93 Series – FET Systems – FM – with Toggle Switch Transmitter

SYSTEM PART NUMBERS

93 8 08 10 Function Receiver with Master + 8 Function Toggle Switch Transmitter
93 8 10 16 Function Receiver with Master + 10 Function Toggle Switch Transmitter
93 8 12 10 Function Receiver with Master + 12 Function Toggle Switch Transmitter
93 8 14 16 Function Receiver with Master + 14 Function Toggle Switch Transmitter

REPLACEMENT TRANSMITTERS

93 8 08TX 8 Function Toggle Switch Transmitter
93 8 10TX 10 Function Toggle Switch Transmitter
93 8 12TX 12 Function Toggle Switch Transmitter
93 8 14TX 14 Function Toggle Switch Transmitter

SYSTEM CONTENTS

1 x Toggle Switch Transmitter

1 x Receiver with 3 Glands

1 x External Aerial Kit (3m cable with gland)

1 x Instructions

STANDARD TRANSMITTER SPECIFICATION

SWITCH – Types	Functions, MOM-OFF-MOM Toggle Switch, with gold plated contacts, front panel sealed by O ring, epoxy sealed and fitted with half boot. **STOP/SET -** Mushroom headed, Push to STOP, Twist and Pull to SET.
Battery - Type	2 x AA Alkaline Manganese (3 Volts)
AMPS	
Quiescent	80 µA
SET Transmitting Safety	4.5 mA
Operating	44 mA
INDICATOR	
Type	1 x Red LED
Off	Transmitter OFF (The STOP Button has been pressed and released)
Slow flash	Transmitter ON and ready for use (The SET Button has been pressed and released)
On	Transmitting (A STOP, SET or Function Button is being pressed)
AERIAL	
Internal Antenna	Printed on PCB
PROTECTION	
Reverse polarity	Protected
IP Rating	65
Conformal coating	None
Registration codes	Over 16 million
PERFORMANCE	
Temp Range	-10^{o} C to + 40^{o} C (13^{o} F to + 104^{o} F)
Range Nominal as supplied	300 metres (1000 ft) from the Receiver, when driving a momentary output without signal drop out
Transmitted power	10mW Typical
COMPLIANCE	
EMC	2004/104/EEC Exceeds ETSI 300 220
Modulation	FM
Frequencies	434 MHz Band, 15 Frequencies

RECEIVER SPECIFICATION (Surface Mount FET's)

SWITCH TYPE

Output Switching	MOS Field Effect Transistor (P Channel Power MOSFET)

SUPPLY VOLTS

Nominal	12/24 Volts DC
Absolute Maximum	40 Volts DC
Minimum	8 Volts DC
Output Switch Supply	Internal 12/24 Volts

AMPS

FET Rating	15 Amps
System Output Rating	15 Amps
Quiescent Current	25mA on Standby (Not SET)
Overload Protection	15 Amps (Auto Shutdown)

AERIAL

Internal Antenna	Yes	Supplied and fitted
External Antenna	Yes	P. No. 9863 – External Antenna with cable and gland, supplied

OUTPUTS

Master	1	Can be Parallel or Continuous.
Functions	20	Model dependant
Master (Secondary)	1	Continuous (S+ S-)

CONFIGURATION

RS232 Programming To users requirements	Yes	For programming interlocks, push/push latch, parallel master inhibit, timeout, channel timeout delay and master on delay.

PERFORMANCE

Simultaneous Outputs	Yes	With horizontal interlocks (Interlocks are programmable – see CONFIGURATION above)
Instant Tx response	Yes	No perceivable delay between TX operation and RX action

DIAGNOSTICS

LED's	Yes	Confirm 5 Volts, SET, Fault and all Outputs.

PROTECTION

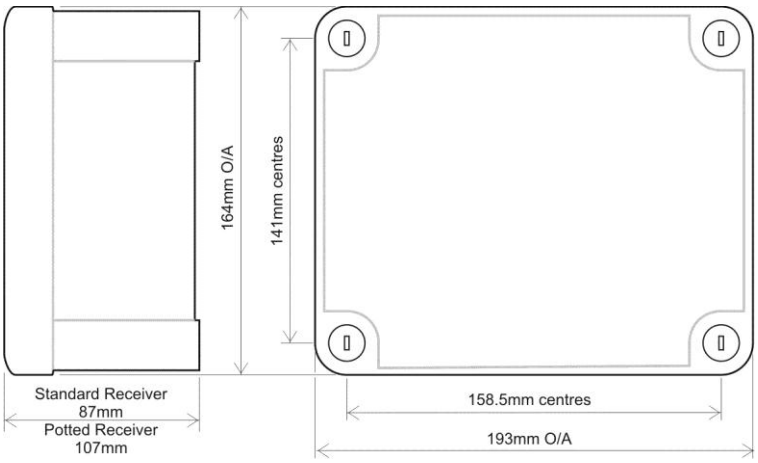
ESR Safety	Yes	See ESR Safety document.
Reverse Polarity	Protected (with provisions)	
Back EMF	Diode protected on all outputs	
Conformal Coating	No	
Registration codes	Over 16 million	
STOP Connection	Yes	

WIRING

Wiring Loom	No	
Cable Glands	Yes	3 Supplied
Connections	Screw terminal into plug and socket on PCB, for easy "swap out"	

ENCLOSURE

Weight	????
Lid	Smoke PVC - to view LEDs
Base	Grey
Breather	No
Mounting	4 Holes under Lid Fixings
Fixings	Not supplied
IP Rating	Performs to IP67 standard



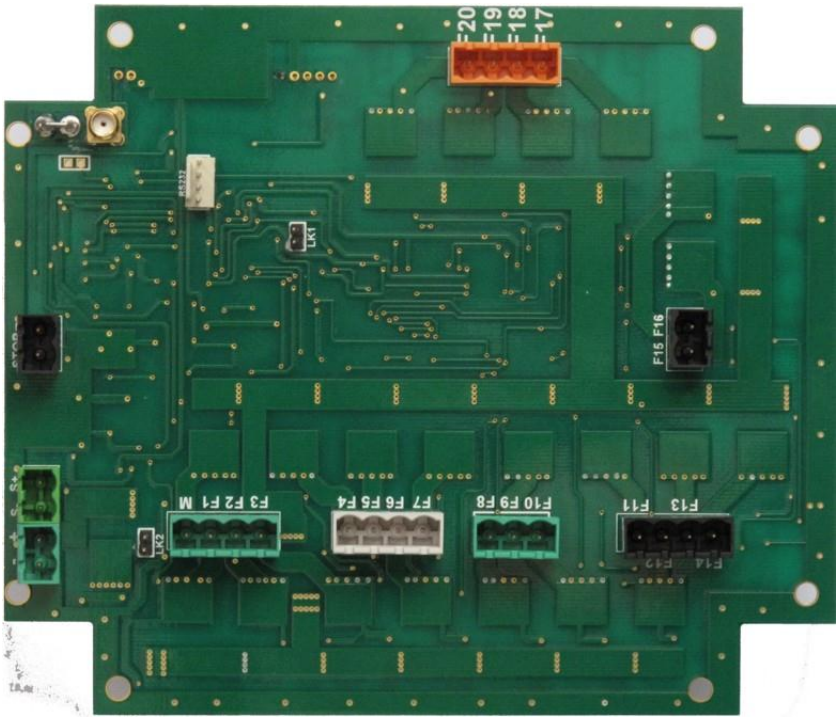
ACCESSORIES 9861, 9862, 9863 and 9869 – External Antenna with cable.

92 Series			93 8 08 93 8 10	93 8 12 93 8 14
BUILD SPECIFICATION TABLE FOR MODELS IN THIS RANGE				
Ident	Legend	Connection		
	+ -	Positive, Negative,	S	S
	F1, F2, F3, M	F1, F2, F3 and Master	S	S
	F4, F5, F6, F7	F4, F5, F6 & F7	S	S
	F8, F9 & F10	F8, F9 & F10	S	S
	F11, F12, F13, F14	F11, F12, F13 & F14	S	S
	F15, F16	F15 & F16	S	S
	STOP, -, Code, & +	STOP, -, Code and + for wired remote	S	S
	S+, S-	Master (secondary)	S	S
	ANT	Internal Antenna	S	S
		SMA (external antenna)	S	S
LK1	B A C	Master (configuration)	C	C
LK2		Safety (parallel master)	C	C
	RS232	RS232	S	S
		9863 Antenna with 3 metre cable	S	S

S = Standard. C = Customer configured (see “Factory Settings”).

+	Positive 12/24 Volt supply
-	Negative 0 Volts
F1 to F10	Outputs to F1 through F10
M	Master Output
STOP -	STOP, when grounded shuts down the Receiver
S+ S-	Master Secondary for Safety solenoid connections etc.
ANT	Blade connector for internal antenna
SMA	Aerial connection for optional external antenna (internal antenna must be removed)
LK1	Master Selection by Jumper (BA = Continuous & AC = Parallel)
LK2	Connected when using Parallel Master, connects safety circuits
Factory Settings	418MHz configured Parallel, 433.92MHz configured Continuous
LK3	RS232 for interface to access special programmes

RECEIVER PCB – Not to scale
Connector side



RECEIVER PCB

PCB component side, this is viewable through the smoke lid of the Receiver.

LED's are visible for confirmation that the system is operating correctly.

These are:-

+5V Power Supply OK

SET Receiver operational

Fault Flashes for 20 seconds
At "power up"
Tx coding window open

Fault ON = Current overload

LED's F1 to F10 and M
ON when there is an output