

93 Series – FET Systems – FM – 28 Functions and IP Transmitter with Shift Function

SYSTEM PART NUMBERS

93 3 28 28 Function Receiver system + 28 Function IP NB Transmitter with Shift Buttons

REPLACEMENT TRANSMITTERS

93 3 28TX 28 Function IP Narrow Band Transmitter with Shift Buttons



SYSTEM CONTENTS

- 1 x IP Transmitter with Shift Function
- 1 x Lanyard
- 2 x Receiver with 3 x glands each
- 2 x External Aerial Kit (3m cable with gland)
- 1 x Instructions

IP TRANSMITTER SPECIFICATION

SWITCH - Type	Tactile Dome on PCB Keypad
Battery - Type	4 x AAA Alkaline Manganese in holder (6 Volts)
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)
Fast flash	Transmitting – Indication that the battery will need replacing soon
Current Drawn	
Quiescent	15 micro amps
Operating	25 milliamps
PROTECTION	
Reverse polarity	Protected
IP Rating	67
Conformal coating	No
Registration codes	Over 16 million
PERFORMANCE	
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	10mW Typical
COMPLIANCE	
EMC	2004/104/EEC Exceeds ETSI 300 220
Modulation	FM
Frequencies	434 MHz Band, 15 Frequencies

93 Series – 28 Function, 14 key IP Narrow Band Transmitter with Shift Buttons



This is a standard 16 function Transmitter modified, so that it transmits 14 functions x 2.

Button 15 is a SHIFT button and button 16 is a SHIFT LOCK button. Two 16 function Receivers can therefore be operated by one transmitter.

The green SET button switches on both receivers and the red STOP button switches them both off.

Receiver **one**, functions 1 to 14 is operated without use of the SHIFT buttons, when the transmitter LED is blinking ONCE every three seconds approx. When a function button is pressed the keypad LED lights continuously.

Receiver **two**, functions 15 to 28 is operated by means of the SHIFT LOCK button, when the transmitter LED is blinking TWICE every three seconds approx. When a function button is pressed now the keypad LED will flash rapidly.

Press either the SHIFT or the SHIFT LOCK buttons and the transmitter will revert to receiver one, and the LED will flash once every 3 seconds for mode identification.

For **QUICK USE**, operate the required function button while holding down the SHIFT button, note the keypad LED will flash rapidly.

Note, if the SHIFT button only is pressed the LED will not light.

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 **20 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.

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 1x2 Can be Parallel or Continuous.
 Functions 16x2 Model dependant
 Master (Secondary) 1x2 Continuous (S+ S-)

CONFIGURATION

RS232 Programming 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

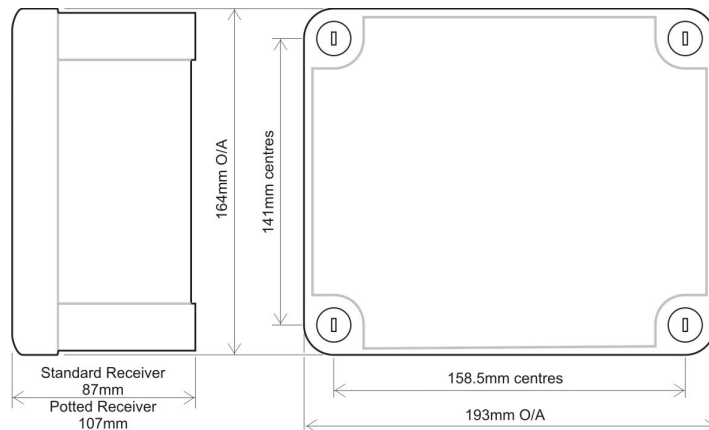
ESR Safety Yes See ESR Safety document.
 Reverse Polarity Protected (with provisions)
 Back EMF Diode protected on all outputs
 Conformal Coating No
 Registration codes Over 16 million
 STOP Connection Yes

WIRING

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

ENCLOSURE (2 supplied)

Weight 2kgs
 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.

93 Series			93 3 28	93 3 36
BUILD SPECIFICATION TABLE FOR MODELS IN THIS RANGE				
Ident	Legend	Connection		
	+ -	Positive, Negative,	S	S
	M, F1, F2, F3	Master F1, F2 and F3	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
	F17, F18, F19, F20	F17, F18, F19 and F20		S
	S+, S-	Safety Solenoid S+ and S-	S	S
	STOP, 0Volts	STOP connections	S	S
	ANT	Internal Antenna	S	S
		SMA (external antenna)	S	S
LK1	LK1	Master - Parallel	C	C
LK2	LK2	Master - Continuous	C	C
	RS232	RS232	S	S
		9863 Antenna with 3 metre cable	2	2
		Number of Receivers	2	2
		Number of Transmitters	1	1

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

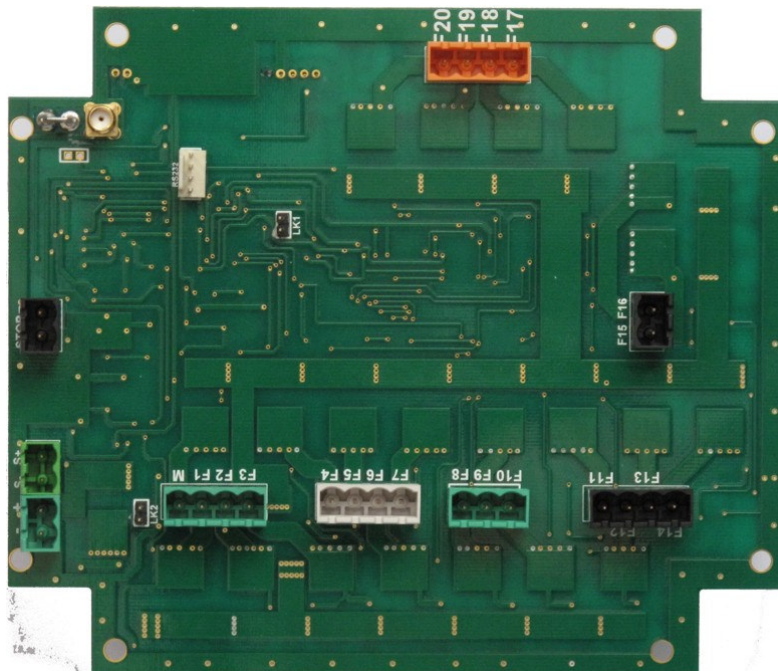
- + Positive 12/24 Volt supply
- Negative 0 Volts
- F1 to F20 Outputs to F1 through F20
- M Master Output

- 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
20 Function board shown



RECEIVER PCB

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

20 Function board shown

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 F20 and M
ON when there is an output

