15.03.
	P15.04 ↵	INT PRESS high	To prevent starting when excessive internal pressure exists the internal pressure high inhibit can be used to prevent the device from starting. The internal pressure inhibit uses the internal pressure sensor value as a reference condition. Press ENTER. Configure between 0.1 BAR and 2.0 BAR (or other selectable unit of measure). Press ENTER. The configured value has been committed to memory and the operator returned to menu P15.04.
Warnings / IMM stop alarms	Airmaster™ Q1 features a variety of menu configurable WARNING ALARMS and IMMEDIATE STOP ALARM conditions.		
	P16.01 ↵	Service hours 1	Service hours 1 warning. Press ENTER. Configure between 0 and 10,000 hours. Step = 100 hours. Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.01. Note: To function, the parameter must also be enabled in menu P11 – Equip settings 2!
	P16.02 ↵	Service hours 2	Service hours 2 warning. Press ENTER. Configure between 0 and 10,000 hours. Step = 100 hours. Press

			ENTER. The configured value has been committed to memory and the operator returned to menu P16.02. Note: To reveal menu, the parameter must first be enabled in menu P11 – Equip settings 2!
	P16.03 ↵	Service hours 3	Service hours 3 warning. Press ENTER. Configure between 0 and 10,000 hours. Step = 100 hours. Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.03. Note: To reveal menu, the parameter must first be enabled in menu P11 – Equip settings 2!
	P16.04 ↵	Service hours 4	Service hours 4 warning. Press ENTER. Configure between 0 and 10,000 hours. Step = 100 hours. Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.04. Note: To reveal menu, the parameter must first be enabled in menu P11 – Equip settings 2!
	P16.05 ↵	Service hours 5	Service hours 5 warning. Press ENTER. Configure between 0 and 10,000 hours. Step = 100 hours. Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.05. Note: To reveal menu, the parameter must first be enabled in menu P11 – Equip settings 2!
	P16.06 ↵	Weekly service	Weekly service warning. Press ENTER to access the weekly service sub menu. Note: To reveal menu, the parameter must first be enabled in menu P11 – Equip settings 2!
	P16.06.01 ↵	AUTO SCH service	Automatic schedule next service. Press ENTER. Select YES. Press ENTER. The next weekly service has been configured at parameter P16.06.02 ~ P16.06.05. Note: The auto schedule feature adds 7 calendar days to the currently configured values
Warnings / **IMM stop** **alarms**	P16.06~08.02 ↵	Year	Manually configure the Year of the next service. Press ENTER. Configure Year, Press ENTER. The configured value has been updated and the operator returned to menu P16.06.02.
	P16.06~08.03 ↵	Month	Manually configure the Month of the next service. Press ENTER. Configure Month, Press ENTER. The configured value has been updated and the operator returned to menu P16.06.03.
	P16.06~08.04 ↵	Day	Manually configure the Day of the next service. Press ENTER. Configure Day, Press ENTER. The configured value has been updated and the operator returned to menu P16.06.04.
	P16.06~08.05 ↵	Time	Manually configure the Time of the next service. Press ENTER. Configure Time, Press ENTER. The configured value has been updated and the operator returned to menu P16.06.06.
	P16.06~08.06 ↵	Save changes	Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.0#.
	P16.07 ↵	Annual service	Annual service warning. Press ENTER to access the Annual service sub menu. Note: To reveal menu, the parameter must first be enabled in menu P11 – Equip settings 2! Note: Following procedure described above.
	P16.08 ↵	Bi-annual service	Bi-annual service warning. Press ENTER to access the Bi-annual service sub menu. Note: To reveal menu, the parameter must first be enabled in menu P11 – Equip settings 2!

Warnings / IMM stop alarms			Note: Following procedure described above.
	P16.09 ↵	COMP OUT TEMP	Analogue type (See Menu P12.11): Device 'compressor engine' outlet temperature warning. Press ENTER. Configure between OFF (i.e. not required), 70°C and 240°C (or other selectable unit of measure). Step = 1. Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.09. ==Digital type (See Menu P12.11):== ==Device 'compressor engine' outlet temperature warning alarm. Press ENTER. Configure between OFF and ON. Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.09==
	P16.10 ↵	EQUIP OUT PRESS	Equipment outlet pressure warning. Press ENTER. Configure between OFF and the maximum permissible value. Step = 0.1 BAR (or other unit of measure). Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.10. ==Note: Minimum permissible value = 0.1 BAR (or other unit of measure) above Off load pressure== ==Note: Maximum permissible value = 0.1 BAR (or other unit of measure) below Equipment outlet pressure immediate stop value.==
	P16.11 ↵	EQUIP INT PRESS	Equipment internal pressure warning. Press ENTER. Configure between OFF and the maximum permissible value. Step = 0.1 BAR (or other unit of measure). Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.11. ==Note: Minimum permissible value = 0.1 BAR (or other unit of measure) above Equipment outlet pressure warning.== ==Note: Maximum permissible value = 0.1 BAR (or other unit of measure) below Equipment internal pressure immediate stop alarm==
	P16.12 ↵	DIFF pressure	Differential pressure warning (EQUIP INT PRESS MINUS EQUIP OUT PRESS). Press ENTER. Configure between OFF, 0.2 BAR and the maximum permissible value. Step = 0.1 BAR (or other unit of measure). Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.12. Note: The minimum differential between differential pressure warning and differential pressure immediate stop = 0.2 BAR. ==Note: DIFF pressure warning monitoring is disabled when delivery temperature is below 50°C (or other unit of measure)== Note: DIFF pressure must continuously exceed the set value for more than 10 seconds for a warning to occur
	P16.13 ↵	Oil Air SEP DP HI	Device 'Oil / Air Separator' differential pressure high warning (Oil Air SEP DP HI MINUS EQUIP OUT PRESS). Configure between OFF, 0.01 BAR and 2.00 BAR (or other selectable unit of measure). Step = 0.01 BAR (or

Warnings / IMM stop alarms			other unit of measure). Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.13 ==Note: Device pressure warning monitoring is disabled when delivery temperature is below 50°C (or other unit of measure)== ==Note: DIFF pressure must continuously exceed the set value for more than 10 seconds for a warning to occur==
	P16.14 ↵	Phase detection	Power source phase detection warning. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.14
	P16.15 ↵	==HI MTR STR HR==	==High main motor starts per hour==. Press ENTER. Configure between OFF, 1 and ==20==. Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.15
	P16.16 ↵	Door open	Device enclosure door open warning. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.16 Note: Requires appropriate digital input assignment. See Menu P18
	P16.17 ↵	CAB filter DP	Device cabinet filter differential pressure warning. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.17. Note: Requires appropriate digital input assignment. See Menu P18
	P16.18↵	Air filter DP	Device air filter differential pressure warning. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.18. Note: Requires appropriate digital input assignment. See Menu P18
	P16.19 ↵	Oil filter DP	Oil filter differential pressure. Press ENETR. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.19. Note: Requires appropriate digital input assignment. See Menu P18
	P16.20 ↵	SEP filter DP	Device separator filter differential pressure warning. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.20. Note: Requires appropriate digital input assignment. See Menu P18
	P16.21 ↵	Fan motor alarm	Fan motor alarm warning alarm. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.21. Note: Requires appropriate digital input assignment. See Menu P18
	P16.22 ↵	CNDS drain alarm	Device condensate drain warning alarm. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.22. Note: Requires appropriate digital input assignment. See Menu P18
	P16.23 ↵	COOL water alarm	Device cooling water warning alarm. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.23.

			Note: Requires appropriate digital input assignment. See Menu P18
	P16.24 ↵	Oil level alarm	Device oil level warning alarm. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.24. Note: Requires appropriate digital input assignment. See Menu P18
	P16.25 ↵	RD alarm	Device refrigerant dryer warning alarm. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.25. Note: Requires appropriate digital input assignment. See Menu P18
	P16.26 ↵	Line FTR DP ALM	Device line filter differential pressure warning alarm. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.26. Note: Requires appropriate digital input assignment. See Menu P18
	P16.27 ↵	FTR drain ALM	Device filter drain warning alarm. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.27. Note: Requires appropriate digital input assignment. See Menu P18
Warnings / IMM stop alarms	P16.28 ↵	Oil/WTR SEP ALM	Device oil / water separator warning alarm. Press ENETR. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.28. Note: Requires appropriate digital input assignment. See Menu P18
	P16.29 ↵	Conf alarm 1	Configurable warning alarm 1. Press ENTER to access the Conf alarm 1 sub menu
	P16.29.01 ↵	Conf ALM ON	Configured warning alarm on. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.29.01 Note: Requires appropriate digital input assignment. See Menu P18
	P16.29.02 ↵	ALM name edit	The warning alarm name is an eight digit alpha numeric display text. The display text is used to at Menu P00.01 (Home) and Menu P03 (Error log) Press 'ENTER' to access the Alarm name edit sub menu. The current warning alarm name is displayed and first digit is selected. Use the UP and DOWN key to configure and then press 'ENTER'. The configured value is updated and the second digit is selected. Complete the process for digits two, three, four, five, six, seven and eight. When the operator presses ENTER after configuring digit eight, the configured value is committed to memory and the operator is returned to menu P16.29.02.
	P16.30 ↵	Conf alarm 2	Configurable warning alarm 2. Press ENTER to access the Conf alarm 2 sub menu
	P16.30.01 ↵	Conf ALM ON	Configured warning alarm on. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.30.01 Note: Requires appropriate digital input assignment. See Menu P18
	P16.30.02 ↵	ALM name edit	The warning alarm name is an eight digit alpha numeric display text. The display text is used to at Menu P00.01 (Home) and Menu P03 (Error log) Press 'ENTER' to access the Alarm name edit sub menu. The current warning alarm name is displayed and first digit is selected. Use the UP and DOWN key to configure and then press 'ENTER'. The configured value is updated and the second digit is selected. Complete the

Warnings / IMM stop alarms			process for digits two, three, four, five, six, seven and eight. When the operator presses ENTER after configuring digit eight, the configured value is committed to memory and the operator is returned to menu P16.30.02
	P16.31 ↵	Conf alarm 3	Configurable warning alarm 3. Press ENTER to access the Conf alarm 3 sub menu
	P16.31.01 ↵	Conf ALM ON	Configured warning alarm on. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P16.31.01 Note: Requires appropriate digital input assignment. See Menu P18
	P16.31.02 ↵	ALM name edit	The warning alarm name is an eight digit alpha numeric display text. The display text is used to at Menu P00.01 (Home) and Menu P03 (Error log) Press 'ENTER' to access the Alarm name edit sub menu. The current warning alarm name is displayed and first digit is selected. Use the UP and DOWN key to configure and then press 'ENTER'. The configured value is updated and the second digit is selected. Complete the process for digits two, three, four, five, six, seven and eight. When the operator presses ENTER after configuring digit eight, the configured value is committed to memory and the operator is returned to menu P16.31.02
	P17.01 ↵	COMP OUT TEMP	Analogue type (See Menu P12.11): Device 'compressor engine' outlet temperature immediate stop alarm. Press ENTER. Configure between OFF (i.e. not required), 70°C and 240°C (or other selectable unit of measure). Step = 1. Press ENTER. The configured value has been committed to memory and the operator returned to menu P17.01 ==Digital type (See Menu P12.11):== ==Device 'compressor engine' outlet temperature immediate stop alarm. Press ENTER. Configure between OFF and ON. Press ENTER. The configured value has been committed to memory and the operator returned to menu P17.01==
	P17.02 ↵	==HI TEMP rise==	High temperature rise immediate stop alarm. The purpose of the high temperature rise parameter is to monitor any abnormally high rise in device temperature following a run condition. Press ENTER to access the HI TEMP rise sub menu
	P17.02.01 ↵	Delta temp	Delta temperature immediate stop alarm. Press ENTER. Configure between 1 and 60°C (or other selectable unit of measure). Step = 1°C. Press ENTER. The configured value has been committed to memory and the operator returned to menu P17.02.01.
	P17.02.02 ↵	Delta time	Press ENTER. Configure between 5 and 30 seconds. Step = 1 second. Press ENTER. The configured value has been committed to memory and the operator returned to menu P17.02.02.
	P17.02.03 ↵	Active time	Press ENTER. Configure between OFF, 0 and 60 seconds. Step = 1 second. Press ENTER. The configured value has been committed to memory and the operator returned to menu P17.02.03 Note: Active time = The period of time defined in seconds that the high temperature rise parameter remains active following a state change to the run state.
	P17.03 ↵	EQUIP OUT PRESS	Equipment outlet pressure immediate stop alarm. Press ENTER. Configure between permissible values. Step = 0.1 BAR (or other unit of measure). Press ENTER. The configured value has been committed to memory and the operator returned to menu P17.03.

			Note: Minimum permissible value = 0.1 BAR (or other unit of measure) above Equipment outlet pressure warning alarm.
	P17.04 ↵	EQUIP INT PRESS	Equipment internal pressure immediate stop alarm. Press ENTER. Configure between permissible value. Step = 0.1 BAR (or other unit of measure). Press ENTER. The configured value has been committed to memory and the operator returned to menu P17.04. Note: Minimum permissible value = 0.1 BAR (or other unit of measure) above Equipment internal pressure warning.
	P17.05 ↵	Low PRESS rise	Low pressure rise immediate stop alarm. The purpose of the pressure rise parameter is to monitor any abnormally low rise in internal pressure following a run condition. Press ENTER to access the Low pressure rise sub menu. Note: Only active when an internal pressure sensor is installed.
	P17.05.01 ↵	Min INT PRESS	Press ENTER. Configure between 0 and 2 BAR (or other selectable unit of measure). Step = 0.1 BAR. Press ENTER. The configured value has been committed to memory and the operator returned to menu P17.05.01.
	P17.05.03 ↵	Active time	Press ENTER. Configure between OFF, 0 and 60 seconds. Step = 1 second. Press ENTER. The configured value has been committed to memory and the operator returned to menu P17.05.03
Warnings / IMM stop alarms	P17.06 ↵	DIFF pressure	Differential pressure immediate stop alarm (EQUIP INT PRESS MINUS EQUIP OUT PRESS). Press ENTER. Configure between OFF, 0.4 BAR and the maximum permissible value. Step = 0.1 BAR (or other unit of measure). Press ENTER. The configured value has been committed to memory and the operator returned to menu P17.06. Note: The minimum differential between differential pressure warning and differential pressure immediate stop = 0.2 BAR. Note: DIFF pressure immediate stop alarm monitoring is disabled when delivery temperature is below 50°C (or other unit of measure) Note: DIFF pressure must continuously exceed the set value for more than 10 seconds for a warning to occur
	P17.07 ↵	Motor short	Device main motor short immediate stop alarm. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P17.07.
	P17.08 ↵	Motor locked	Device main motor lock immediate stop alarm. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P17.08.
	P17.09 ↵	Motor overload	Device main motor overload immediate stop alarm. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P17.09.
	P17.10 ↵	Motor phase IMB	Device main motor phase imbalance immediate stop alarm. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P17.10.
	P17.11 ↵	Fan MTR overload	Device fan motor overload immediate stop alarm. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P17.11.
	P17.12 ↵	Phase detection	Device phase detection immediate stop alarm. Press ENTER. Configure between ON and OFF. Press

			ENTER. The configured value has been committed to memory and the operator returned to menu P17.12.
Warnings / IMM stop alarms	P17.13 ↵	Door open	Device enclosure door open immediate stop alarm. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P17.13. Note: Requires appropriate digital input assignment. See Menu P18
	P17.14 ↵	Fan motor alarm	Fan motor immediate stop alarm. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P7.14. Note: Requires appropriate digital input assignment. See Menu P18
	P17.15 ↵	COOL water alarm	Device cooling water immediate stop alarm. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P17.15. Note: Requires appropriate digital input assignment. See Menu P18
	P17.16 ↵	Oil level alarm	Device oil level immediate stop alarm. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P17.16. Note: Requires appropriate digital input assignment. See Menu P18
	P17.17 ↵	Belt drive SERV	Device belt drive service immediate stop alarm. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P17.17. Note: Requires appropriate digital input assignment. See Menu P18
	P17.18 ↵	RD alarm	Device refrigerant dryer immediate stop alarm. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P17.18. Note: Requires appropriate digital input assignment. See Menu P18
	P17.19 ↵	Conf alarm 1	Configurable immediate stop alarm 1. Press ENTER to access the Conf alarm 1 sub menu
	P17.19.01 ↵	Conf ALM ON	Configured immediate stop alarm on. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P17.19.01 Note: Requires appropriate digital input assignment. See Menu P18
	P17.19.02 ↵	ALM name edit	The immediate stop alarm name is an eight digit alpha numeric display text. The display text is used to at Menu P00.01 (Home) and Menu P03 (Error log) Press 'ENTER' to access the Alarm name edit sub menu. The current immediate stop alarm name is displayed and first digit is selected. Use the UP and DOWN key to configure and then press 'ENTER'. The configured value is updated and the second digit is selected. Complete the process for digits two, three, four, five, six, seven and eight. When the operator presses ENTER after configuring digit eight, the configured value is committed to memory and the operator is returned to menu P17.19.02
	P17.20 ↵	Conf alarm 2	Configurable immediate stop alarm 2. Press ENTER to access the Conf alarm 2 sub menu
	P17.20.01 ↵	Conf ALM ON	Configured immediate stop alarm on. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P17.20.01 Note: Requires appropriate digital input assignment. See Menu P18

Warnings / IMM stop alarms	P17.20.02 ↵	ALM name edit	The immediate stop alarm name is an eight digit alpha numeric display text. The display text is used to at Menu P00.01 (Home) and Menu P03 (Error log) Press 'ENTER' to access the Alarm name edit sub menu. The current immediate stop alarm name is displayed and first digit is selected. Use the UP and DOWN key to configure and then press 'ENTER'. The configured value is updated and the second digit is selected. Complete the process for digits two, three, four, five, six, seven and eight. When the operator presses ENTER after configuring digit eight, the configured value is committed to memory and the operator is returned to menu P17.20.02
	P17.21 ↵	Conf alarm 3	Configurable immediate stop alarm 3. Press ENTER to access the Conf alarm 3 sub menu
	P17.21.01 ↵	Conf ALM ON	Configured immediate stop alarm on. Press ENTER. Configure between ON and OFF. Press ENTER. The configured value has been committed to memory and the operator returned to menu P17.21.01 Note: Requires appropriate digital input assignment. See Menu P18
	P17.21.02 ↵	ALM name edit	The immediate stop alarm name is an eight digit alpha numeric display text. The display text is used to at Menu P00.01 (Home) and Menu P03 (Error log) Press 'ENTER' to access the Alarm name edit sub menu. The current immediate stop alarm name is displayed and first digit is selected. Use the UP and DOWN key to configure and then press 'ENTER'. The configured value is updated and the second digit is selected. Complete the process for digits two, three, four, five, six, seven and eight. When the operator presses ENTER after configuring digit eight, the configured value is committed to memory and the operator is returned to menu P17.21.02
I/O (Input / Output) CONFIG	Airmaster™ Q1 features a variety if input / output configuration options. Note: When configuring I/O assignments in menu P18 you must also configure the associated menu item(s) in the respective menus. For example; if you want to configure digital input 2 of menu item P18.02 for 'Oil filter DP alarm monitoring', you must also enable the Oil filter DP alarm function by navigating to the Oil filter DP alarm menu item at P16.19 and select ON. **In summary, remember to enable a function you require and assign it to an input or an output!** Airmaster™ Q1 features 1 menu configurable Analogue output. Selectable options are tabled below:		
	P18.01 ↵	AO function	Analogue output function. Press ENTER. Select from function list. Press ENTER. The configured value has been committed to memory and the operator returned to menu P18.01.
		OFF	Feature disable
		Alarm	Energised for any active Alarm fault (not including Start/Run Inhibit)
		Alarm NO	De-energised for any active Alarm fault (not including Start/Run Inhibit)
		Alarm & service	Energised for any Alarm fault or Service Due alarm (not including Start/Run Inhibit)
		Alarm & Service NO	De-energised for any Alarm fault or Service Due alarm (not including Start/Run Inhibit)
		Drain	See P11.08 & P11.09
		Dryer control	Energised in all RUNNING state conditions
		EQUIP OUT PRESS	Repeat Equipment output pressure value via 4-20mA output signal
		EQUIP INT PRESS	Repeat Equipment internal pressure value via 4-20mA output signal
		COMP OUT TEMP	Repeat Compressor output temperature value via 4-20mA output signal
		Fan	Energised in all RUNNING states except 'motor starting' and 'load delay'. Can be used to energise internal and/or external cooling fan motor contactor

		Fan control	Enabled to operate in all RUNNING states except 'motor starting' and 'load delay'. If enabled to operate the output will only energise if delivery temperature exceeds the set 'Fan High' temperature setting. If delivery temperature falls below the set 'Fan Low' temperature setting the output will de-energise. Once energised the output will remain energised for a minimum of the set 'Fan Minimum Run Time' regardless of delivery temperature. Can be used to energise internal and/or external cooling fan
I/O (Input / Output) CONFIG	P18.01 ↵ (Continued)	Fan MTR current	Repeat Fan motor current value via 4-20mA output signal
		Group fault	Energised for any active Alarm, Star/Run Inhibit or Shutdown fault
		Group fault NO	De-energised for any active Alarm, Star/Run Inhibit or Shutdown fault
		Heater	Energises if detected temperature falls below set low temperature run inhibit + 2°C. De-energises if detected temperature increases above set low temp run inhibit + 3°C. Can be used to energise anti-condensate heater contactor or as low temperature warning auxiliary output.
		Immediate stop	Energised for any active Immediate stop condition. (not including Start/Run Inhibit)
		IMM stop NO	De-energised for any active Shutdown fault (not including Start/Run Inhibit)
		Loaded	Energised in all LOADED state conditions
		Main MTR current	Repeat Main motor current value via 4-20mA output signal
		Running	Energised in all RUNNING state conditions
		Service	Energised for Service due alarm only
		Standby	Energised in 'Standby' and 'Venting' states
		Started	Energised in all STARTED state conditions
	Airmaster™ Q1 features 7 menu configurable Digital inputs. Each menu configurable digital input parameter (e.g. P18.02) is followed by a configurable digital input state selection parameter (e.g. P18.03). Selectable options are tabled below. Each warning or stop condition uses condition codes as well as text to display condition information on the Airmaster™ Q1 graphical user interface.		
	P18.02 ~ 14 ↵	OFF	Feature disable
		Air filter DP alarm	Select
		Air filter DP stop	Select
		CAB filter DP alarm	Select
		CAB filter DP stop	Select
		CNDS drain alarm	Select
		COMP start/stop	Select
		Conf alarm 1	Select
		Conf immediate stop 1	Select
		Conf ALM 1	Configurable warning alarm 1
		Conf ALM 1	Configurable immediate stop alarm 1
		Conf ALM 2	Configurable warning alarm 2
		Conf ALM 2	Configurable immediate stop alarm 2
		Conf ALM 3	Configurable warning alarm 3
		Conf ALM 3	Configurable immediate stop alarm 3
		COOL water alarm	Select
		COOL WTR stop	Select

I/O (Input / Output) CONFIG	P18.02 ~ 14 ↵ (Continued)	Doors open alarm	Select
		Doors open stop	Select
		Dryer alarm	Select
		Dryer stop	Select
		Fan motor alarm	Select
		Fan MTR stop	Select
		FTR drain ALM	Select
		FTR drain stop	Select
		Line FTR DP ALM	Select
		Line FTR DP stop	Select
		Main motor alarm	Select
		Main motor stop	Select
		Main MTR TEMP HI	Select
		Oil filter DP alarm	Select
		Oil filter DP stop	Select
		Oil level alarm	Select
		Oil LVL stop	Select
		Oil/WTR SEP ALM	Select
		Oil/WTR SEP stop	Select
		REM load enable	Select
		REM load/offload	Select
		Run SCH On/Off	Select
		SEP filter DP alarm	Select
		SEP filter DP stop	Select
		Transducer alarm	Select
		V belt stop	Select
	P18.03 ~ 15 ↵	NO / NC	Configure input for normally open (NO) or normally closed (NC) state Note: 'Normally' = healthy or OK
	Airmaster™ Q1 features 8 relay outputs of which 4 relay outputs are configurable. Menu configurable options are as follows:		
	P18.16 ~ P18.19 ↵	OFF	Feature enable / disable
		Alarm	Energised for any active Alarm fault (not including run Inhibit)
		Alarm NO	De-energised for any active Alarm fault (not including run Inhibit
		Alarm & service	Energised for any Alarm fault or Service Due alarm (not including run Inhibit)
		Alarm & Service NO	De-energised for any Alarm fault or Service Due alarm (not including Start/Run Inhibit)
		Drain	See P11.08 & P11.09
		Dryer control	Energised in all RUNNING state conditions
		Fan	Energised in all RUNNING states except 'motor starting' and 'load delay'. Can be used to energise internal and/or external cooling fan motor contactor

		Fan control	Enabled to operate in all RUNNING states except 'motor starting' and 'load delay' If enabled to operate the output will only energise if delivery temperature exceeds the set 'Fan High' temperature setting. If delivery temperature falls below the set 'Fan Low' temperature setting the output will de-energise. Once energised the output will remain energised for a minimum of the set 'Fan Minimum Run Time' regardless of delivery temperature. Can be used to energise internal and/or external cooling fan motor contactor; the minimum run time is intended as a means of limiting Fan motor starts per hour.
		Group fault	Energised for any active Alarm, Star/Run Inhibit or Shutdown fault
		Group fault NO	De-energised for any active Alarm, Star/Run Inhibit or Shutdown fault
		Heater	Energises if detected temperature falls below set low temperature run inhibit + 2°C. De-energises if detected temperature increases above set low temp run inhibit + 3°C. Can be used to energise anti-condensate heater contactor or as low temperature warning auxiliary output.
		Immediate stop	Energised for any active Shutdown fault (not including Start/Run Inhibit)
	P18.16 ~ P18.19 ↵ (Continued)	IMM stop NO	De-energised for any active Shutdown fault (not including Start/Run Inhibit)
		Loaded	Energised in all LOADED state conditions
		Running	Energised in all RUNNING state conditions
		Service	Energised for Service due alarm condition only
		Standby	Energised in 'Standby' and 'Venting' states
		Started	Energised in all 'Started' state conditions
Sensor CONFIG	Sensor configuration. **Caution: Incorrectly configured sensor calibration can influence device performance and their related safety features and function.**		
	P19.01 ↵	EQUIP OUT PRESS	Equipment outlet pressure. Press ENTER to access the EQUIP OUT PRESS sub menu.
	P19.01.01 ↵	Value offset	Use to calibrate the sensor offset. Press ENTER. Adjust within permissible values. Press ENTER. The configured value has been committed to memory and the operator returned to menu P19.01.01. Note: To calibrate an offset, expose the sensor to atmosphere and adjust the offset value until Menu P19.01.03 displays 0.0bar. If, for example, the sensor has a –1.0(minus one) to 15.0bar range; set to –1.0bar.
	P19.01.02 ↵	Sensor range	Use to calibrate the sensor range maximum. Adjust within permissible values. Press ENTER. The configured value has been committed to memory and the operator returned to menu P19.01.02. Note: To calibrate the 'range maximum', apply an accurately known pressure to the sensor and adjust the range value until the value displayed in Menu P19.01.03 matches the applied pressure. The range value can be calibrated with static or changing applied pressure. If, for example, the sensor has a –1.0(minus one) to 15.0bar range; set initially to 15.0bar then adjust as necessary.
	P19.01.03	EQUIP OUT PRESS	Equipment outlet pressure. No edit. Equipment outlet pressure measured value display menu
	P19.02 ↵	EQUIP INT PRESS	Equipment internal pressure. Press ENTER to access the EQUIP INT PRESS sub menu.

Sensor CONFIG	P19.02.01 ↵	Value offset	Use to calibrate the sensor offset. Press ENTER. Adjust within permissible values. Press ENTER. The configured value has been committed to memory and the operator returned to menu P19.02.01. Note: To calibrate an offset, expose the sensor to atmosphere and adjust the offset value until Menu P19.02.03 displays 0.0bar. If, for example, the sensor has a –1.0(minus one) to 15.0bar range; set to –1.0bar.
	P19.02.02 ↵	Sensor range	Use to calibrate the sensor range maximum. Adjust within permissible values. Press ENTER. The configured value has been committed to memory and the operator returned to menu P19.01.02. Note: To calibrate the 'range maximum', apply an accurately known pressure to the sensor and adjust the range value until the value displayed in Menu P19.01.03 matches the applied pressure. The range value can be calibrated with static or changing applied pressure. If, for example, the sensor has a –1.0(minus one) to 15.0bar range; set initially to 15.0bar then adjust as necessary.
	P19.02.03	EQUIP INT PRESS	Equipment internal pressure. No edit. Equipment internal pressure measured value display menu
	P19.03 ↵	COMP OUT TEMP	Compressor (device engine) outlet temperature. Press ENTER to access the COMP OUT TEMP sub menu.
	P19.03.01 ↵	Value offset	Use to calibrate the sensor offset. Press ENTER. Adjust within permissible values. Press ENTER. The configured value has been committed to memory and the operator returned to menu P19.03.01.
	P19.02.02	COMP OUT TEMP	No edit. Equipment internal pressure measured value display menu
	P19.04 ↵	Main MTR current	Main motor current. Press ENTER to access the Main MTR current sub menu
	P19.04.01 ↵	Main MTR CT RTG	Main motor current transformer rating. Press ENTER. Configure within permissible values and to match device current transformer. Press ENTER. The configured value has been committed to memory and the operator returned to menu P19.04.01.
	P19.04.02 ↵	CT windings	Current transformer windings. Press ENTER. Configure within permissible values and to match the number of times the source power cable is wound around the current transformer. Press ENTER. The configured value has been committed to memory and the operator returned to menu P19.04.01.
	P19.04.03 ↵	Sensor range	Use to calibrate the sensor range maximum. Adjust within permissible values. Press ENTER. The configured value has been committed to memory and the operator returned to menu P19.04.03.
	P19.04.04 ↵	Main MTR current	No edit. Main motor current measured value display menu
	P19.05 ↵	Fan MTR current	Fan motor current. Press ENTER to access the Fan MTR current sub menu
	P19.05.01 ↵	Fan MTR CT RTG	Fan motor current transformer rating. Press ENTER. Configure within permissible values and to match device current transformer. Press ENTER. The configured value has been committed to memory and the operator returned to menu P19.05.01.
	P19.05.02 ↵	CT windings	Current transformer windings. Press ENTER. Configure within permissible values and to match the number of times the source power cable is wound around the current transformer. Press ENTER. The configured value has been committed to memory and the operator returned to menu P19.05.01.
	P19.05.03 ↵	Sensor range	Use to calibrate the sensor range maximum. Adjust within permissible values. Press ENTER. The configured value has been committed to memory and the operator returned to menu P19.05.03.
	P19.05.04 ↵	Fan MTR current	No edit. Fan motor current measured value display menu

Diagnostics	The diagnostics menu provides a keypad accessible method if testing digital inputs, analogue inputs, relay outputs, current transformer analogue inputs, phase frequency inputs, phase angle and membrane key switch test.		
	P20.01 ↵	Digital input 1	
	P20.02 ↵	Digital input 2	
	P20.03 ↵	Digital input 3	
	P20.04 ↵	Digital input 4	
	P20.05 ↵	Digital input 5	
	P20.06 ↵	Digital input 6	
	P20.07 ↵	Digital input 7	
	P20.08 ↵	Digital input 8	
	P20.09 ↵	Analog input 1	
	P20.10 ↵	Analog input 2	
	P20.11 ↵	Analog input 3	
	P20.12 ↵		
	P20.13 ↵		
	P20.14 ↵	Analog input 4	
	P20.15 ↵	Relay output 1	
	P20.16 ↵	Relay output 2	
	P20.17 ↵	Relay output 3	
	P20.18 ↵	Relay output 4	
	P20.19 ↵	Relay output 5	
	P20.20 ↵	Relay output 6	
	P20.21 ↵	Relay output 7	
	P20.22 ↵	Relay output 8	
	P20.23 ↵	Analog output 1	
	P20.24 ↵	ANAL input CT1A	
	P20.25 ↵	ANAL input CT1B	
	P20.26 ↵	ANAL input CT1C	
	P20.27 ↵	ANAL input CT2A	
	P20.28 ↵	L1 frequency	
	P20.29 ↵	L2 frequency	
	P20.30 ↵	L3 frequency	
	P20.31 ↵	L1 phase angle	
	P20.32 ↵	L2 phase angle	
	P20.33 ↵	L3 phase angle	
	P20.34 ↵	Key switch test	
Run schedule			
ISC (Internal			

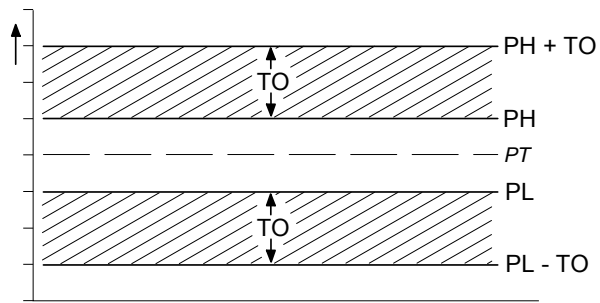| System Control)	Airmaster™ ISC software is compatible with current and legacy Airmaster™ controllers equipped with serial communications and the Airbus485™ (formerly Multi485) field bus protocol.		
	In use, as demand for compressed air fluctuates and as system pressure decays or increases in response to that demand, the Airmaster™ ISC software ensures that network compressors are harnessed as 1 to obtain an equilibrium where efficiency, equipment utilisation and system pressure are in perfect balance. In unmanaged compressed air systems that equilibrium represents a significant energy & cost saving opportunity.		
	The primary function of the Airmaster™ ISC's pressure control strategy is to maintain system pressure between the 'High Pressure' set point & the 'Low Pressure' set point in conjunction with targeting energy efficiency through optimal compressor utilisation. The Airmaster™ ISC software calculates a 'Target' pressure level which is used as the nominal 'target' pressure level for the system. Rate of change in pressure, is largely determined by system volume and the scale, and/or abruptness, of air demand fluctuations; these characteristics will differ from installation to installation. To accommodate for variations in installation characteristics the 'Tolerance' pressure level (tP) and an influence on the dynamic reaction time (or 'Damping' (dA)) of the Airmaster™ is adjustable.		
	The Airmaster™ ISC (Internal System Control) option kit consists of a dedicated option card, AC / DC power supply and a remote pressure sensor. The kit is intended for use in compressor systems with up to 8 Airmaster™ equipped air compressors. The ISC option card is located within the electrical enclosure of a host air compressor and connected with the compressors Airmaster™ controller using Airbus485™ serial communications. The supplied pressure sensor should be mounted vertically upwards in a suitable location (e.g. air reservoir). Once installed, the host air compressors Airmaster™ ISC software feature can be configured to provide narrow pressure band control of up to 8 Airmaster™ equipped and networked air compressors.		
	For more information on the Airmaster™ ISC option kit contact your product supplier requesting product factsheet 'Airmaster™ ISC Option kit – A21.1_EN'		
	P12.13	ISC available	Select On or Off to enable and disable the ISC feature. Enabling the ISC feature activates menu P80, P81 and P82
	P80.01	ISC enabled	==Enable or enable with stop control feature or disable the use of the ISC feature.== Note 1: If enabled... If subsequently ISC becomes unavailable for any reason, ISC controlled air compressors revert to local control! Note 2: if enabled with stop control feature... If subsequently ISC is 'stopped' (via the stop control routine described above), ISC retains control of all ISC controlled air compressors in a offload or stopped state (the offload to stopped state and time remain a function of the local air compressor)
	P80.02	Load pressure	ISC control load pressure. Range = Sensor range and host Airmaster controller's load and offload pressure limits
	P80.03	Offload pressure	ISC control offload pressure. Offload pressure range = no less than 0.2 above load pressure
	P80.04	ISC rotate INT	ISC rotation interval or sequence interval. Range = 1 – 720 hours. Default = 24 hours
	P81.01	ISC # compressors	Number of ISC controlled air compressors. Range = 2 – 8 compressors. Default = 4 compressors
	P81.02	ISC start delay	Start Delay Time. Range = 0 – 60 seconds. Default = 3 seconds Staggered start function; when the ISC is started compressors will be loaded, as required, with this interval time between each load request. This feature is intended to prevent all compressors starting at once during system start.
	P81.03	ISC damping	Damping. Range = 0.1 – 10 bar. Default = 1.0 bar.

			In situations where the loading of an additional compressor, at the PL pressure set point, is inadequate to match a significant and/or abrupt increase in air demand the additional reaction of the ISC, while pressure deviates into the 'tolerance' limit, is dynamically calculated. The time before an additional compressor is loaded, to increase generation capacity further, will vary in accordance with the urgency of the situation. The ISC's dynamic reaction algorithm is pre-set by default to accommodate for the majority of installation characteristics. In some situations, of which the following are examples, the rate of pressure change may be aggressive and disproportionate: a) Inadequate system volume b) Excessive air treatment equipment pressure differential c) Inadequately sized pipe work d) Delayed compressor response In such instances the ISC may over-react and attempt to load an additional compressor that may not be necessary once the initial compressor is running, loaded, and able to contribute adequate additional generation capacity. If an increase in the 'tolerance' band is insufficient, the ISC's dynamic reaction response can be influenced by increasing the 'Damping' factor (DA) reducing tendency to over-react. The 'Damping' factor is adjustable and scaled from 0.1 to 10 with a default factor of 1. A factor of 0.1 equates to 10 times faster than default and a factor of 10 equates to 10 times slower than default.
	P81.04	ISC tolerance	Tolerance is a pressure band above and below the set pressure control levels that accommodates for an exceptional instance of abrupt and/or significant increase, or decrease, in demand without compromise to optimal control.

			Tolerance (TO) is expressed as a pressure defining the width of the tolerance 'band'. For example; a tolerance setting of 3psi (0.2bar) means the ISC will implement appropriate optimal response(s) during a deviation of pressure 3psi below the set PL pressure level. If pressure ever deviates beyond the 'tolerance' limit the ISC will proportionally increment an emergency response until pressure is returned to normal levels. If system volume is inadequate, and/or demand fluctuations are significantly large, it is advisable to increase the 'Tolerance' band to maintain optimum control, and reduce over-reaction, during such transition periods. If system volume is generous, rate of pressure change is slow and demand fluctuations are insignificant and gradual, the 'Tolerance' band can be reduced to optimise pressure control.
	P81.05 ~ 07	ISC DI1 – DI3 FCN	Digital Input # Function... No ISC DI FUNCT, ISC DI Start Stop, ISC DI alarm NO, ISC DI alarm NC, DI delay alarm, DI delay alarm NC, ISC DI STOP NO, ISC DI STOP NC, DI delay STOP NO, DI delay STOP NC, ISC DI SEQ COP
	P81.08	ISC XPM pressure	Setup ISC XPM pressure
	P81.08.01	MMT offset	Measurement offset +/- 0.5 BAR or setup pressure equivalent
	P81.08.02	MMT range	Measurement range MIN = 0, MAX = 60 BAR or setup pressure equivalent
	P81.01.02	EQUIP INT PRESSS	Equipment internal pressure
	P81.09	ISC PRESS SENS	

5.0 Control modes and device state diagrams

Device state diagram

5.1 Load / off load control

Device runs load / off load between device start and device stop. When running off load for longer than the "off load run time" the device will stop, go to 'standby mode' and automatically restart when requested.

5.2 Continuous run control

Device runs continuously load or off load between device start and device stop

5.3 Pressure decay off load control

Two fixed periods; the 'run period' and 'off load run period' are taken as the criteria for selecting the operating mode of the device when device outlet pressure reaches the off load pressure value. These two periods are set according to the maximum permissible starts of the compressor motor. The run period starts each time the device is switched on. The run period lasts as long as the compressor motor runs and stops when the device switches to standby mode. The 'off load run period' starts every time the operating mode changes from load to off load. It runs during off load run time and also when the device is switched to standby mode. It stops when the device switches to load. Every cut out point is delayed by the vent time, so that the device vents.

The following switching cycles are possible:

If device outlet pressure decays to the load pressure value, the device switches to load (1) irrespective of its previous operating mode. If the drive motor was in a stop state, the opening of the inlet valve is delayed to allow vented device to start.

If device outlet pressure rises to the off load pressure value and the 'off load run period' has already expired, the device switches off after the off load run time has expired (2).

If device outlet pressure rises to the off load pressure value before the off load run period has expired, the pressure decay time of the previous switching cycle is taken as the criteria for the selection of the operating mode:

If the pressure decay time (the time during which device outlet pressure decays from the off load pressure value to the load pressure value) was longer than the off load / stop (standby mode) period, the device switches to stop (standby mode) after the off load run time has expired (3).

If the pressure decay time was shorter than the period set for the off load / stop (standby mode) time, then off load is selected (4), that is, the inlet valve closes and the equipment is vented with the motor running. When the off load run period expires the equipment is also switched to stop (standby mode) after the off load run period has expired (5).

5.4 Dynamic off load control

The off load period is dynamically lengthened or shortened by dynamic off load control in relation to the number of permissible motor starts. The number of permissible motor starts during the preceding 1 hour is measured. A high switching frequency leads to longer idle periods. A low switching frequency leads to shorter idle periods.

5.5 Semi variable regulation

The main motor will operate at the set optimum speed while load or loaded, and at the set off load speed when off load. The transition in speed is determined by the maximum ramp rate.

5.6 Variable regulation

The speed regulation function provides PID control of a variable speed drive (VSD) using a 4-20mA analogue output in order to maintain a steady target pressure level (load pressure).

Speed regulation is used to maintain package delivery pressure at the load pressure value. If pressure rises to the off load pressure set point the load solenoid output is de-energised and the compressor off loads. While in the off load state the equipment will maintain speed at the set off load speed value. If pressure remains above the load pressure value for longer than the set off load run time the main motor will stop and the equipment will enter the standby mode. When pressure falls below the load pressure set point the motor is re-started, if in standby state, and the load solenoid output is energised. Full range speed regulation is then applied.

If connected to a Metacentre™ system controller and the compressed air system consists of more than one VSD air compressor, any VSD air compressor assigned as 'base load' will be biased to operate at the set optimum speed setting. Any VSD compressor assigned as 'top-up' will use full range speed regulation. In addition, the target pressure of each VSD compressor is automatically referenced to the Metacentre™ system controller to maintain exact pressure control regardless of pressure differential between equipment. In this way up to 12 VSR compressors can be controlled as a single coherent system with full efficiency capacity matched management, utilisation and single pressure set point control.

5.7 Allow force off load

When active, hold 'START' key and use 'DOWN' key to force device from load state to offload state. The device will not load again until the force offload condition is removed. To remove the force offload condition use the START key and 'DOWN' key to return the device to its normal state.

6.0 Technical data

6.1 Glossary of device message codes

Code type:	A: Warning	E: Immediate stop	S: Start inhibit	R: Run inhibit

Message code	Message text	Additional information
A:0030	Door open	Warning: Enclosure door open
A:0031	CAB FTR DP ALM	Warning: Cabinet filter differential pressure
A:0040	Oil level alarm	Warning: Oil level high
A:0050	RD alarm	Warning: Refrigerant dryer
A:0070	Fan motor alarm	Warning: Fan motor
A:0083	Motor phase IMB	Warning: Motor phase imbalance
A:0085	Motor starts 24HRS	Warning: Motor starts in last 24 hours exceeded
A:0119	PD PRESS high	Warning: Package delivery pressure high
A:0129	PD TEMP high	Warning: Package delivery temperature high
A:0139	INT PRESS high	Warning: Internal pressure high
A:0200	COOL water alarm	Warning: Coolant water
A:0201	CNDS drain alarm	Warning: Condensate drain alarm
A:0809	DIFF PRESS high	Warning: Differential pressure high
A:0901	CONF alarm 1	Warning: Configured alarm 1
A:0902	CONF alarm 2	Warning: Configured alarm 2

A:0903	CONF alarm 3	Warning: Configured alarm 3
A:2030	Air filter DP	Warning: Air filter differential pressure
A:2032	Line FTR DP alarm	Warning: Line filter differential pressure
A:2035	OilAir SEP DP HI	Warning: Oil Air separator filter DP high
A:2040	Oil filter DP	Warning: Oil filter differential pressure
A:2201	Line FTR DRN ALM	Warning: Line filter drain
A:2240	Oil/water SEP ALM	Warning: Oil / water separator
A:2816	Power failure	Warning: Power failure
A:2836	RTC error	Warning: Real time clock error
A:2970	ISC XPM DI alarm	Warning, ISC XPM digital input alarm
A:4804	Service due	Warning: Service due
A:4805	Cabinet filters	Warning: Cabinet filters
A:4806	Air filter SERV	Warning: Air filter service due
A:4807	Oil filter SERV	Warning: Oil filter service due
A:4808	SEP filter SERV	Warning: Separator filter service due
A:4809	Grease service	Warning: Grease service due
A:4810	Valves service	Warning: Valves service due
A:4811	Belt drive SERV	Warning: Belt drive service due
A:4812	ELEC SYS SERV	Warning: Electrical system service due
A:4813	MTR bearing SERV	Warning: Motor bearings service due
A:4814	COMP BRG SERV	Warning: Compressor bearings service due
A:4815	Weekly service	Warning: Weekly service due
A:4816	Annual service	Warning: Annual service due
A:4817	Bi-annual service	Warning: Bi-annual service due
A:5000	Contact service	Warning: Contact service provider
E:0010	Emergency	Immediate stop: Emergency stop pressed
E:0030	Door open	Immediate stop: Enclosure door open
E:0040	Oil level	Immediate stop: Oil level alarm
E:0050	RD alarm	Immediate stop: Refrigerant dryer
E:0060	Belt drive SERV	Immediate stop: Belt drive service
E:0070	Fan MTR IMM stop	Immediate stop: Fan motor trip
E:0080	Main MTR short	Immediate stop: Main motor short
E:0081	Main motor lock	Immediate stop: Main motor locked
E:0082	Main MTR OVLD	Immediate stop: Main motor overload
E:0083	Motor phase IMB	Immediate stop: Main motor phase imbalance
E:0084	Main MTR CT SENS	Immediate stop: Main motor CT sensor
E:0085	Fan motor CT sensor	Immediate stop, Fan motor CT sensor
E:0086	Fan motor overload	Immediate stop, Fan motor overload
E:0090	Phase sequence	Immediate stop: Main motor phase sequencer
E:0091	Phase L1 fault	Immediate stop: Main motor phase L1 fault
E:0092	Phase L2 fault	Immediate stop: Main motor phase L2 fault

E:0093	Phase Le fault	Immediate stop: Main motor Phase L3 fault
E:0115	PD PRESS sensor	Immediate stop: Package discharge pressure sensor
E:0119	PD PRESS high	Immediate stop: Package discharge pressure high
E:0125	PD TEMP sensor	Immediate stop: Package discharge temperature sensor
E:0129	PD TEMP high	Immediate stop: Package discharge temperature high
E:0131	INT PRESS low	Immediate stop: Internal pressure low
E:0135	INT PRESS sensor	Immediate stop: Internal pressure sensor
E:0139	INT PRESS high	Immediate stop: Internal pressure high
E:0200	COOL water IMM stop	Immediate stop: Coolant water trip
E:0229	TEMP rise rate	Immediate stop: Temperature rise rate exceeded
E:0809	DIFF PRESS high	Immediate stop: Differential pressure high
E:0814	Venting error	Immediate stop: Venting error
E:0821	Short circuit	Immediate stop: Short circuit
E:0846	DEL PRESS range	Immediate stop: Delivery pressure range
E:0856	INT PRESS range	Immediate stop: Internal pressure range
E:0901	User trip 1	Immediate stop: User defined immediate stop 1
E:0902	User trip 2	Immediate stop: User defined immediate stop 2
E:0903	User trip 3	Immediate stop: User defined immediate stop 3
E:2032	Line FTR DP stop	Immediate stop: Line filter differential pressure
E:2915	ISC PRESS SENS	Immediate stop, ISC pressure sensor
E:2950	ISC sensor range	Immediate stop, ISC sensor range
E:2960	ISC XPM COMMS	Immediate stop, ISC XPM communications
E:2980	ISC XPM DI	Immediate stop, ISC XPM digital input
E:3230	Door open	Immediate stop: Enclosure door open
E:5002	Contact service	Immediate stop: Contact service provider
R:3123	PD TEMP low	Run inhibit: Package delivery temperature low
R:3137	INT PRESS high	Run inhibit: Internal pressure high
S:3500	Run inhibit	Run inhibit: Start inhibit menu parameter enabled

6.2 Glossary of terms used:

Term used:	Description:
+# hour DST	+# hour daylight saving time
12 hour clock	Display, Unit of measure, time
24 hour clock	Display, Unit of measure, time
°C	Unit of measure, temperature
°F	Unit of measure, temperature
%	Unit of measure, percentage
ADMIN	Administrator access control and configuration
Airbus485™	Airbus485™ application optimised RS485 network protocol
Airbus485™ address	Device Airbus485™ address, Select between 01 and 200

Air filter DP	Air filter differential pressure
Air filter DP alarm	Air filter differential pressure alarm, warning
Alarm – run inhibit	Run inhibit
Alarm – start inhibit	Alarm – start inhibit
Alarm – stop	Alarm – immediate stop
Alarm – warning	Alarm – warning
Allow force offload	If active (ON), use keypad to change device state from state 09 to state 11. Hold 'START' key and then press 'DOWN' key
Annual service	Calendar time to annual service, Select between
Any active alarm	Any active alarm
AO function	Analogue output function
AUTO restart	Auto restart (e.g. after power interruption)
AUTO restart INH time	Automatic restart inhibit time
BAR	Unit of measure, pressure
BE	Display language, Belarusian
Belt drive SERV	Belt drive service
Belt drive alarm	Belt drive alarm, immediate stop
Bi-annual SERV	Calendar time to annual service
CAB filter DP	Cabinet filter differential pressure
CAB filter DP alarm	Cabinet filter differential pressure alarm, warning
CLR SER number	Cooler serial number
CLR YR MANUF	Cooler year of manufacture
COOL water alarm	Coolant water alarm, warning
COOL water alarm	Coolant water alarm, immediate stop
Cooling DP	
Common fault	Common fault
COMP MTR current	Motor current
COMP MTR SER NUM	Motor serial number
COMP MTR STR INH/HR	Inhibit compressor motor starts, inhibit (per hour)
COMP MTR STR INH/DAY	Inhibit compressor motor starts, 24 hours
COMP MTR YR MANUF	Compressor motor year of manufacture
COMP MTR ELEC lock	Compressor motor electrical lock
COMP MTR ELEC OVLD	Compressor motor electrical overload
COMP MTR ELEC short	Motor short
COMP OUT TEMP	Air end (COMP = compressor or compressor engine) outlet temperature
COMP OUT TEMP High	Air end (COMP = compressor or compressor engine) outlet temperature high
COMP SER NUM	Compressor serial number (compressor 'air end' not compressor package)
COMP YR MANUF	Compressor year of manufacture (compressor 'air end' not compressor package)
COMP start/stop	Compressor start / stop
CONF alarm 1	Configured alarm 1
CONF alarm 2	Configured alarm 2
CONF alarm 3	Configured alarm 3

CNDS drain	Condensate drain
CNDS drain alarm	Condensate drain alarm, warning
CNDS drain open	Time value, equipment condensate drain open time, Select between OFF and 30 seconds
CNDS drain INT	Time value, equipment condensate interval time, elect between 60 and 3600 seconds
Continuous run	Control algorithm, See control algorithm state diagram
Control mode	Control algorithm
CZE	Display language, Czech
Data bytes	Data as response or commands
Date	Unit of measure, date
Date format	Value, on screen display format, Select between dd/mm/yyyy, mm/dd/yyyy or yyyy/mm/dd
Day	Unit of measure, day
Daylight saving time	Daylight saving time, Select between +0h and +1h
DD/MM/YYYY	Display, Unit of measure, date
DEF	Default
Default configuration	The specified default configuration for the device software
DE	Display, language, German
DI# function	Digital input # function
DI# OK: NO/NC	Digital input # OK: normally open or normally closed
DIFF pressure	Differential pressure
DIFF PRESS high	Differential pressure high
DP inhibit time	Differential pressure inhibit time
Door open	Enclosure door open
Door open alarm	Door open alarm, warning
Door open alarm	Door open alarm, immediate stop
Due	Due (required or elapsed)
Dynamic off load	Control algorithm, See control algorithm state diagram
Edit	The process of revising or changing a value
Edit day	Day of month, Select between 1 and 31
Edit month	Month of year, Select between 1 and 12 (January = 1, December = 12)
Edit year	Select year
ELEC phase Loss / IMB	Electrical phase loss or phase imbalance
EN	Display, language, English
EQUIP MANUF	Equipment manufacturer
EQUIP service now	Equipment service now
EQUIP settings	Equipment settings
EQUIP status	Equipment status
Error	Error
Error log	Error log
Error log reset	Error log reset
ES	Display, language, Spanish
Event log	Event log

Event log reset	Event log reset
Fan control	Fan control
Fan motor current	Fan motor current
Fan motor	Fan motor
Fan motor alarm	Fan motor alarm, warning
Fan motor alarm	Fan motor alarm, immediate stop
Fan MTR protect	Fan motor protection, Select ON or OFF
FR	Display, language, French
Friday	Weekday or weekend
GRE	Display language, Greek
Home	Refers to the initial or main page of the device graphical interface
LCD light level	LCD light level (LCD backlight)
Low AMB heater	Low ambient heater
Inhibit	Something that restrains, blocks, delays or suppresses
Inhibit time	Time, something that restrains, blocks, delays or suppresses
INT pressure	Internal pressure
INT PRESS high	Internal pressure high during equipment start sequence
INT PRESS range	Internal pressure range
INT PRESS rise CONFIG	Internal pressure rise configuration
IT	Display, language, Italian
ISC	Internal system control
ISC # compressors	ISC number of compressors, select between 02 and 08
ISC damping	ISC damping factor (see Airmaster™ ISC technical manual). Select between 0.1 and 10.0
ISC DI# FCN	ISC XPM option card digital input function (see Airmaster™ ISC technical manual)
ISC PRESS sense	
ISC PRESS setup	
ISC start delay	ISC start delay, staggered start of ISC managed air compressors, select between 0 and 60 seconds
ISC tolerance	ISC tolerance factor (see Airmaster™ ISC technical manual). Select between pressure unit min and pressure unit max
JPN	Display language, Japanese
KOR	Display language, Korean
kPA	Unit of measure, pressure
Language	Display, language, Select between EN, BEL, CZE, DE, ES, FR, GRE, IT, JPN, KOR, NL, PL, PT, RU, TH, TR, UKR, VI, ZH (S) or ZH (T)
Line FTR DP alarm	Line filter differential pressure alarm, warning
Line FTR DP alarm	Line filter differential pressure alarm, immediate stop
Line FTR DRN ALM	Line filter drain alarm, warning
Load	See equipment state diagram
Load % last hour	Load % last hour
Load % last 24 HR	Load % last 24 hours
Load hours	Load hours total
Load hours edit	Load hours edit
Load inhibit time	Load inhibit time, Select between OFF and 30 seconds

Load / offload hrs	Load hours / offload hours, sum total
Load pressure	Load pressure, equipment moves from offload state to load state
Load frequency	Load frequency
Load source	Load source select between equipment EQUIP OUT PRESS, Equipment DI, Communications
Load state	Load (or loaded) state
Low temperature	Low temperature start inhibit, Select between -20°C and +10°C
Main MTR NOM CURR	Main motor nominal current
Main MTR protect	Main motor protection. Select On or OFF
Main MTR SDTTF	Main motor star delta transition time factor
Main MTR ROT lock	Main motor rotor lock
Main MTR phase IMB	Min motor phase imbalance
MANUF model	Manufacturer model
MANUF name	Manufacturer name
MDL rated pressure	Model rated pressure
MDL SER number	Model serial number
MDL YR MANUF	Model year of manufacture
Menu not visible	Menu not visible
Menu visible	Menu visible
Menu editable	Menu visible and editable
MM/DD/YYYY	Display, Unit of measure, date
MODBUS	Serial communication protocol
MODBUS address	Device MODBUS address, Select between 01 and 247
MODBUS baud rate	Select between 1200, 2400, 4800, 9600, 14400, 19200, 38,400, 57,600 or 115,200
MODBUS parity	Indicates whether a number is even or odd. Select between no, even or odd
MODBUS data bits	Data length will be filled depending on the message type. Select between 5, 6, 7 or 8
MODBUS end bits	Character times of silence between frames (1, 1.5 or 2)
Modify	Adjust
Monday	Weekday or weekend
MTR STR last HR	Main motor starts – last hour
MTR STR last 24h	Main motor starts – last 24 hours
MTH	Unit of measure, month(s)
Next service	Next service
NL	Display, language, Dutch (Netherlands)
Offload	Device in offload state. See equipment state diagram
NO	Normally open (healthy or OK)
Offload hours	Offload hours total
Offload pressure	Offload pressure, device moves from load state to offload state
Offload run time	Time value, offload run time
Offset	A value indicating the distance from the start of a data structure up to a given element
Oil filter DP	Oil filter differential pressure
Oil filter DP alarm	Oil filter differential pressure alarm

Oil level alarm	Oil level alarm, warning
Oil level alarm	Oil level alarm, immediate stop
Oil/water SEP ALM	Oil water separator alarm, warning
OK	Healthy or normal condition text
On load LST HR	On load last hour
On load last 24h	On load last 24 hours
Optimum speed	Device optimum speed. See equipment state diagram
Parameter reset	Parameter reset, returns all editable parameters to default
EO pressure	Equipment outlet pressure
EO PRESS control	Equipment outlet pressure control
EO PRESS high	Equipment outlet pressure high
EO PRESS range	Equipment outlet pressure range
Phase detection	Phase detection
PRESS decay / off load	Control algorithm, See control algorithm state diagram
PRESS unit	Value, unit of pressure
PSI	Unit of measure, pressure
PL	Display language, Polish
PT	Display, language, Portuguese
PV inspection date	Pressure vessel inspection date
Range	Range between minimum and maximum
RD alarm	Refrigerant dryer alarm, warning
RD alarm	Refrigerant dryer alarm, immediate stop
RD control	Refrigerant dryer control
Ready to start	Ready to start
Relay # FUNCT	Relay # function
Reload inhibit time	Reload inhibit time, Select between OFF and 10 seconds
Remote control	Remote control
REM load enable	Remote load enable
Remote META control	Remote Metacentre control
Remote off load	Remote off load
Remote load	Remote load
Remote stopped	Remote stopped
Reset	Clear errors or events or bring to normal condition or initial state
RS485	Specifies electrical characteristics of the driver and receiver for use in balanced digital multipoint systems
RS485 address	Device RS485 address
RS485 1 CONFIG	RS485 1 configuration, Select between Airbus485™ or MODBUS Slave
RS485 2 CONFIG	RS485 2 configuration, Select between Airbus485™ or MODBUS Slave
RU	Display language, Russian
Run	Run on load or off load
Run inhibit	Inhibit the device from running
Run load	Load

Run off load	Run off load
Run hours	Run hours
Run schedule	Run schedule, select between ON and OFF
Run hours edit	Run hours edit
Saturday	Weekday or weekend
Save date edit	Save parameter edit
Schedule entry	Select load and offload pressure or OFF at calendar date and time, When Run schedule = ON, use schedule configuration in chronological order
SEC	Unit of measure, seconds
Sensor CONFIG	Sensor configuration
SEP filter DP	Separator filter differential pressure
SEP filter DP alarm	Separator filter differential pressure alarm
Service	Service
Service hours #	Service hour counter
Set	Configure
Standby	Device started in stopped state
Stopped hours	Stopped hours total
Star delta TRANS time	Start / delta transition time, Select between 1 and 30 seconds
Start button	Start button
Start source	Equipment start source, Select between equipment Keypad, Equipment DI, Communications
Start state	Start (or started) state
Started	Started
Stop MIN time	Time value, stop state, Select between OFF and 60 seconds
Sunday	Weekday or weekend
System error	System error
TCP/IP	Transmission control protocol / internet protocol
TEMP rise CONFIG	Compressor 'Air end' outlet temperature rise configuration
TEMP unit	Value, unit of temperature
TH	Display language, Thai
Thursday	Weekday or weekend
Time	Unit of measure, time
Time format	Value, on screen display format, Select between 12:00 a/p and 24:00
Total hours	Total hours (hour count from 00:01 on STR date to RTC hours now)
Total hours STR date	Total hours STR date (00:01 of STR date)
TR	Display, language, Turkish
Tuesday	Weekday or weekend
UKR	Display language, Ukrainian
UOM offset	Unit of measurement offset
UOM range	Unit of measurement range
User #	User # access control
Variable speed	Control algorithm, See equipment state diagram

Vent time	Time value, venting internal pressure to atmosphere, Select between OFF and 60 sends
VSD average RPM	VSD average RPM
VI	Display language, Vietnamese
Wednesday	Weekday or weekend
Weekly service	Calendar time to weekly service
Workday edit	Edit working days. Monday through Sunday select between Weekday or Weekend
YR	Unit of measure, year
YYYY/MM/DD	Display, Unit of measure, date
ZH (S)	Display, language, Chinese, simplified
ZH (T)	Display, language, Chinese, traditional

6.3 Text abbreviations:

Abbreviation	Text	Abbreviation	Text
ACTIVE	Active or Activated	MANUF	Manufacture
ADCT	Air end (compressor) discharge temperature	MAR	March
ADV	Automatic drain valve	MAX	Maximum
AI	Analogue input	MAY	May
AIR	Air	MDL	Model
ALM	Alarm or alarm message	META	Metacentre
AMB	Ambient	MIN	Minimum
ANAL	Analogue	MIN'S	Minutes
AO	Analogue out	MMT	Measurement
APR	April	MON	Monday
AUG	August	MOD	Modulation
AUTO	Automatic	MOTOR	Motor
AVAIL	Available, already existing	MOPS	Motor overload protection switch
BRG	Bearing(s)	MPA	Mega Pascal
BELT	Belt	MPV	Minimum pressure valve
BIN	Binary	MTH	Month(s)
BUVV	Butterfly valve	NC	Normally closed
CAB	Cabinet (package enclosure)	NO	Normally open (healthy or OK)
CBV	Compressor bypass valve	NOM	Nominal
CLK	Clock	NUM	Number
CLR	Cooler	OCT	October
CNDS	Condensate	OIL	Oil
COOL	Coolant	OK	Healthy or normal
COMP	Compressor	OVLD	Overload
COMMS	Communications	OPT	Optimum
COP	Changeover point	OR	Operating range
CO BK	Continuity break	OP CRT	Open circuit

CO	Compressor outlet	OS	Oil separator
CONFIG	Configuration or configured	OSD	On screen display
CONT	Contactor	OUT	Outlet
CORR	Correction	P#	Parameter 0, 1, 2, …
CT	Current transmitter	PARA	Parameter
CURR	Current	PD	Package discharge
CW	Cooling water	PERMS	Permissible
CWT	Cooling water temperature	PLC	Pre-programmed logic controller
DAY	Day	PR	Pressure
DEC	December	PRESS	Pressure
DEF	Default	PROT	Protection
DI	Digital input	PRV	Pressure relief valve
DISCH	Discharge	PSENS	Pressure sensor
DIFF	Differential	PSWITCH	Pressure switch
DP	Differential pressure	PV	Pressure vessel
DT	Differential temperature	REF	Refrigerant
DIR	Direction	RNG	Range
DO	Digital output	RAM	Random access memory
DOL	Direct online	RB	Remote bus
DIR ROTO	Direction of rotation	RC	Remote contact
DELTA P	Delta pressure (pressure differential)	RD	Refrigerant dryer
DEL	Delivery	READY	Ready
DEL PO	Delivery pressure offset	REF	Refrigerant
DEL PR	Delivery pressure range	REM	Remote
DELTA T	Delta T (temperature differential)	RPM	Revolutions per minute
DRN	Drain	RT	Running hours
Dryer	Dryer (Refrigerant dryer)	RTC	Real time clock
DST	Daylight saving time	SAT	Saturday
ELEC	Electrical	SC	Short circuit
EQUIP	Equipment	SCH	Schedule
ERR	Error	SDTTF	Star delta transition time factor
EXT	External	SEC	Second(s)
FAULT	Fault	SEP	September
FEB	February	SEQ	Sequence
FTR	Filter	SEP FIL	Separator filter
FM	Frequency modulate	SERV	Service
FRI	Friday	SN	Serial number
FUNCT	Function	SP	Switching point
H	Hours	SPEED	Speed
HR	Hours	STAGE	Stage
HRS	Hours	STOP	Stop

INH	Inhibit		STR	Start(s)
IIPT	Input		SUN	Sunday
INT	Internal		SYS	System
INT PRESS	Internal pressure		TEMP	Temperature
INTVL	Interval		THU	Thursday
IMB	Imbalance		TIMEV	Time valve
IMM	Immediate		TNS	Tension
ISC	Internal system control		TRANS	Transition
JAN	January		TT	Transition time
JULY	July		TUE	Tuesday
JUNE	June		UOM	Unit of measurement
K	Kelvin		VS	Variable speed
LOCAL	Local			
LUB	Lubrication			

6.5 Language codes

Code	Language
EN	English (English)
BEL	Беларуская (Belarusian)
CZE	Czech (Czech)
DE	Deutsch (German)
ES	Espanol (Spanish)
FR	Français (French)
GRE	Ελληνικά (Greek)
IT	Italiano (Italian)
JPN	日本 (Japanese)
KOR	한국어 (Korean)
NL	Nederlands (Dutch)
PL	Polski (Polish)
PT	Português (Portuguese)
RU	Русский (Russian)
TH	ไทย (Thai)
TR	Türk (Turkish)
UKR	Український (Ukrainian)
VI	Việt (Vietnamese)
ZH (S)	简体中文 (Simplified Chinese)

ZH (T)	繁体中文 (Traditional Chinese)

6.6 Logged events

Each logged event (P04.01.01 – P04.01.200) includes an event index, event description and an event time and date.

Logged events
START button pressed
STOP button pressed
PARA reset to DEF (Parameter reset to default)
Active 'USER #' access
Modify parameter

6.7 ADMIN edit user # configurable parameters

Parameter
User name (P09.03.01)
User PIN code (P09.03.02)
Display language (P09.03.03)
Time format (P09.03.04)
Date format (P09.03.05)
Pressure unit (P09.03.06)
Temperature unit (P09.03.07)
Menu # access (P09.03.08) (Not available, Read access, Edit access)

6.8 Start and / or load source configurable parameters

Parameter (notes)
Equipment outlet pressure sensor (default)
Equipment digital input (requires setup of configurable digital input)
Airbus485™ (requires RS485 card option)
MODBUS (requires RS485 card option)
TCP/IP (required ECO card option)

6.8 Configurable parameters (requires user edit access)

Parameter	Configuration options
01 Control mode	Load / off load control, continuous run, pressure decay / on load control, dynamic no load control, semi variable regulation, variable regulation
02 Load pressure	Value edit

03 Off load pressure	Value edit
04 RS485 port	
05 RS485 1 CONFIG	Airbus485™ , MODBUS
06 RS485 2 CONFIG	Airbus485™ , MODBUS
07 Airbus485™ address	Value edit
08 MODBUS address	Value edit
09 MODBUS baud rate	
10 MODBUS parity	
11 MODBUS data bits	
12 MODBUS end bits	
13 Start source	
14 Load source	
15 Language	
16 LCD light level	

6.9 Equipment status

Status No	Symbol	State
01		Shutdown
02		Initialising
03		Start inhibit
04		Ready to start
05		Venting
06		Standby
07		Motor starting
08		Load delay
09		On Load
10		Reload delay
11		Off load
12		Stopping

7.0 I/O function assignments

Item		Configuration options
Analogue output		Fan control, Started, Loaded, Running, Standby, Fan, Drain, Heater, Service, Alarm & Service, Immediate stop, Alarm
Digital input	Function	REM load/offload, REM load enable, COMP start/stop, Run SCH On/Off, Oil WTR SEP ALM, FTR drain ALM, Line FTR DP stop, Line FTR DP ALM, RD IMM stop, RD Alarm, V belt IMM stop, Oil level IMM stop, Oil level alarm
Digital input	State	Normally open or Normally closed = OK

7.0 Help and support

7.1 What you need to know first!

7.2 Where to go for help and support