



MastMinder<sup>®</sup>

Site Installation Guide

F400e Generic

(single generator)  
(single fuel tank)

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## Warranty

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This document should be read in conjunction with the MastMinder F400e User Guide.

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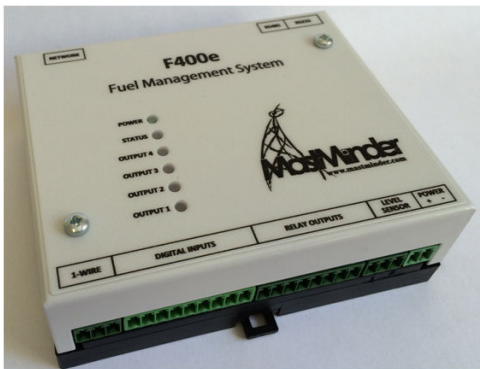
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## 1. MastMinder Site Installation Kit – Inventory of components

The following components are provided in the MastMinder F400e Site Installation kit for single generator.

- 1 x F400e Master Control Unit
- 1 x Generator Alarm Status capture module
- 1 x Fuel Level Sensor and cable
- 1 x Inline Fuse Holder and Fuse
- 1 x 2.5mm flat screwdriver

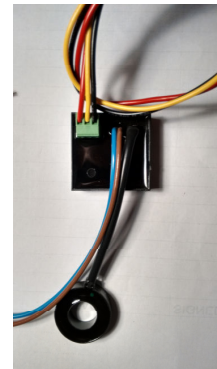
Please check all these components are supplied in the kit and familiarise with the equipment, a picture of each of the major components is provided below.



F400e Master Control Unit



Fuel Level Sensor and cable



Status capture module

## 2. Tools required to perform the installation

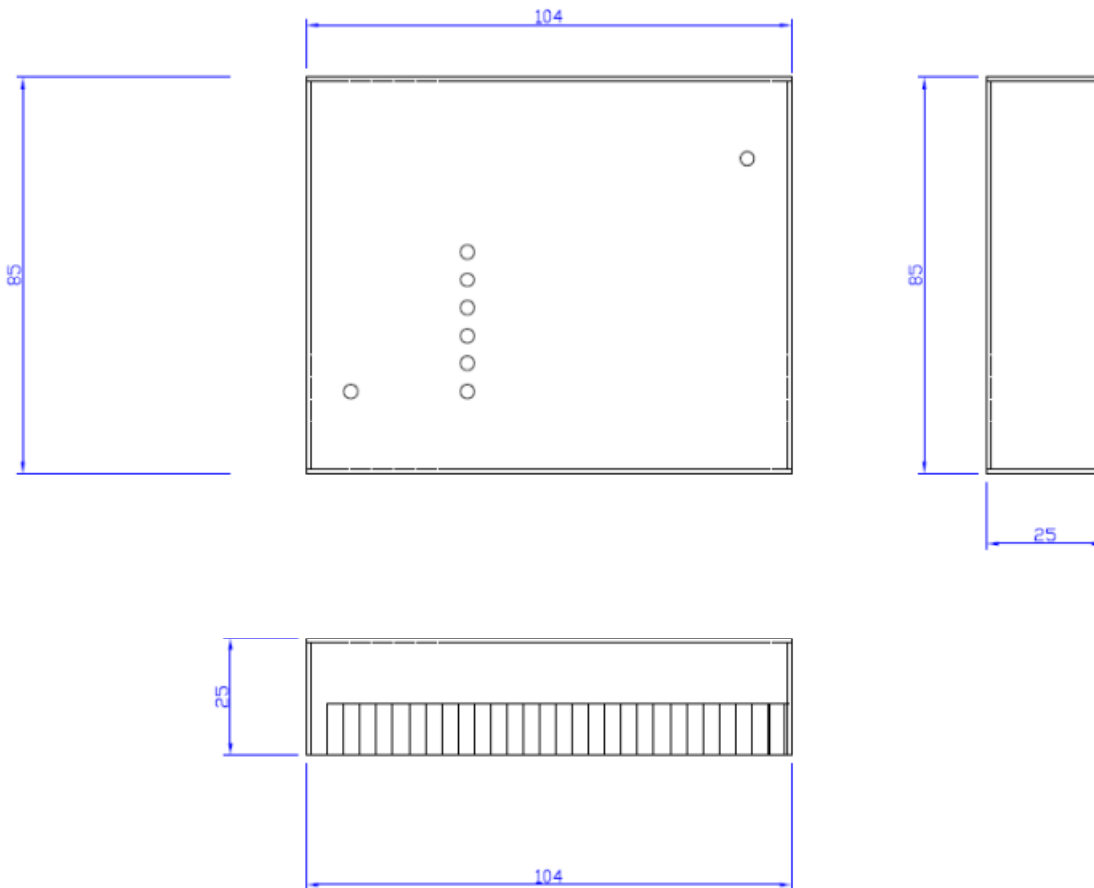
- Laptop with GPRS Web connection for Skype & TeamViewer for remote support, with good batteries and/or spares.
- Laptop with RJ45 and Ethernet cable for LAN connection direct to unit or local switch on site
- Mobile phone with good battery
- Flashlight with good battery
- Tape measure to measure tank dimensions and depth of fuel.
- Accurate Voltmeter (preferably with AC current clamp on top)
- Basic electric installation toolkit:
  - Wire cutters
  - Screw drivers of various heads
  - Etc.
- This Installation Manual
- Enough flexible plastic conduit pipe, if required, to protect any external cables running between the shelter and the generators and also the generator to the fuel tank.
- Selection of cable-ties.

### 3. F400e Master Unit Positioning

The base unit is housed in a DIN rail mountable aluminium enclosure. The unit can be mounted in any orientation but must be installed in a dry area. *The MastMinder F400e unit is not designed to be installed in any outside location where it could be exposed to weather or water.*

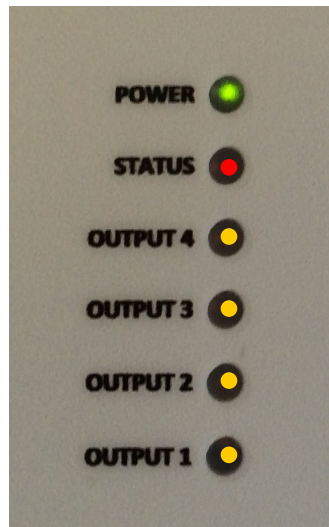
An outline drawing showing the mounting details is shown below.

### 4. F400e Outline Drawing



## 5. LED Indicators

The Unit has five LED indicators located on the front of the unit:



The LED functions are shown in the table below.

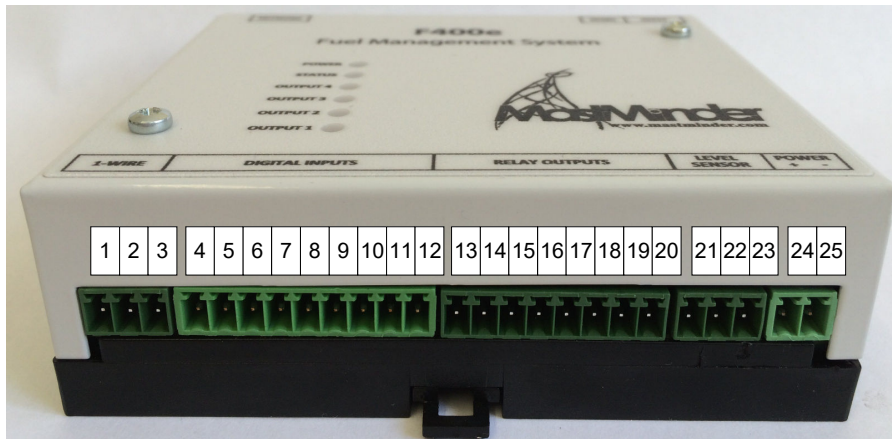
GREEN (Power)	RED (Status)	YELLOW Outputs	Meaning
○	○	⊗	Unit not powered up
●	*	⊗	Normal Start up
●	*○*○...	⊗	Self test fail
●	** (10 sec)	⊗	System active
●	⊗	○	Output Not Active
●	⊗	●	Output Active

LED symbol key

- - LED On
- - LED Off
- \* - LED Flash
- \* (1 sec) - LED repeating flash (repetition rate)
- ⊗ - Don't care

## 6. Power and I/O Signal Connections

All power and IO signal connections to the master unit are made via 3.5mm plug-in terminal blocks.



The table below shows the IO connection allocations.

F400e Term.	Direction	Description
1	-	Ground (0V)
2	In/Out	1-Wire Interface
3	Out	1-Wire 3.3V Power Supply
4	In	Digital Input 1
5	In	Digital Input 2
6	In	Digital Input 3
7	In	Digital Input 4
8	In	Digital Input 5
9	In	Digital Input 6
10	In	Digital Input 7
11	In	Digital Input 8
12	-	Ground (0V)
13	-	Output 4, NO Relay Contact
14	-	Output 3, NO Relay Contact
15	-	Output 2, NO Relay Contact
16	-	Output 1, NO Relay Contact
17	-	Output 1, NC Relay Contact
18	-	Output 1, Common Relay Contact
19	-	Outputs 2,3,4 Common Relay Contact
20	-	Ground (0V)
21	-	Ground (0V)
22	In	4-20mA Level Sensor Input
23	Out	Level Sensor Filtered Supply Output
24	In	6-30VDC Power Input
25	-	Ground (0V)



## 7. Network Connection

The F400e can be connected to an Ethernet 10baseT or 100baseTX Ethernet network via the standard RJ45 network connector located in the top of the unit.



Network  
Connection

### 7.1 Network LED indicators

There are two LED indicators provided on the network connector.

The Yellow LED is lit if the unit is connected to a 100baseTX network.

The Green LED is lit if the network connection is active and will flash when network data is sent or received.

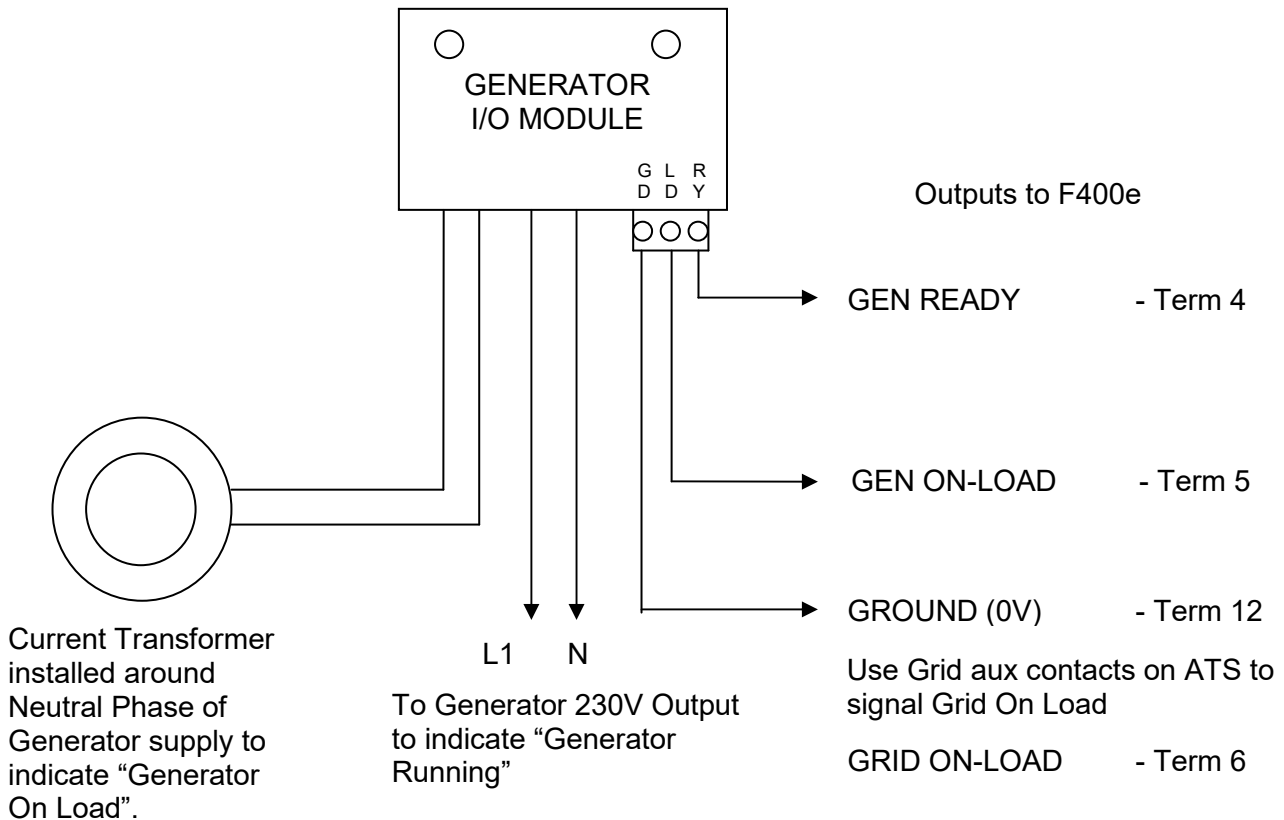
## 8. Generator Interface Module

In order to provide compatibility to many different generator and AMF equipment types the MastMinder Generator Interface Module can be used.

The generator interface module senses the generator mains and load current and provides the “Generator Ready” and “Generator On-Load” signals to the F400e unit.

Note that the “Generator On Load” signal is obtained by a circuit in series with the “Generator Running” signal and the Generator On Load auxiliary contacts from the ATS.

Note that the “Grid On Load” signal is obtained from the Current Sensor on the Generator Interface Unit which is normally used for Generator On Load.



### 8.1 Generator Interface Module Installation

1. Locate main generator output circuit breaker.
2. Connect the open clamp current transformer around the Neutral cable to signify current passing and “On Load”..
3. Connect the interface module L1 and N connections to the phase and neutral on the **supply** side of the circuit breaker to signify voltage coming from generator and “Generator Running”.
4. Connect the three output signals from the plug-in connector to the F400e digital inputs.
5. Secure the interface module in a convenient location using self tapping screws, 4mm bolts or cable ties.

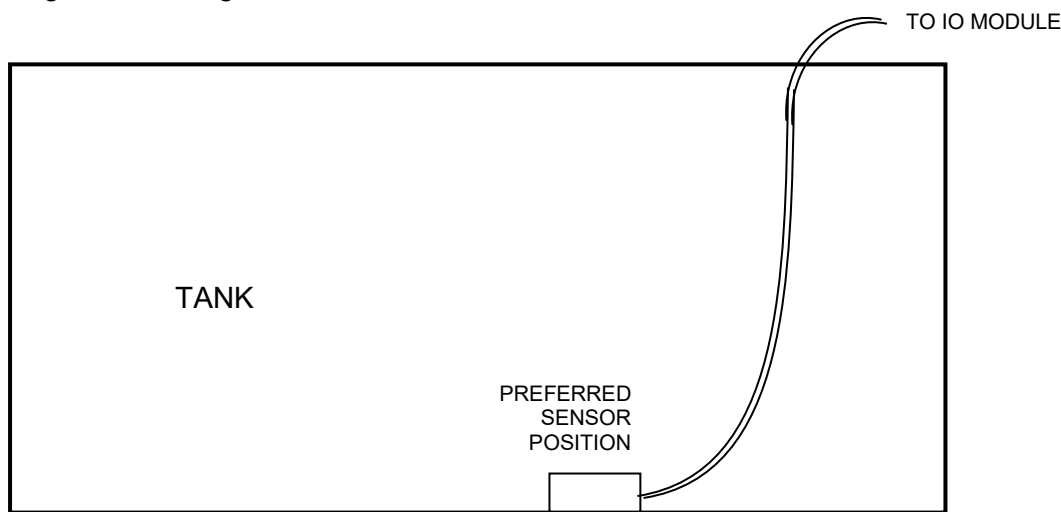
## 9. Fuel Level Sensor Installation

The level sensor is designed to be situated on the bottom of the inside of the fuel tank. As standard the level sensor is supplied with 3 or 6 Metres of special vented cable.

The fuel tank must be examined to find a suitable way of inserting the sensor so it lies flat on the bottom of the tank and the cable is fed back out of a suitable hole or breather pipe. Sometimes this may involve removing an inspection plate or feeding the sensor in through the main filler hole and then feeding the cable back out through a suitable breather pipe.

There is no general rule here as all fuel tanks come in different shapes and sizes and sometimes a little ingenuity is required in order to install the sensor.

The general arrangement is shown below:



Typical installation:

Terminate the level sensor cable in the IO module according to the connection table below:

IO Module Term.	Dir.	Description	Dest.	Wire Col.	Destination Signal
14	In	4-20mA Current Loop Analogue Input	LEVEL	White	Level Sensor 4-20mA O/P
33	Out	8-16VDC Filtered Output	LEVEL	Brown	Level Sensor Power +12V
34	-	Power Ground	LEVEL	Green and Pink	Level Sensor GND

### Important Note:

**There is a black protective plug on the connector end of the vent tube to stop debris from entering during transport and storage, remove the black cap during installation for proper functioning.**

The level sensor cable contains a vent tube. To ensure proper operation of the vent tube there must be no “kinks” or sharp bends in the cable run. **The minimum bend radius is 60mm.**



## **10. Reading and Setting I/O Values and Parameters**

All system input measured variables and conditions, output states and system control variables are accessed through system “parameters”

Each parameter has a unique 3 character ID and are detailed in the section “System Parameter Reference”

Note: See Console Command Reference in User Manual for more detailed information on specific commands.

## 10.1 F400e Unit Parameters

Param ID	Type	Attributes	Length	Description
<b>-- System Parameters --</b>				
<b>901</b>	ROM	RW	20	<b>Site ID</b> 20 character string for system identification <i>Default = Site Name</i>
<b>902</b>	ROM	RO	4	<b>Firmware Rev.</b> Format n.nn
<b>903</b>	ROM	RO	20	<b>Module Type</b> '9045-V01 F400e'
<b>913</b>	ROM	RW	6	<b>Admin Password</b> Up to 6 character full access password. The password is disabled when the string is empty. <i>Default = None</i>
<b>930</b>	EROM	RW	4	<b>Sent SMS Message Counter</b> Keeps a count of the number of SMS messages successfully sent.
<b>931</b>	EROM	RW	4	<b>SMS Message Number</b> SMS Message serial number
<b>950</b>	RAM	RW	2	<b>RTC Hours</b> Real-time clock hour
<b>951</b>	RAM	RW	2	<b>RTC Minutes</b> Real-time clock Minute
<b>952</b>	RAM	RW	2	<b>RTC Seconds</b> Real-time clock Second
<b>953</b>	RAM	RW	2	<b>RTC Years</b> Real-time clock day
<b>954</b>	RAM	RW	2	<b>RTC Months</b> Real-time clock month
<b>955</b>	RAM	RW	2	<b>RTC Days</b> Real-time clock year
<b>956</b>	RAM	RW	12	<b>RTC Time &amp; Date</b> Real-time clock hhmmssddmmyy
<b>9XN</b>	EROM	RO	5	<b>Unit Serial Number</b> 000D0640nnn Unit serial number
<b>9U0</b>	RAM	WO	1	<b>System Reboot</b> Writing any value to this parameter will cause the system to reboot
<b>9u0</b>	RAM	WO	1	<b>Soft System Reboot</b> Writing any value to this parameter will cause the system to reboot but preserve RAM parameter values.
<b>9H0</b>	EROM	RW	8	<b>Hours Counter 0</b> Non-volatile total hours counter of the form HHHHH:MM. Counts total time Param 9U9=9 (system active, rule processing on)
<b>9H1</b>	EROM	RW	8	<b>Hours Counter 1</b> Non-volatile total hours counter of the form HHHHH:MM. Counts total time input 1 is active.
<b>9H2</b>	EROM	RW	8	<b>Hours Counter 2</b> Non-volatile total hours counter of the form HHHHH:MM. Counts total time input 2 is active.
<b>9H3</b>	EROM	RW	8	<b>Hours Counter 3</b> Non-volatile total hours counter of the form HHHHH:MM. Counts total time input 3 is active.
<b>9H4</b>	EROM	RW	8	<b>Hours Counter 4</b> Non-volatile total hours counter of the form HHHHH:MM. Counts total time input 4 is active.
<b>9H5</b>	EROM	RW	8	<b>Hours Counter 5</b> Non-volatile total hours counter of the form HHHHH:MM. Counts total time input 5 is active.
<b>9H6</b>	EROM	RW	8	<b>Hours Counter 6</b> Non-volatile total hours counter of the form HHHHH:MM. Counts total time input 6 is active.
<b>9H7</b>	EROM	RW	8	<b>Hours Counter 7</b> Non-volatile total hours counter of the form HHHHH:MM. Counts total time input 7 is active.
<b>9H8</b>	EROM	RW	8	<b>Hours Counter 8</b> Non-volatile total hours counter of the form HHHHH:MM. Counts total time input 8 is active.
<b>9H9</b>	EROM	RW	8	<b>Network Down Time</b> Non-volatile total hours counter of the form HHHHH:MM. Counts total time the GSM network is unavailable.

Param ID	Type	Attributes	Length	Description
<b>--Network Parameters --</b>				
9e1	EROM	RW	16	<b>Unit IP Address</b> nnn.nnn.nnn.nnn
9e2	EROM	RW	16	<b>Unit IP Subnet Mask</b> nnn.nnn.nnn.nnn
9e3	EROM	RW	16	<b>Unit IP Gateway Address</b> nnn.nnn.nnn.nnn
9e4	EROM	RW	16	<b>Message Gateway Server IP Address</b> nnn.nnn.nnn.nnn
9e5	EROM	RW	5	<b>Unit HTTP Port Number</b> nnnn (default 80)
9e6	EROM	RW	16	<b>Unit HTTP Username</b>
9e7	EROM	RW	16	<b>Unit HTTP Password</b>
9e8	EROM	RW	5	<b>Message Gateway Server Port Number</b> nnnn (default 30303)
9GD	ROM	RW	16	<b>FTP Server IP Address</b> nnn.nnn.nnn.nnn
9GE	ROM	RW	16	<b>FTP Username</b>
9GF	ROM	RW	16	<b>FTP Password</b>
9GG	ROM	RW	24	<b>Download Filename</b> (must have .cff, .cpf or cwf extension)
9GZ	ROM	RW	1	<b>Start File Download</b> Set to any value to start download
915	RAM	RO	10	<b>IP Network Status</b> Status of IP Connection "UP" or "DOWN"
<b>-- Rule Processing Parameters --</b>				
9U9	ROM	RW	1	<b>Rule Processing Enable</b> Set to "9" to enable rule processing, all other values disable rule processing. Default: "0"
<b>-- 36 Rule Enable Parameters --</b>				
9E0 – 9EZ	ROM	RW	1	<b>Rule Enable</b> Enables/disables processing rule. 'Y' = enabled, 'N' = Disabled Default = N (disabled)
<b>-- 36 user defined processing rules --</b>				
9P0 – 9PZ	ROM	RW	160	<b>Rule Body</b> String containing the rule directives Default = none
<b>-- 36 rule qualify times --</b>				
9Q0 – 9QZ	ROM	RW	4	<b>Rule Qualify Time</b> Qualification time in seconds between a matching condition and the rule being triggered. 0-9999 Default = 0
<b>-- 36 rule rearm times --</b>				
9R0 - 9RZ	ROM	RW	4	<b>Rule Rearm Time</b> Time in minutes to re-enable a triggered rule. 0-9999 Default = 0
<b>-- 36 current rule status --</b>				
9S0 – 9SZ	RAM	RO	8	<b>Rule Status</b> Off - Not enabled Activ - Rule enabled, not triggered (no condition active) PreTrig - Unqualified Trigger Condition Trig - Rule triggered PreUTrig - Unqualified Un-Trig. Condition Rearmed - Rule triggered, re-armed (no condition active) Trig,R - Rearmed, still triggered
9IR	RAM	RW	1	<b>Invalid Rule</b> Null if no rule syntax errors. Will contain rule number 0-9 or A-Z if invalid rule found
9WW	ROM	RW	16	<b>Parameter File Version</b> Current Parameter File Version
9M0-9MV	ROM	RW	160	<b>User Messages</b> User defined 'canned' Message. Message can contain parameter 'tags' allowing dynamic data to be included in the message. Messages can consist entirely of Parameter tags.

Param ID	Type	Attributes	Length	Description	
-- I/O Parameters --					
<b>9I1</b>	RAM	RO	1	<b>Digital Input 1</b>	Logical value of digital input 1, '0' or '1'
<b>9I2</b>	RAM	RO	1	<b>Digital Input 2</b>	Logical value of digital input 2, '0' or '1'
<b>9I3</b>	RAM	RO	1	<b>Digital Input 3</b>	Logical value of digital input 3, '0' or '1'
<b>9I4</b>	RAM	RO	1	<b>Digital Input 4</b>	Logical value of digital input 4, '0' or '1'
<b>9I5</b>	RAM	RO	1	<b>Digital Input 5</b>	Logical value of digital input 5, '0' or '1'
<b>9I6</b>	RAM	RO	1	<b>Digital Input 6</b>	Logical value of digital input 6, '0' or '1'
<b>9I7</b>	RAM	RO	1	<b>Digital Input 7</b>	Logical value of digital input 7, '0' or '1'
<b>9I8</b>	RAM	RO	1	<b>Digital Input 8</b>	Logical value of digital input 8, '0' or '1'
<b>9J1</b>	ROM	RW	1	<b>Digital Input Level 1</b>	Active level of digital input 1 (0,1 or -)
<b>9J2</b>	ROM	RW	1	<b>Digital Input Level 2</b>	Active level of digital input 2 (0,1 or -)
<b>9J3</b>	ROM	RW	1	<b>Digital Input Level 3</b>	Active level of digital input 3 (0,1 or -)
<b>9J4</b>	ROM	RW	1	<b>Digital Input Level 4</b>	Active level of digital input 4 (0,1 or -)
<b>9J5</b>	ROM	RW	1	<b>Digital Input Level 5</b>	Active level of digital input 5 (0,1 or -)
<b>9J6</b>	ROM	RW	1	<b>Digital Input Level 6</b>	Active level of digital input 6 (0,1 or -)
<b>9J7</b>	ROM	RW	1	<b>Digital Input Level 7</b>	Active level of digital input 7 (0,1 or -)
<b>9J8</b>	ROM	RW	1	<b>Digital Input Level 8</b>	Active level of digital input 8 (0,1 or -)
<b>9V1</b>	RAM	RO	4	<b>Main Supply Value</b>	Measured value of external supply, nn.n Volts
<b>9V2</b>	RAM	RO	4	<b>POE Supply Value</b>	Measured value of Power over Ethernet supply, nn.n Volts
<b>9V5</b>	RAM	RO	3	<b>4-20mA (Level Sensor)</b>	Measured value of external 4-20mA input , 0-255
<b>9VB</b>	RAM	RO	4	<b>5V Supply Value</b>	Measured value of 5V internal supply, n.n V
<b>9U2</b>	RAM	RW	1	<b>Digital Input Change</b>	Set to "1" if any digital input changes state. Remains set until cleared by user.
<b>9U3</b>	RAM	RW	1	<b>Analogue Input Status Change</b>	Set to "1" if any analogue input changes state. Remains set until cleared by user.
<b>9X1</b>	ROM	RW	1	<b>Digital Output Value</b>	Value of digital output , '0' or '1' This output controls a C/O relay.
<b>9X2</b>	ROM	RW	1	<b>Digital Output Value</b>	Value of digital output , '0' or '1' This output controls a N/O relay.
<b>9X3</b>	ROM	RW	1	<b>Digital Output Value</b>	Value of digital output , '0' or '1' This output controls a N/O relay.
<b>9X4</b>	ROM	RW	1	<b>Digital Output Value</b>	Value of digital output , '0' or '1' This output controls a N/O relay.
<b>9T1</b>	ROM	RW	4	<b>Digital Output 1 Timer</b>	Optional time in minutes for output to remain in current state before automatically returning to previous state. 0-9999 minutes. A value of '0' disables the timer function and the output remains unchanged.
<b>9T2</b>	ROM	RW	4	<b>Digital Output 2 Timer</b>	As for 9T1
<b>9T3</b>	ROM	RW	4	<b>Digital Output 3 Timer</b>	As for 9T1
<b>9T4</b>	ROM	RW	4	<b>Digital Output 4 Timer</b>	As for 9T1
<b>9WM</b>	RAM	RW	4	<b>User Seconds Timer 1</b>	User Programmable 4 digit seconds counter 0000-9999 seconds. Counts down from set value and stops at 0000
<b>9WN</b>	RAM	RW	4	<b>User Seconds Timer 2</b>	User Programmable 4 digit seconds counter 2
<b>9U4</b>	RAM	RW	4	<b>User Minute Timer 1</b>	User Programmable 4 digit minutes counter 0000-9999 minutes. Counts down from set value and stops at 0000
<b>9U5</b>	RAM	RW	4	<b>User Minute Timer 2</b>	User Programmable 4 digit minutes counter 2

Param ID*	Type	Attributes	Length	Description
<b>-- Fuel Monitoring Parameters --</b>				
<b>9L1</b>	EROM	RW	1	<b>Level Sensor Type</b> Level Sensor Type: 0=Ultrasonic Sensor 1=L400 2M 2=L400 4M 3=L400 10M
<b>9L2</b>	EROM	RW	4	<b>Fuel Specific Gravity</b> Specific gravity of fuel. Usually between 0820 and 0950 for diesel. Default = 0880
<b>9L3</b>	EROM	RW	1	<b>Tank Type</b> Type of Tank: 1=Linear (cuboid or cylinder on end) 2=Cylinder on it's side 3=User defined tank profile
<b>9L4</b>	EROM	RW	4	<b>Tank Diameter</b> Diameter of tank in mm, 4 digits long. (only needed for tank type 2)
<b>9L5</b>	EROM	RW	4	<b>Maximum Useable Level</b> Maximum useable level in mm, 4 digits.
<b>9L6</b>	EROM	RW	4	<b>Minimum Useable Level</b> Minimum useable level in mm, 4 digits.
<b>9L7</b>	RAM	RO	4	<b>Measured Level</b> Current measured level in mm
<b>9LA-9LP</b>	EROM	RW	4	<b>User Level Entries</b> 16 user defined level entries. Only used for tank type 3. As few (min 0) or as many (max 16) can be used in order to define tank level capacity characteristics. Entries are in mm and must be 4 digits long (leading 0's required)
<b>9CA-9CP</b>	EROM	RW	2	<b>User Capacity Entries</b> 16 user defined capacity entries. Only used for tank type 3. As few (min 0) or as many (max 16) can be used in order to define tank level capacity characteristics. Each entry is paired with corresponding level entry. Entries are in % of full capacity and must be 2 digits long (leading 0's required)
<b>9F1</b>	RAM	RO	5	<b>Fuel Consumption</b> Fuel consumption in units/hour. Only updated while engine is running (digital input 1 is active). Format nn.nn
<b>9F2</b>	RAM	RO	5	<b>Average Fuel Cons.</b> Average fuel consumption in units/hour over last 32 hours of engine running Format nn.nn
<b>9F3</b>	RAM	RO	1	<b>Consumption Alarm</b> Value "0" = no alarm, "1" = alarm, "2" = fuel Added <b>Engine Running:</b> Alarm is active if current fuel consumption exceeds average fuel consumption by more than the margin set in parameter 9F4. Or If fuel consumption is > 5 units/hour more than the margin set in parameter 9F4 <b>Engine Stopped:</b> Alarm is active if fuel level decreases by more than the margin set in parameter 9F4
<b>9F4</b>	ROM	RW	5	<b>Fuel Margin</b> Fuel consumption/level alarm margin in units. nn.nn
<b>9F5</b>	EROM	RW	1	<b>Shared Fuel Tank</b> Set to "1" if another generator is able to use the monitored fuel tank.



Param ID	Type	Attributes	Length	Description
-- User Parameters --				
9U1	RAM	RW	1	User Parameter
9WC	RAM	RW	6	User Parameter
9WD	RAM	RW	6	User Parameter
9WE	RAM	RW	6	User Parameter
9WF	RAM	RW	6	User Parameter
9WG	RAM	RW	8	User Parameter
9WH	RAM	RW	8	User Parameter
9WI	RAM	RW	8	User Parameter
9WJ	RAM	RW	8	User Parameter
9WO	RAM	RW	8	User Parameter
9WP	RAM	RW	12	User Parameter
9WU	EROM	RW	2	User Parameter
9WV	EROM	RW	2	User Parameter
9W1	EROM	RW	8	User Parameter
9W2	EROM	RW	8	User Parameter
9W3	EROM	RW	8	User Parameter
9W4	EROM	RW	8	User Parameter
9W5	EROM	RW	8	User Parameter
9W6	EROM	RW	8	User Parameter
9KA	EROM	RW	2	User Parameter
9W8	EROM	RW	16	User Parameter
9WX	EROM	RW	16	User Parameter
9U6	ROM	RW	1	User Parameter
9U7	ROM	RW	1	User Parameter
9UA	ROM	RW	4	User Parameter
9UB	ROM	RW	4	User Parameter
9UC	ROM	RW	4	User Parameter
9UD	ROM	RW	4	User Parameter
9UE	ROM	RW	4	User Parameter
9UF	ROM	RW	4	User Parameter
9UG	ROM	RW	4	User Parameter
9UH	ROM	RW	4	User Parameter
9UI	ROM	RW	4	User Parameter
9UJ	ROM	RW	4	User Parameter
9UK	ROM	RW	4	User Parameter
9UL	ROM	RW	2	User Parameter
9UM	ROM	RW	2	User Parameter
9WQ	ROM	RW	32	User Parameter
9WR	ROM	RW	10	User Parameter
9WS	ROM	RW	8	User Parameter
9WT	ROM	RW	4	User Parameter
9WW	ROM	RW	16	User Parameter
9UO	ROM	RW	4	User Parameter
9UP	ROM	RW	4	User Parameter
9UQ	ROM	RW	4	User Parameter
9UR	ROM	RW	4	User Parameter
9US	ROM	RW	4	User Parameter
9UT	ROM	RW	4	User Parameter
9UU	ROM	RW	4	User Parameter
9UV	ROM	RW	4	User Parameter
9UW	ROM	RW	4	User Parameter
9UX	ROM	RW	6	User Parameter
9UY	ROM	RW	4	User Parameter
9UZ	ROM	RW	4	User Parameter

## 11. Remote WEB Access

The F400e has an onboard web server which gives access to a number of the major parameters and interfaces on the F400e.

Web access is from a web browser.

Three pages are available through this interface as follows:

Main home page:



### MastMinder F400e

Site Name: GTAT Site 102

Type	9045-V01 F400e		Firmware Revision	4.02	
Ethernet Address	000D06400038		Parameter File Version	GTAT Site 101 V1	
			<input type="button" value="Reboot"/>	<input type="button" value="Download"/>	
Site Name	GTAT Site 102				
IP Address	192.168.0.102	HTTP Port Number	80		
Subnet Mask	255.255.255.0	HTTP Username	mastminder		
Gateway IP Address	192.168.0.1	HTTP Password	M400e		
Message Server IP Address	192.168.0.78	Download Server IP Address	192.168.0.2		
Download Filename	GTandT F400E V1.cpf				
Date/Time	23	-04	15	13	:07 :40
<input type="button" value="Submit"/>					
Supply	12.0V	Input Qual Time	2	1	2
PoE Supply	----V	Input Config	<input type="button" value="Submit"/>	1	1
Internal Volts	4.9V	Input Value	1	1	0
4-20mA Input	59	Outputs	<input type="button" value="Submit"/>	0	0
Fuel Level	0332 mm	Consumption c/h	12.25	Ave Consumption c/h	08.81
Sensor Type	1	Tank Height	1150	Fuel Alarm	1
Tank Type	2	Max Fill Level	1150	Threshold	04.00
Fuel Sg	0840	Min Fill Level	0025		
Shared Tank	0	Height@20mA	2039	<input type="button" value="Submit"/>	
System Active	9	Invalid Rule		<input type="button" value="Submit"/>	

[Console](#)

[Rule Settings](#)

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Rule & Message Page:



## MastMinder F400e

Site Name: GTAT Site 102

Param File Version: GTAT Site 101 V1

Rule 0	Enable	Y ▼	Status: Active	Qual 60	Rearm 0	if %9X1=\$*1" or %9I5=\$*1" and %9I2=\$*0" and %9ULI\$*1" /
Rule 1	Enable	Y ▼	Status: Active	Qual 0	Rearm 0	if %9ULI\$*0" and %9I2=\$*1" then set %9UL="0" set %9U1="1" /
Rule 2	Enable	Y ▼	Status: Active	Qual 2	Rearm 0	if %9X2=\$*1" then set %9UL="0" set %9X2="0" set /
Rule 3	Enable	Y ▼	Status: Active	Qual 2	Rearm 0	if %9X4=\$*1" then set %9X4="0" set %9X4="0000" /
Rule 4	Enable	Y ▼	Status: Trig	Qual 0	Rearm 0	if %9F3=\$*1" then set %9U1="1" /
Rule 5	Enable	Y ▼	Status: Active	Qual 0	Rearm 0	if %9F3=\$*2" then set %9U1="1" /
Rule 6	Enable	Y ▼	Status: Active	Qual 0	Rearm 0	if %9V1<%9UO then set %9U1="1" /
Rule 7	Enable	Y ▼	Status: Active	Qual 0	Rearm 0	if %9I5=\$*1" then set %9UC="5" /
Rule 8	Enable	Y ▼	Status: Active	Qual 60	Rearm 0	if %9V1<%9UO then set %9X1="1" set %9T1="0060" set /
Rule 9	Enable	Y ▼	Status: Trig	Qual 600	Rearm 0	if %9I1=\$*1" then set %9UB="0" set %9UH=%950 set /
Rule A	Enable	Y ▼	Status: Active	Qual 0	Rearm 0	if %9UH==%950 and %9UJ==%951 then set %9UB=%9UB+"1" /
Rule B	Enable	Y ▼	Status: Active	Qual 0	Rearm 0	if %9UB=>%9UA and %9X1=\$*0" and %9I1=\$*0" then set /
Rule C	Enable	Y ▼	Status: Active	Qual 0	Rearm 0	if %9X1=\$*0" and %9I5=\$*0" and %9UCI\$*3" then set /
Rule D	Enable	Y ▼	Status: Trig	Qual 0	Rearm 0	if %9X1=\$*0" and %9I5=\$*0" then set %9WC="1" /
Rule E	Enable	Y ▼	Status: Active	Qual 0	Rearm 0	if %9X1=\$*1" then set %9WC="0" /
Rule F	Enable	Y ▼	Status: Active	Qual 0	Rearm 0	if %9I5=\$*1" then set %9WC="0" /
Rule Z	Enable	Y ▼	Status: Active	Qual 0	Rearm 0	if %9U1I\$*0" or %9U2I\$*0" or %9U3I\$*0" or %9U4=="0000" /

Submit

Message 0	%901;%931;#D1;%91-%9I2-%9I3%9UL-%9I4%96%9I7%9I80%9F3%9X3%9VC---N%9UC;%9V1;%9V2;;%9V5;%9L7;.....;
Message 1	
Message 1	
Message 3	
Message 4	
Message 5	
Message 6	
Message 7	

Submit

[Home Page](#) [Console](#)

Console Command Page:



## MastMinder F400e

Site Name: GTAT Site 102

Console Command	<input type="text"/>	Submit
Response:	Mastminder F400e Ready	

[Home Page](#) [Rule Settings](#)

The Console command page can be used to issue F400e local console commands to set or read any parameters not displayed in the other two web pages.

## 12. System Console Port

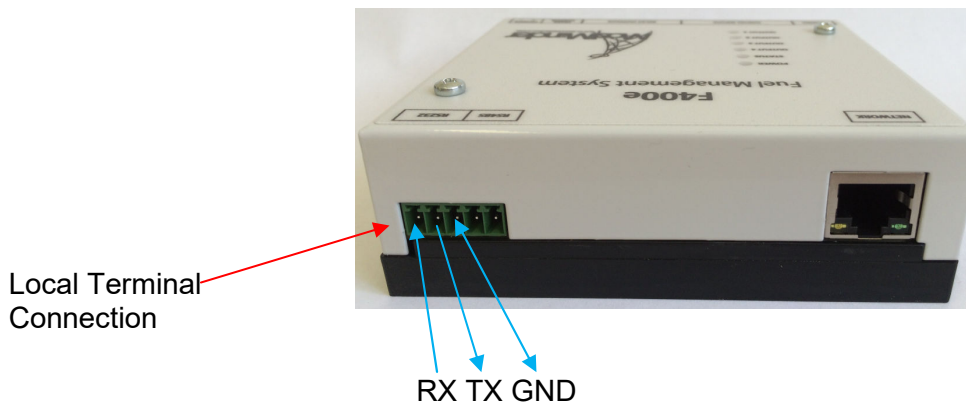
A system console is provided to allow management of the remote site unit via a locally connected RS232 serial terminal (e.g. PC running HyperTerminal)

### 12.1 Local terminal connection

A local serial terminal may be connected to the RS232 port 1.

Serial port 1 is available for use as a local console port at any time.

The communications format is fixed to 9600bps, no parity and 1 stop bit.



### 12.2 Console Port Commands

Once connected, the system console will respond with the prompt:

```
Enter Password:
```

(if an admin password has been set)

```
<Site ID> <Version> :
```

(if no password has been set, or when the correct password has been entered)

e.g.

```
Mastminder 1.14 :
```

## 12.2.1 Console Command Reference

The following commands are available through the console port.

**Command** get  
**Description** Displays the value of one or more system parameters  
**Syntax** get ppp,[ppp],[ppp]

**Response** <parameter value>  
[<parameter value>]

Where ppp = parameter ID

**Command** getm  
**Description** Displays the value of 20 consecutive system parameters  
**Syntax** getm ppp

**Response** ppp=<parameter value>  
ppp=<parameter value>  
ppp=<parameter value>  
...  
ppp=<parameter value>

Where ppp = parameter ID

**Command** set  
**Description** sets the value of a system parameter  
**Syntax** set ppp=ddd

**Response** None (prompt)

Where ppp = parameter ID and ddd = new parameter data to set.

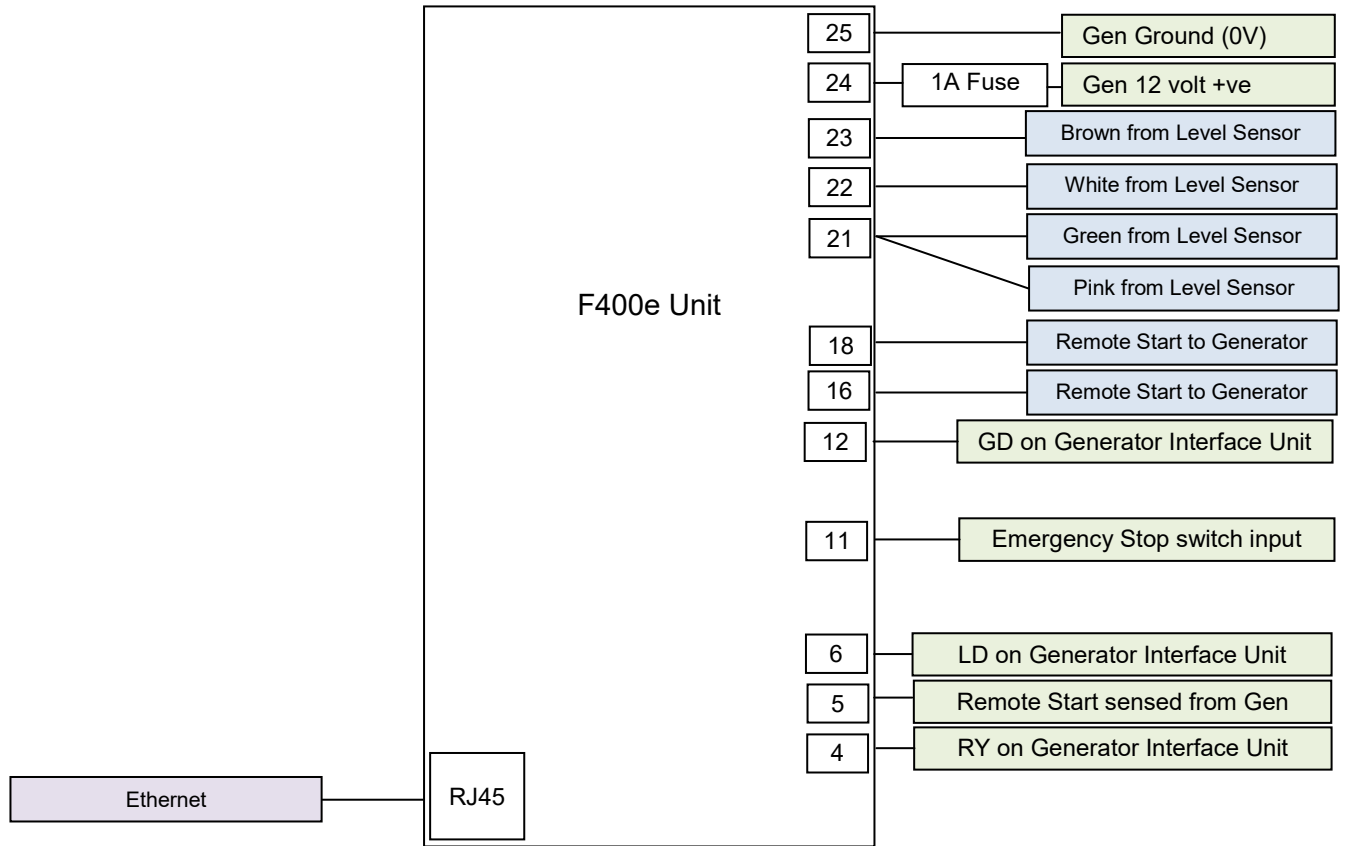
**Command** logout  
**Description** Logs the current user off  
**Syntax** logout

**Response** Enter Password:

An automatic logout will occur if no console commands are received for more than 30 minutes.

### 13. F400e Master Unit Connections – generic

The diagram below shows the connections to the I/O Module installed in the Generator.



#### 14. F400e Master Unit Connection Schedule – generic

F400e Terminal	Description	Destination	Destination Terminal	Wire Colour
4	Generator Running Signal	Gen I/F Module	RY	
5	Generator On Load Signal	Gen I/F Module	LD	
6	Grid On Load Signal	Gen ATS auxiliary	Aux contactors on ATS	
11	Emergency Stop	Emergency Stop	Emergency Stop Switch	
12	Ground	Gen I/F Module	GD	
16	Generator Remote Start	Gen Connector	Remote Start on Gen	
18	Generator Remote Start	Gen Connector	Remote Start on Gen	
21	Fuel Sensor Ground	Fuel Sensor	Green & Pink	
22	Fuel Sensor Signal	Fuel Sensor	White	
23	Fuel Sensor +ve Power	Fuel Sensor	Brown	
24	12 volt power +ve	Generator battery	+ve (via fuse)	
25	12 volt power –ve ground	Generator battery	-ve	