

20 Function and IP Transmitter with Shift – Narrow Band

93 Series – FET System

SYSTEM PART NUMBER

93220 20 Function Narrow Band Receiver with Master + 20 Function Narrow Band IP Transmitter

REPLACEMENT TRANSMITTER

93220TX 20 Function IP Narrow Band Transmitter

CONTENTS

1 x Receiver
1 x IP Transmitter (Shift)
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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 DRAW		
Quiescent	15 micro amps	
Operating	25 milliamps	
PROTECTION		
Reverse polarity	Protected	
IP Rating	67	
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	1mW Typical	
COMPLIANCE		
EMC	2004/104/EEC	Exceeds ETSI 300 220 Compliant E11 10R-037601
Modulation	FM	
Frequencies	418.00 MHz F1D	USA (optional UK)
	433.92 MHz F1D	World wide (optional USA)

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 20
 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

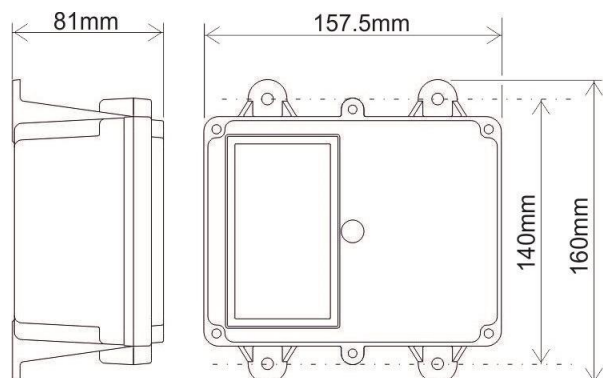
ESR Safety Yes See ESR Safety document.
 Back EMF Yes Diode protected on all outputs
 Registration codes Over 16 million
 STOP Connection Yes Internal Emergency Stop Connection

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

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



92 Series			92 2 10	92 2 16	92 2 20
BUILD SPECIFICATION TABLE FOR MODELS IN THIS RANGE					
Ident	Legend	Connection			
	+ -	Positive, Negative,	S	S	S
	M, F1, F2, F3	Master F1, F2 and F3	S	S	S
	F4, F5, F6, F7	F4, F5, F6 & F7	S	S	S
	F8, F9 & F10	F8, F9 & F10	S	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	S
	STOP, 0Volts	STOP connections	S	S	S
	ANT	Internal Antenna	S	S	S
		SMA (external antenna)	S	S	S
LK1	LK1	Master - Parallel	C	C	C
LK2	LK2	Master - Continuous	C	C	C
	RS232	RS232	S	S	S
		9863 Antenna with 3 metre cable	S	S	S

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
- RS232 RS232 for Wired Remote and interface to access special programmes

RECEIVER 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 F20 and M
ON when there is an output