20 Function and IP Extend Transmitter

93 Series – FET System

SYSTEM PART NUMBER

93320   1 x 20 Function Receiver & 1 x 20 Function Transmitter
Operating with a 10F IP Transmitter Enclosure

REPLACEMENT TRANSMITTER

93320TX   20 Function IP Transmitter with Shift Buttons.
Operating with a 10F IP Transmitter Enclosure

IP TRANSMITTER SPECIFICATION

SWITCH - Type   Tactile Dome on PCB Keypad

BATTERY -Type   4 x AAA Alkaline Manganese in holder (6 Volts)

INDICATOR   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

CURRENT DRAW
Quiescent   20 micro amps
Operating   25 milliamps

PROTECTION
Reverse polarity   Protected
IP Rating   67
Registration codes   Over 16 million

PERFORMANCE
Temp Range   -10º C to + 40º C (13º F to + 104º 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
Modulation   FM
Frequencies   433.92 MHz F1D
                           and 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	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	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)
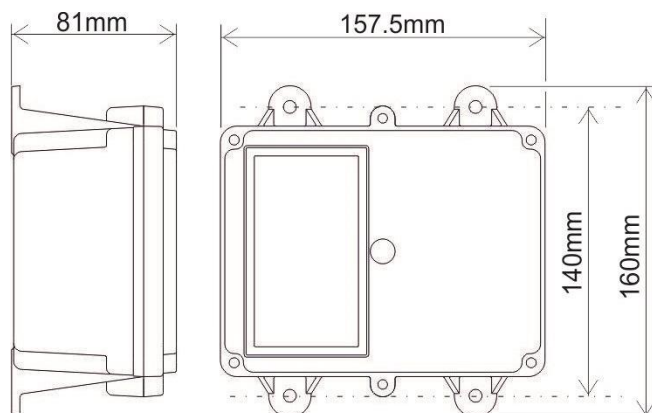
93 Series			93 3 20	93 3 32
BUILD SPECIFICATION TABLE FOR MODELS IN THIS RANGE				
Ident	Legend	Connection		
	+ -	Positive, Negative,	S	S
	M, F1, F2, F3	Master F1, F2 and F3	S	S
	F4, F5, F6, F7	F4, F5, F6 & F7	S	S
	F8, F9 & F10	F8, F9 & F10	S	S
	F11, F12, F13, F14	F11, F12, F13 & F14	S	S
	F15, F16, F17, F18	F15, F16, F17, F18	S	S
	F19, F20	F19, F20	S	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
		Number of Receivers	1	2
		Number of Transmitters	1	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" & "EXTEND" 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 1**0 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.