

93 Series - FET System  
16 Function with IP Narrow Band Transmitter



SYSTEM CONTENTS

- 1 x IP Transmitter
- 1 x Lanyard
- 1 x Receiver
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- 1 x Instructions

Illustrated Model Number 93216 with optional cradle

SYSTEM PART NUMBER

**93216** 16 Function Receiver with Master + 16 Function IP Narrow Band Transmitter

REPLACEMENT TRANSMITTER

**93216TX** 16 Function IP Narrow Band Transmitter

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)	

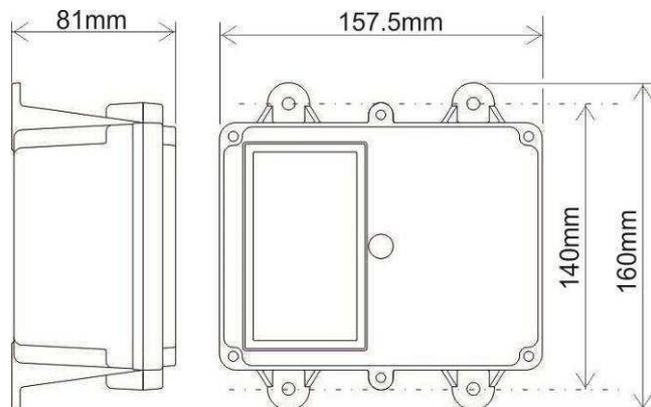
## RECEIVER SPECIFICATION

<b>SWITCH TYPE</b>		
Output Switching		MOS Field Effect Transistor (P Channel Power MOSFET)
<b>SUPPLY VOLTS</b>		
Nominal		12/24 Volts DC
Absolute Maximum		40 Volts DC
Minimum		8 Volts DC
Output Switch Supply		Internal 12/24 Volts
<b>AMPS</b>		
FET Rating		15 Amps
System Rating		15 Amps
Quiescent Current		25 mA on Standby (Not SET)
Overload Protection		15 Amps (Auto Shutdown)
<b>AERIAL</b>		
Internal Antenna	Yes	Supplied and fitted
External Antenna	Optional	See Accessories.
<b>OUTPUTS</b>		
Master	1	Can be Parallel or Continuous
Function	16	
Master (Secondary)	1	Continuous
<b>CONFIGURATION</b>		
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.
<b>PERFORMANCE</b>		
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
<b>DIAGNOSTICS</b>		
LED's	Yes	Confirm 5 Volts, SET, Fault and all Outputs.
<b>PROTECTION</b>		
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
<b>WIRING</b>		
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”

## DIMENSIONS

### 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

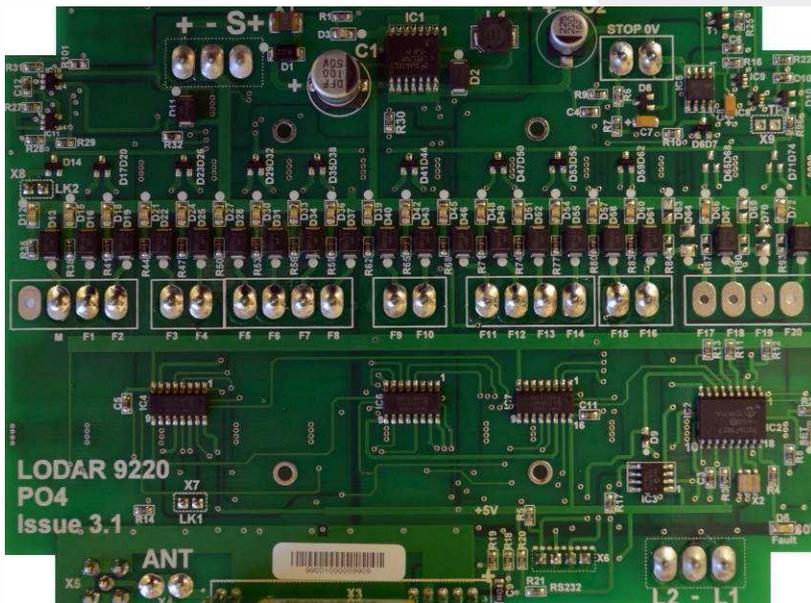
S = Standard. C = Customer configured (see "Factory Settings").

+ 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.

