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

SYSTEM PART NUMBER

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

REPLACEMENT TRANSMITTER

93216TX 16 Function IP Narrow Band Transmitter

SYSTEM CONTENTS

1 x IP Transmitter

1 x Lanyard

1 x Receiver

3 x Glands

1 x External Aerial Kit (3m cable with gland)

1 x Instructions

Illustrated Model Number 93216 with optional cradle

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

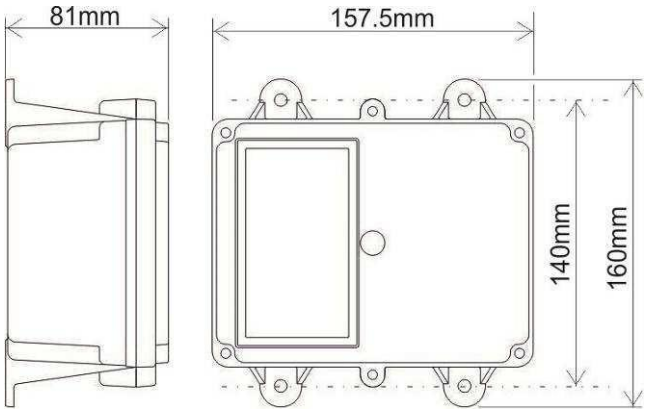
COMPLIANCE			
EMC	2004/104/EEC	Exceeds ETSI 300 220	Compliant E11 10R-037601
Modulation	FM		
Frequencies	418.00 MHz F1D	USA (optional UK)	
	433.92 MHz F1D	World wide (optional USA)	

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	16	
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"

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)

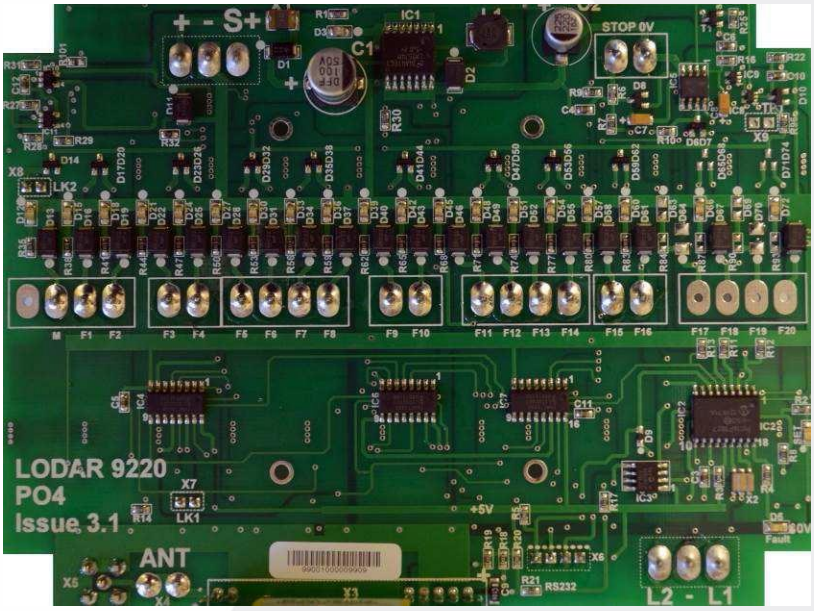


92 Series			92 2 10	92 2 16	92 2 20
BUILD SPECIFICATION TABLE FOR MODELS IN THIS RANGE					
Ident	Legend	Connection			
	+ -	Positive, Negative,	S	S	S
	M, F1, F2, F3	Master F1, F2 and F3	S	S	S
	F4, F5, F6, F7	F4, F5, F6 & F7	S	S	S
	F8, F9 & F10	F8, F9 & F10	S	S	S
	F11, F12, F13, F14	F11, F12, F13 & F14		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.

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

RECEIVER PCB – Connector Side