

# 20 Function and IP Transmitter with Shift

## 93 Series – FET System

### SYSTEM PART NUMBER

**93322** 1 x 20 Function Receiver & 1 x 2 Function Receiver  
 1 x 32 Function IP Transmitter with Shift Buttons.  
**Operating with a 16F IP Transmitter**

### REPLACEMENT TRANSMITTER

**93332TX** 32 Function IP Transmitter with Shift Buttons.  
**Operating with a 16 Function IP Transmitter**

<u>CONTENTS</u>	
2 x	Receivers
1 x	IP Shift Transmitter
1 x	Lanyard
1 x	Instructions



### IP TRANSMITTER SPECIFICATION

<b>SWITCH</b> - Type	Tactile Dome on PCB Keypad	
<b>BATTERY</b> -Type	4 x AAA Alkaline Manganese in holder (6 Volts)	
<b>INDICATOR</b>	2 x Red LED	
Transmitter Off	The STOP Button has been pressed and released	
Transmitter Slow Flash	ON and ready for use. The SET Button has been pressed and released	
Transmitter On	Transmitting. A STOP, SET or FUNCTION Button is being pressed	
Transmitter Fast Flash	An Indication that the battery will need replacing soon	
Enclosure Slow Flash	ON and ready for use with Receiver 2. The SET button has been pressed and released	
<b>CURRENT DRAW</b>		
Quiescent	20 micro amps	
Operating	25 milliamps	
<b>PROTECTION</b>		
Reverse polarity	Protected	
IP Rating	67	
Registration codes	Over 16 million	
<b>PERFORMANCE</b>		
Temp Range	-10° C to + 40° C (13° F to + 104° F)	
Range Nominal as supplied	300 metres (1000 ft.) from the Receiver, when driving a momentary output without signal drop out	
Transmitted power	1mW Typical	
<b>COMPLIANCE</b>		
EMC	2004/104/EEC	Exceeds ETSI 300 220
Modulation	FM	
Frequencies	433.92 MHz F1D	
	+ 14 others	Worldwide

## RECEIVER SPECIFICATION

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

### AERIAL

Internal Antenna                        Yes        Supplied and fitted  
 External Antenna                      Optional   See Accessories

### OUTPUTS

Master                                      1            Can be Parallel or Continuous  
 Function                                  22         20+2  
 Master (Secondary)                    1            Continuous

### CONFIGURATION

RS232 Programming to users' requirements            Yes        Not all models, see Build Specification Table. For programming interlocks, push/push latch, parallel master inhibit, timeout, channel timeout delay, master on delay, radio button de-latching and output allocation.

### 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.  
 Back EMF                                 Yes        Diode protected on all outputs  
 Registration codes                      Over 16 million  
 STOP Connection                        Yes        Internal Emergency Stop Connection

### WIRING

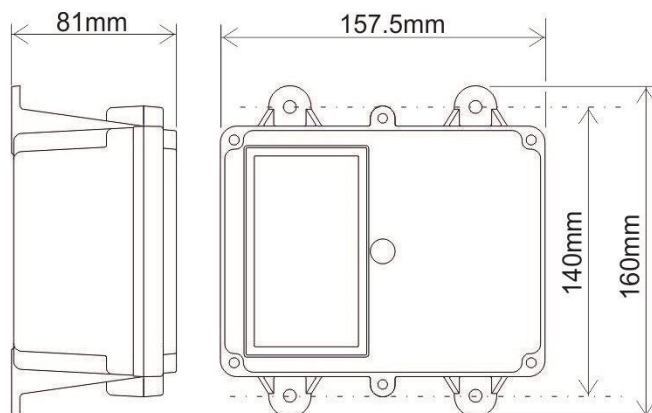
Wiring Loom                                No        Can be supplied as an option  
 Cable Gland                                Yes        Supplied – fitted by customer  
 Connections                                Screw terminal into plug and socket on PCB, for easy "swap out"

### ENCLOSURE – 20 Function

Weight                                      Approx. 0.5 lbs (335gms)  
 Lid                                            Clear PVC - to view LEDs  
 Base                                         Black PVC  
 Breather                                  "Gortex", fitted in the base  
 Mounting                                  4 external lugs  
 Fixings                                      5mm (3/16") not supplied  
 IP Rating                                  Performs to IP67 standard  
                                                     (0.5 metre water for 1 hour)

### ENCLOSURE – 2 Function

This has the same footprint as the 20 function but is only 53mm deep



<b>93 Series</b>			<b>93 3 22</b>	<b>93 3 32</b>
BUILD SPECIFICATION TABLE FOR MODELS IN THIS RANGE				
Ident	Legend	Connection		
	+ -	Positive, Negative,	<b>S</b>	S
1	M, F1, F2, F3	Master F1, F2 and F3	<b>S</b>	S
1	F4, F5, F6, F7, F8, F9	F4, F5, F6, F7, F8, F9	<b>S</b>	S
1	F10, F11, F12, F13, F14	F10, F11, F12, F13, F14	<b>S</b>	S
1	F16, F17, F18, F19, F20	F16, F17, F18, F19, F20	<b>S</b>	S
2	F1, F2	F1 & F2	<b>S</b>	S
	S+, S-	Safety Solenoid S+ and S-	<b>S</b>	S
	STOP, 0Volts	STOP connections	<b>S</b>	S
	ANT	Internal Antenna	<b>S</b>	S
		SMA (external antenna)	<b>S</b>	S
LK1	LK1	Master - Parallel	<b>C</b>	C
LK2	LK2	Master - Continuous	<b>C</b>	C
	RS232	RS232	<b>S</b>	S
		9863 Antenna with 3 metre cable	<b>2</b>	2
		Number of Receivers	<b>2</b>	2
		Number of Transmitters	<b>1</b>	1

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

+	Positive 12/24 Volt supply
-	Negative 0 Volts
F1 to F16	Outputs to F1 through F16
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

## EXPLANATION OF “SHIFT” OPERATIONS - as illustrated with a 20 Function Transmitter.

These “SHIFT” operations can be applied to ALL Transmitters. For example, a 10 function Transmitter will give 20 functions – ideal if you do not want the larger 20 function Transmitter.



### To operate 2 x 20 function Receivers, giving 40 functions

This is a standard 20 function Transmitter, modified so that it transmits 20 functions in two different modes.

The Green SET Button is the SHIFT button. Both 20 function Receivers can therefore be operated by one Transmitter.

Press the Green SET Button to turn both Receivers on - it will start in mode One; press it again for mode Two; press it again for mode One, and so on.

Press the Red Stop button to turn both modes off.

Receiver One (functions 1 to 20) is operated with the SHIFT buttons in mode One, indicated when the **Keypad LED** is flashing during operation.

Receiver Two (functions 21 to 40) is operated with the SHIFT buttons in mode Two, indicated when the **Enclosure LED** is flashing during operation.

### **To register a Transmitter to its TWO Receivers.**

Switch OFF or DISCONNECT the power to the Receivers.

Switch ON or Reconnect the power to Receiver ONE, this opens a **10 SECOND** registration window in its processor.

Immediately **PRESS** and **HOLD** the green **SET** button while the registration window is open until the **SET** LED lights (5 seconds), the **SHIFT** function must **NOT** be active.

Receiver TWO, repeat the process but this time **PRESS** and **HOLD** the **SHIFT** button, and **PRESS** and **HOLD** the **SET** button until its **SET** LED lights.

You have now coded the Transmitter to both receivers.