FSP300RC 110w LED Remote Control Searchlight

User / Installation Manual

Product Part Number:

A7275 – FSP300RC 115/240v 110w LED Variable Speed Remote Control Searchlight

PLEASE NOTE!

Please read this manual before installation.

www.francis.co.uk

CONTENTS

General Information:

Francis Searchlights Ltd

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1 – Introduction

It is imperative that this manual is read carefully and understood before installing your equipment. For your future reference please keep this manual in a safe place.

Thank you for specifying a product from the Francis Searchlights range. All Francis products are designed to give complete customer satisfaction and are manufactured to the highest engineering standards to ensure optimum performance and service life.

The Francis FSP range combines features proven over many years in the most hazardous conditions in both marine and land installations.

To prolong the life and performance of your product, we recommend that you only specify Francis Searchlights spare parts. This will also ensure that any warranties on your equipment will not be invalidated. Information on spares ordering and parts is provided in this manual.

Should you ever need to contact Francis Searchlights Ltd. regarding your equipment, please always quote the Product Number and Serial Number of the product you have, this is located on the name plate, inside the front of the barrel to the right.

In order that the searchlight operates correctly it is imperative that competent personnel are responsible for the installation, operation, and servicing of this equipment. Failure to adhere to this advice may cause premature failure or incorrect operation of the searchlight, which may damage the equipment or cause personal injury.

2 – Safety Precautions

The following instructions must be adhered to, to ensure a safe working environment and the safety of the user.

Note: When unpacking or manoeuvring the searchlight into its fixing position, suitable lifting points must be used to prevent damage to the equipment or personal injury.

- Only suitably qualified personnel may install the products.

- Never look directly into an illuminated searchlight as this may cause severe damage to eyesight. If it is necessary to inspect the LED whilst in operation, always wear suitable protective goggles.

- Should it be necessary to examine the LED with the rear bezel removed, always use a protective shield and wear goggles to ensure a safe working environment.

- Searchlights get hot. Never touch the unit when lit and always allow 15 to 20 minutes for cooling down after turning the searchlight off.

- Never place anything on or cover the searchlight when in use.

3 – Technical Information

Electrical			
Input voltage:	24VDC	110VAC	240 VAC
Input current:	4.2A Max	1.2A Max	0.6A Max
Driver output voltage:	39v DC Max		
Driver current:	3A Max		
Wattage:	110w		
Dimensions			
Height:	1043mm		
Width:	527mm		
Depth:	442mm		
Weight: Searchlight	39Kgs		
Searchlight Performance			
LED power:	110w		
Range @ 1 Lux:	1089m		
LED life (approx..)	33,000h		
Divergence:	7° Spot 20° Flood		
Colour temperature:	6500K		
Luminous flux:	13,900 lumens		
Searchlight movement			
Pan rotation:	365°		
Tilt elevation:	Up 35° & Down 35°		
Pan speed:	Variable Speed 1 to 60°/sec		
Tilt Speed:	Variable Speed 1 to 17°/sec		
Manually operated shutter for Morse code			
Signalling range:	10 miles / 16Km (daylight)		
Signalling speed:	12 words per minute		
Material, colour, IP rating			
Searchlight barrel head:	Aluminium BSEN485 5251		
Gearbox housing:	Stainless Steel BS1449 304S31		
Crutch:	Stainless Steel BS1449 304S11		
Paint finish powder coated & stove enamel paint:	Ash Grey BS4800 00A01, May Green RAL 6017		
IP rating:	IP67 Gearbox – IP66 Searchlight		
Operating temperature:	-20°C to +50°C (-50°C on request)		
Certification approval:			
Lloyds TA:	IEC 60945: 2002		
Russian Maritime Register of Shipping:	Parts XI & XVII, Part IV		
ISO9001 2015:	Quality Management System		

4 – Unpacking and Installation Instructions

The following instructions should be read and fully understood prior to installing the equipment to ensure that the correct procedures are followed, and all safety precautions are observed.

Note: If the equipment has been in storage for a considerable amount of time, it is advisable to conduct a routine maintenance check on all parts before installation.

Safety Precautions

This equipment should not be connected to an electrical supply before being installed. Installation procedures should be adhered to, to ensure a safe working environment and reduce the risk of damage or personal injury.

Preparing the Mounting Position

Mark out and drill the fixing holes through the deck. If anti-vibration mounts are to be fitted, the fixing holes for the mounts should also be marked out and drilled. Prior to manoeuvring the searchlight into its' fixing position, the AV mounts should be fitted to the base. When in the desired position, bolt the searchlight firmly down. On an uneven surface it may be necessary to use a suitable sealant such as silicone, to ensure a weatherproofed joint.

Please refer to the drawing C27312 for the Joystick Panel cut out size, which you can find at the back of this manual.
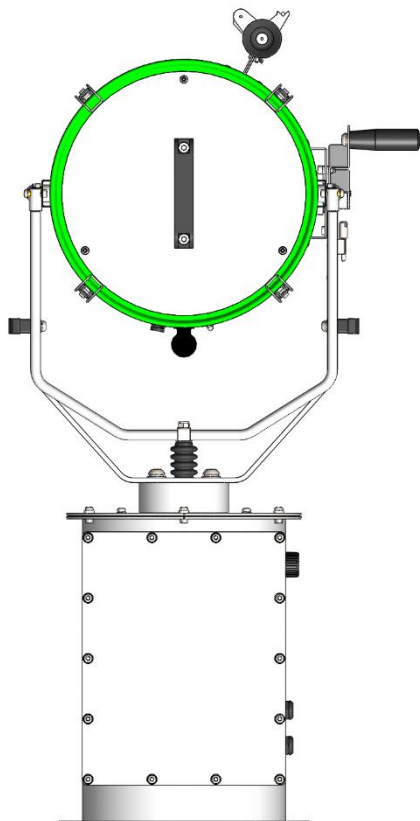
Rear of Searchlight
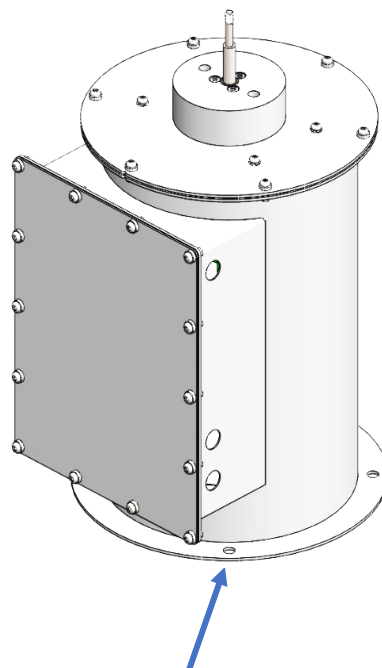
Base Fixings, 4 Holes Ø12.5 Equally Spaced on a Ø 290.00

5 – Electrical Installation

For safety purposes, only competent personnel should perform the electrical installation. All equipment should be installed to current Electrical Regulations and Standards.

Referring to wiring diagram C27732 115/240v (at the back of the manual), a supply is fed to the gearbox housing, which then provides a common feed to the motor gearbox, searchlight, and joystick panel.

Cables required to be connected by the customer: -

- 2 pair twisted 0.22mm 100ohm screened cable from the joystick panel to the gearbox housing.
- Mains supply cable to the gearbox housing.

Joystick Panel   **Searchlight**

2 pair twisted screened cable, supplied by customer

Mains supply cable supplied by customer, see table below.
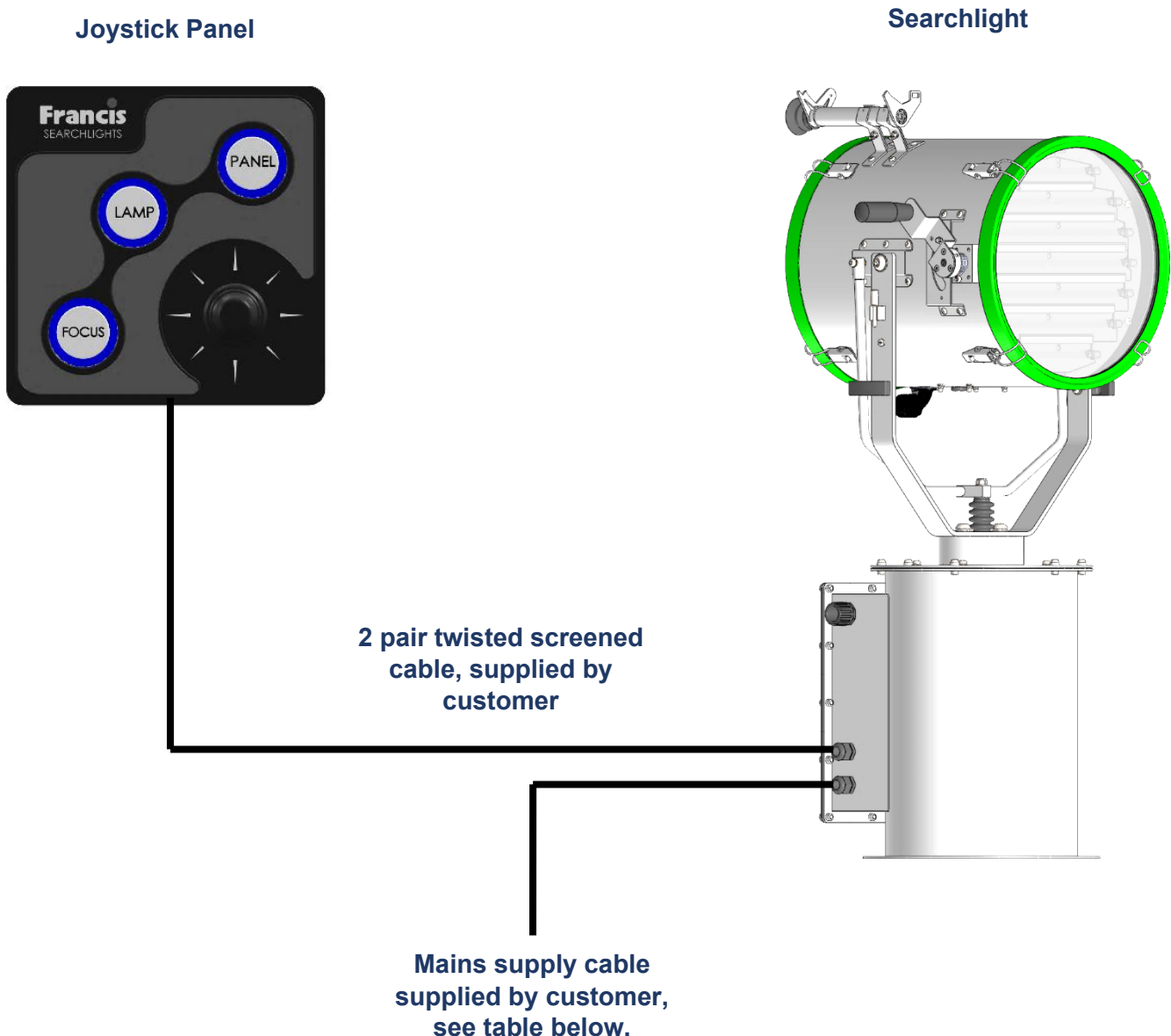
To obtain the maximum light output from the searchlight, it is essential that the full operating voltage of the lamp fitted be applied to the lamp holder contacts.

Method of Electrical Connection

- Disconnect the supply before working on the electrical system.
- The searchlight must be connected to a fused electrical supply, using suitably sized cable.
- If the searchlight is located a considerable distance from the supply, provision must be made in the cable size to overcome the voltage drop.

The following table below indicates the maximum length of cable to be used for the supply cable, from the mains supply to the gearbox housing.

Searchlight	115v 110w	230v 110w
Cable Size (mm²)	Distance Max	Distance Max
1.5	141M	592M
2.5	239M	

- Whenever possible cable terminations should be made below deck and with approved terminal devices.
- If a spare auxiliary fuse or circuit breaker is not available, one of the correct type/ratings should be fitted and connected to a positive supply. It is advisable to locate a bus bar or main connection and avoid any direct connection to the supply.
- For 115/240v AC products, the following colour coding system should be used for the customer supply cable:

  Brown   -   Live

  Blue   -   Negative

  Green/Yellow   -   Earth

Note: This equipment must be earthed.

6 – Start-up and Operating

Start-Up

When the main power is first applied to the searchlight, the searchlight will carry out a self-test, it will Pan to the left limit and Tilt down to the limit, once this is complete, the searchlight will then move to the centre and horizontal, during this please do not try and operate the searchlight while this test is being carried out. Once the searchlight is back at centre the searchlight can then be operated normally, by pressing the Panel button on the control panel.

Operating

Switch On

The panel is activated using the PANEL button. This will illuminate brightly when the panel is active. Alternate operations of the PANEL button will switch the panel on and off.

Lamp Control

When the panel is active pressing the LAMP, button will switch the lamp on or off.
If the control panel is switched off with the PANEL button the lamp will switch off.

Focus Control

The lamp focus can be adjusted using the FOCUS button. Lamp focus will adjust continuously whilst FOCUS is pressed.

Beam Direction

The beam direction can be adjusted using the joystick when the panel is active. Moving the joystick left or right will pan the beam clockwise or anticlockwise.
Moving the joystick up or down will move the beam up or down. The speed of movement is proportional to the movement of the joystick. It is possible to move the beam in both directions at once by moving the joystick diagonally.

Home

The searchlight can be returned to a pre-set home position. By default, this is dead ahead with the beam level although different positions can be programmed as described below.
To send the searchlight to the home position switch the panel off then press the LAMP button.

Set New Home Position

To set a new home position move the searchlight to the new desired home position. Switch the panel off then press the joystick down to its limit and press the lamp button. The current position will now be the new home position.

The FSP300RC can be used for signalling or as a searchlight.

Searchlight Mode

To use as a searchlight, pull down the signalling lever so that the shutter is in the open position. Remove the shutter stop pin, which is attached to the crutch and insert into the lever guide bracket.
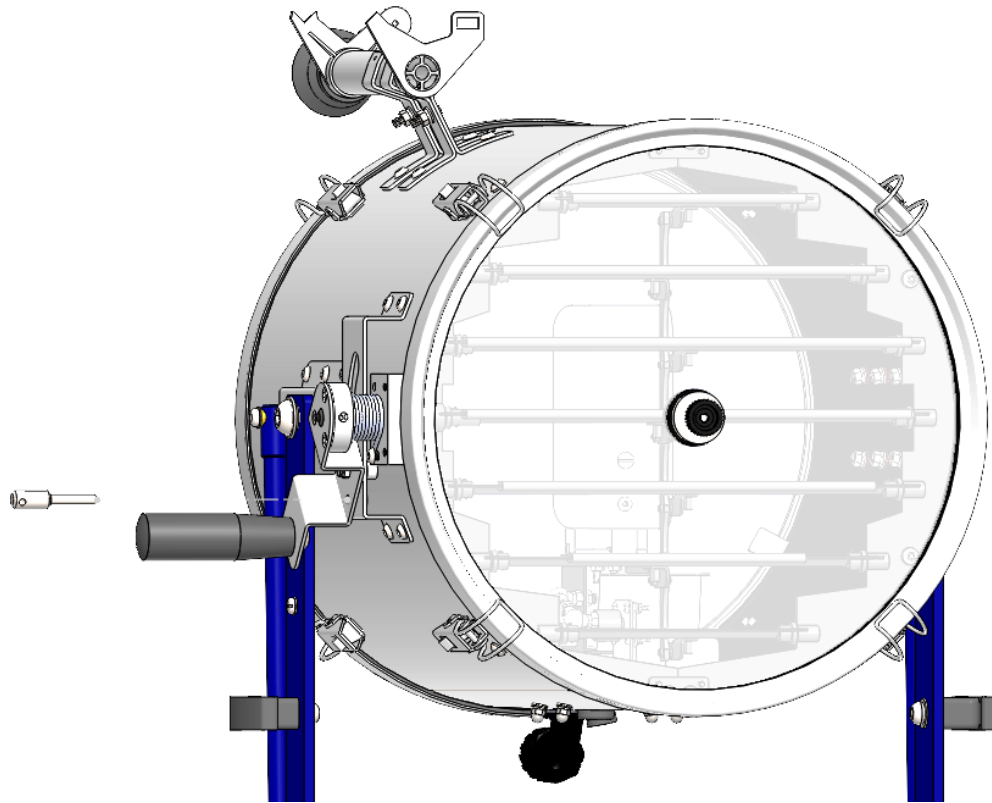
Signalling Mode

To use as a signalling projector, remove the shutter stop pin from the lever guide bracket and clip onto the crutch. All signalling is done manually by operating the signalling handle.

Fitting coloured filers

Unscrew the front glass central plastic thumbwheel, fit the required coloured filter, and re-fit the plastic thumbwheel.

Set Motion Limit (only available when Remote Focus is fitted)

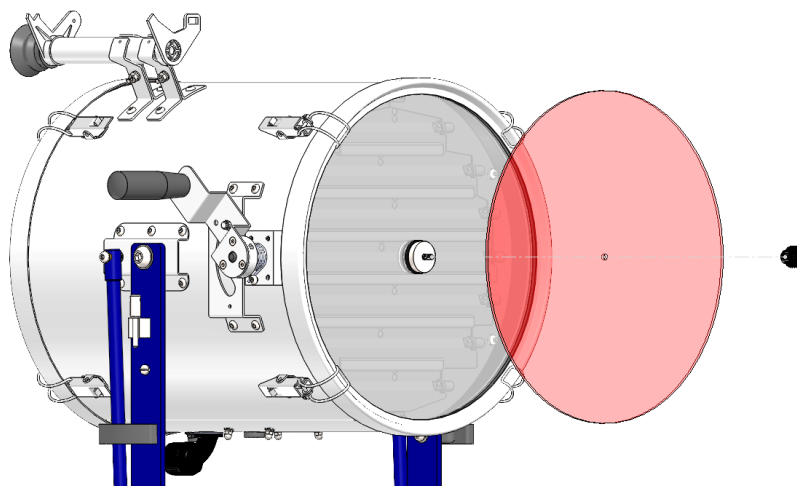The searchlight travel can be limited in either axis or either direction. To set a new limit switch the panel on and move the searchlight to the desired limit position. Switch the panel off then press and hold the focus button whilst moving the joystick full travel in the direction of the desired limit. Hold in this position for 4 seconds. For example, to set a limit to the tilt up motion; -

1.   Switch panel on and drive searchlight to desired tilt up limit position.
2.   Switch panel off.
3.   Press and hold the FOCUS button and hold joystick in the full up position for 4 seconds.
4.   Tilt up motion will now be inhibited above the current position.

Clear Motion Limits

Motion limits as set above can be cleared by switching the panel off then pressing and holding the focus button and lamp buttons together for 10 seconds.

Adjusting Panel Illumination

The panel illumination and indicators intensity can be adjusted to suit ambient light levels. To adjust the intensity, switch the panel on then switch it off with the PANEL button and keep the PANEL button pressed. To increase intensity, move the joystick to the right. To decrease move to the left. Note that the panel button must be kept depressed whilst the joystick is moved. All indicators will illuminate whilst adjustments are performed. Adjustment is complete when the panel button is released.

6.1 - FBUS Data & Panel Addresses

The Francis bus (FBUS) is a custom communication protocol based on RS485 two wire bi-directional communication hardware. The system provides a simple bi-directional link between searchlights and control panels. The system allows given panels to communicate with different searchlights and allows several panels to communicate with the same searchlight.

FBUS Address Switches

Setting Searchlight Address Value

The searchlight address is set using the Dip switches on the Speed Controller PCB located inside the Gearbox Assembly (see drawing C30355). With the address switches using simple binary input.

Each switch has a binary value as details below; -

Dip Switch	Searchlight
10	1
9	2
8	4
7	8
6	16
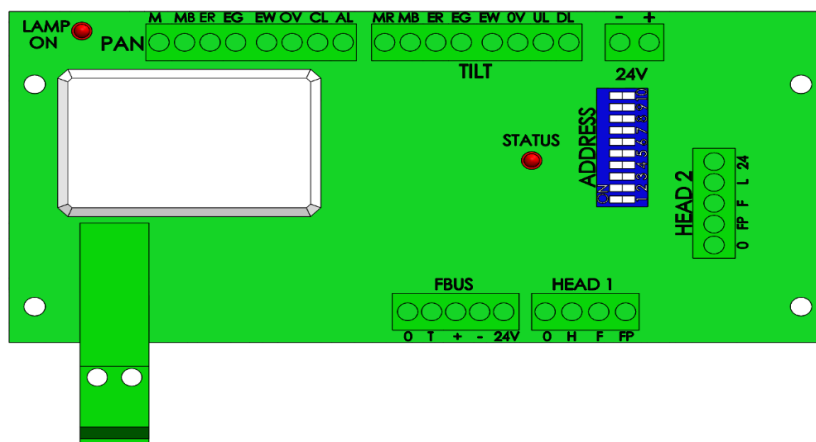
If only 1 Searchlight is used, then all switches will be set to off.

The address value is the sum of the numbers above which are active when the switch is on.

For example, if switches 8 and 10 are on, and all others are off, the address value would be 5.

Note that switches 1-3 are not used for address selection and should be switched off.

Standard Control Panel – Searchlight (Lamp) Address

Dip Switch	Searchlight
1	16
2	8
3	4
4	2
5	1
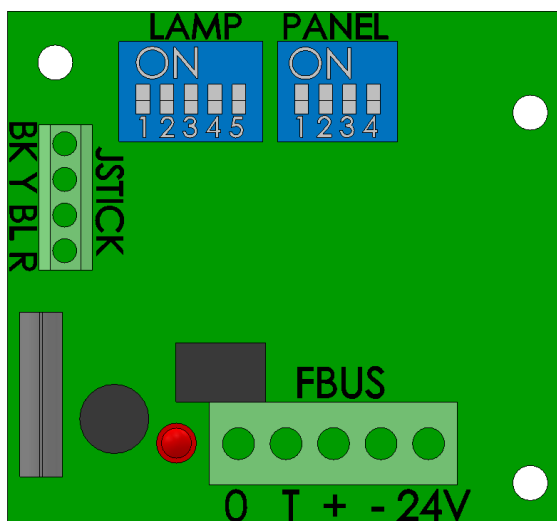
Standard Control Panel – Control Panel Address

Dip Switch	Control Panel
1	8
2	4
3	2
4	1
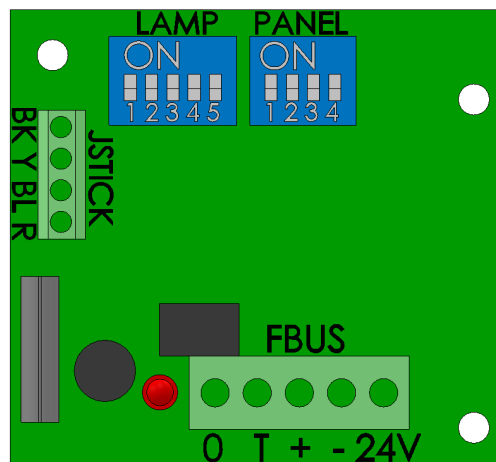
EXAMPLES

Standard control panel – panel address set to 5

Switch 1 = Off

Switch 2 = On (Value 4 added to address)

Switch 3 = Off

Switch 4 = On (Value 1 added to address)

4 + 1 = 5

Speed control card - lamp address set to 11

Switch 6 = Off

Switch 7 = On (Value 8 added to address)

Switch 8 = Off

Switch 9 = On (Value 2 added to address)

Switch 10 = On (Value 1 added to address)

8 + 2 + 1 = 11

ADDRESSING SYSTEM

Every searchlight must have a unique address. The addresses should be sequential and should start from zero. If there were three searchlights in a system the addresses should be set to 0, 1 and 2.

Control panel – panel addresses use the same system being sequential and start from zero.

It is essential that all panels have a unique address with no duplication however note that searchlights and panels can be the same address. For example, on a system with two panels and two searchlights, the panel addresses will be 0 and 1 and the lamps addresses will be 0 and 1.

Control panel lamp addresses are defined by the system configuration. If two panels are used to control the same searchlight, they must still have individual panel addresses, but the lamp addresses can be set to the same address value as the searchlight which is to be controlled. Any number of panels can control the same searchlight.

Multiple Searchlights, Control Panels and Master Control Panel
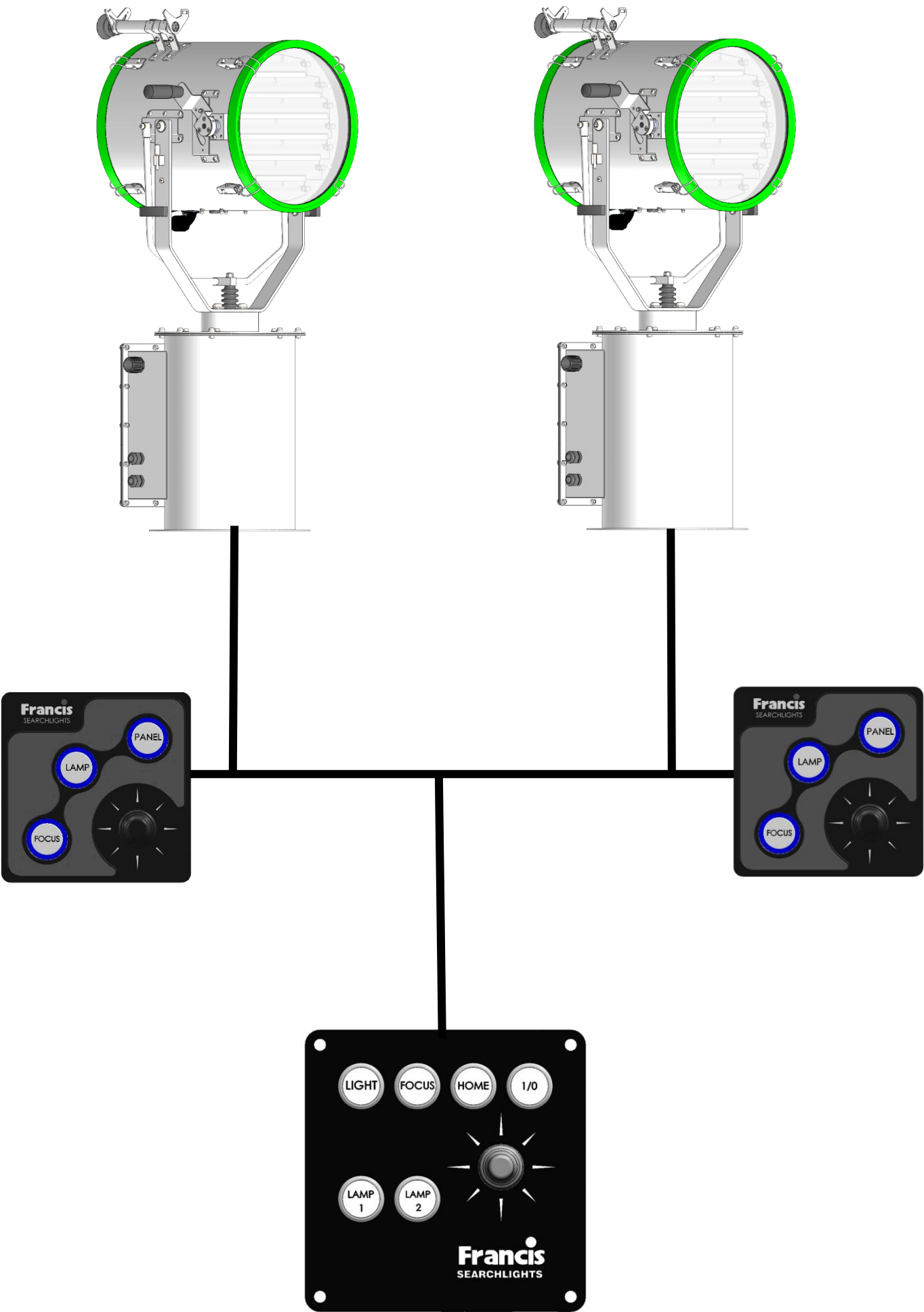
7 – Fault Finding

7.1 Problems at Installation

- If the searchlight completes the Self-Test, e.g., Pan left, Tilts down then returns to centre and the LEDs on the joystick panel are not illuminate, then please check the 4 data cables connections on the FBUS connector located on the back of the control panel assembly, as these data cables could be swapped around, you can check the voltages on the 4 connections, you should get as shown below:

  - 0 & + = 3.9v DC
  - 0 & - = 0.9v DC
  - 24 & 0 = 18-24v DC

- If the searchlight completes the Self-Test, e.g., Pan left, Tilts down then returns to centre and the LEDs on the joystick panel are illuminated, but you are unable to control the searchlight via the control panel, then please check the data + & - connections on the FBUS connector located on the back of the control panel assembly, as these data cables could be swapped around.

- If you have more than 1 searchlight in the installation and 2 or more searchlights are moving at the same time in the same direction, then please check the dip switch settings on the speed controller PCB, see **Setting Searchlight Address Value.**

Failure of LED to light

- Firstly, check supply at lamp holder connecting block (within searchlight barrel). If supply is present, disconnect unit from power supply before removing the LED. If noticeable damage is present, the LED will have failed. The LED can also be checked for continuity using a multi-meter. Replace LED ensuring all precautions and instructions previously outlined in this manual are adhered to.

7.2 - Problems After Installation

Please note, if the searchlight does not complete the self-test, you will not be able to operate the searchlight in any direction or switch the lamp on. Please refer to section **7.3 Obtaining Fault Status** below, to confirm the fault.

Once you have confirmed the fault via the control panel, please contact Francis Searchlights for ordering the required parts, sales@francis.co.uk

If the control panel is not communicating with the searchlight and none of the LED's on the control panel are lighting up, then you will need to access the speed controller PCB inside the gearbox (see drawing C30355), to access the speed controller PCB you will need to remove the 14 off M6 screws that hold the gearbox access panel in place, the speed controller PCB is positioned behind the chassis plate, you can see the Status LED flashing through the hole in the plate.

The Status LED (labelled "STATUS") on the speed controller PCB, shown below.
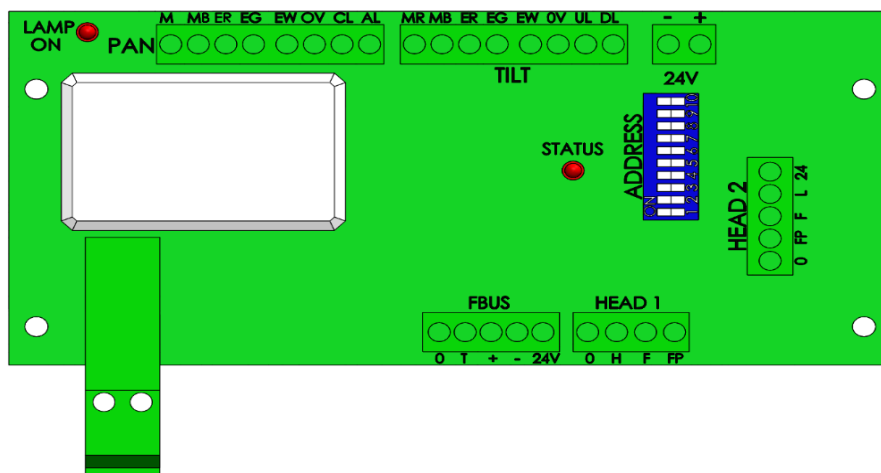
During faults normal status LED operation is overridden. The status LED will flash red several times with the number of flashes corresponding to the specific fault. If there are multiple faults the LED will flash accordingly with a gap between each fault flash sequence. Fault details are provided on the next page, with the number of flashes indicated on the left.

The Status LED has several functions as detailed below.

Software Version

When power is applied to the speed control card the status LED will flash green. The number of flashes corresponds to the software version.

FBUS Normal operation

When the system is operating from FBUS the status LED will illuminate static green. If used with later control panels the status LED will be on most of the time but will briefly go off every few seconds.
When a valid FBUS data signal is received the LED will switch off momentarily to indicate data reception. If data is continuous the LED will flash green slowly.

If the Status LED does not light up, then please check the 24v DC supply from the PSU within the gearbox, as shown on drawing C30355 Item 7, if there is no output from the PSU then this will need to be replaced.

7.3 - Obtaining Fault Status

Fault codes can be accessed, with the control panel switched off, press the PANEL button and keeping the PANEL button pressed for 10 seconds. Fault codes are indicated by the PANEL button flashing several times related to the fault. Fault codes are detailed below. If more than one fault is present the PANEL button will indicate them in sequence.

1. Pan Limit. – Either of the pan limit switches operated. Note that this may not actually be a fault. The LED will flash when a limit switch is operated under normal circumstances i.e., the lamp is at the limit of travel. This will also indicate when a variable limit is reached.

2. Tilt Limit. – Either of the tilt limit switches operated. Note that this may not actually be a fault. The LED will flash when a limit switch is operated under normal circumstances i.e., the lamp is at the limit of travel. This will also indicate when a variable limit is reached.

3. Pan motor trip. – The pan motor is taking excessive current or has a short circuit. The pan motor will be disabled. To reset, press lamp button.

4. Tilt motor trip. – The tilt motor is taking excessive current or has a short circuit. The tilt motor will be disabled. To reset, press lamp button.

5. Focus motor trip. – The focus motor is taking excessive current. The motor will be disabled for a period when this occurs. Fault indication will remain until power is removed or the fault is corrected.

6. FBUS interface over current. – The speed control card supplies 24VDC to the remote-control panels. The supply is protected by a self-resetting PTC fuse. 6 flashes indicate the fuse has tripped.

7. Anti-condensation heater output over current. – The 24VDC anti condensation heater output is taking excessive current. The heater output will switch off. To restore this output, remove the supply from the speed control card for a period.

8. Limit Switch Error. Some lamp types do not use all or some limit switches. If an invalid limit switch input is detected it is probable the speed control card is set to the wrong product or there is a wiring error.

9. Datum Error. The start-up datum system has not completed correctly.

10. Product type not set or corrupt. The product type has not been set, has been set incorrectly or is corrupt.

11. Supply voltage out of tolerance. The 24V supply is outside the range 18-30V.

8 - Maintenance and Servicing

To prolong the service life and performance of your searchlight, the following maintenance guidelines are recommended:

- Maintenance checks should be conducted before every voyage or at least every three months.
- Before checking, disconnect the equipment from the supply.
- Visually inspect the condition of the equipment.
- Any major or minor structural damage should be rectified immediately to reduce sympathetic wear.
- After inspection it may be necessary to clean the inside of the searchlight. The following procedure should be adhered to:
  - Remove the front and rear bezel.
  - Clean the front glass inside and out using a proprietary glass cleaner.
  - Clean the reflector if required.
  - Ensure that the lamp holder is free from corrosion or other damage.
- It is advisable to check all seals and gaskets for signs of degradation. Renew if necessary.
- The searchlight is fitted with a breather unit. This ensures a steady airflow to prevent any vacuum forming within the barrel.
- Upon completing all maintenance requirements, the searchlight should be tested for full working order (approximately 20 minutes).

If in any doubt as to the correct servicing procedures to adopt, please contact your distributor/agent or Francis who will be able to advise the best course of action for your product.

9 - Wiring Diagram & General Assembly

Drawing No:	Description
A7275	FSP300RC 110w LED RF Explorer General Assembly
C27732	Wiring diagram 115/240v
C27312	Joystick Panel Assembly Remote Focus
C30456	Chassis Plate Assembly
C27867	LED Replacement Instructions
C30182	Barrel Assembly 115/240v
C30355	Gearbox Assembly 115/240v

THIRD ANGLE PROJECTION

DO NOT SCALE DRAWING

ITEM	PART No.	DRG No.	DESCRIPTION	QTY
1	C30182	C30182	BARREL ASSY HV	1
2	C30355	C30355	MOTOR UNIT ASSY HV	1
3	C30164	C30164	U-PIECE ASSY	1
4	C30159	C30159	CRUTCH SUB ASSY	1
5	C11295	043 997	SHUTTER STOP PIN ASSY	1
6	C30456	C30456	CHASSIS PLATE ASSY HV	1
7	C20270	C20270	BELLOWS TOP BUSH	1
8	C27546	C27546	U-PIECE BLOCK BUSH	1
9	C10109	X2644	TRUNNION SPACER	2
10	C23329	C23329	U-PIECE BUSH	2
11	C05165	043 996	RETAINING CLIP	1
12	C20281	C20281	BELLOWS	1
13	C28426	C28426	CRUTCH BASE SEAL	1
14	C23281	C23281	M20 CONDUIT GLAND	1
15	C30156	C30156	M20 90° CONDUIT GLAND	1
16	C24710	C24710	M20 SEALING WASHER	1
17	C23280	C23280	M20 CONDUIT	1.1M
18	C10158	C10158	M20 CABLE GLAND	1
19	C27121	C27121	M20 CABLE GLAND	1
20	C20943	C20943	LIFTING HANDLE	2
21	C24645	C24645	M20 CABLE CLEAT	1
22	C21967	C21967	'O' RING	1
23	C13873	C13873	1.5mm S/C CABLE BLACK	2x 2.5M
24	C13872	C13872	1.5mm S/C CABLE RED	3x 2.5M
25	C15112	C15112	1.5mm S/C CABLE G/Y	2.5M
26	C08369	C08369	M12 x 20 BUTTON HD SCREW	4
27	C23746	C23746	M8 x 25 BUTTON HD SCREW	2
28	C24551	C24551	M6 x 40 BUTTON HD SCREW	1
29	C09580	C09580	M6 x 25 BUTTON HD SCREW	1
30	C16335	C16335	M5 x 12 HEX HD SCREW	4
31	C10140	C10140	M5 x 8 PAN HD SCREW	2
32	C08370	C08370	M12 PLAIN WASHER	4
33	C12133	C12133	M12 S/C SPRING WASHER	2
34	C06999	C06999	M8 PLAIN WASHER	3
35	C26994	C26994	M8 PLAIN FORM C WASHER	1
36	C15041	C15041	M8 S/C SPRING WASHER	2
37	C06997	C06997	M6 PLAIN WASHER	5
38	C08392	C08392	M5 PLAIN WASHER	5
39	C09231	C09231	M5 S/C SPRING WASHER	4
40	C12354	C12354	M8 NYLOC NUT	1

(1043)
(908)
(442)
(527)
(Ø320)

IN 2 POSN'S
ALL 3 GLANDS FITTED ON OPPOSITE SIDE

VIEW FROM ABOVE
THE MOTOR UNIT ASSY
SCALE 1:5

BASE FIXINGS
4 HOLES Ø12.50 EQUI-SPACED
ON A 290.00 P.C.D.

DESCRIPTION: FSP300RC 110W LED HV MANUAL SIGNALLING PROJECTOR

PART No./DRG. No.: A7275

DRAWN	D.S.	DATE	5.24	TOLERANCES		Sand Casting: To ISO 8062 CT10	MATERIAL
CHECKED		SCALE	1:4	General: ±		Die Casting: To ISO 8062 CT8	FINISH

Angular: ±
Hole centres & posns: ±
ALL DIMENSIONS IN MILLIMETRES

STANDARD PRACTICE
Deburr all cut/machined edges
Break corners R0.25(Max) U.O.S.

© 2024   A2   CONT ON SHEET   SHT

ISS No	MODIFICATION DETAILS	DATE & INIT'S
1	AS FIRST DRAWN	5.24 D.S.
2	INTEGRATED G/BOX UPDATE. EC2056	6.25 D.S.

FIRST USED ON

WIRING DIAGRAM L300RC 110W LED HV EXPLORER 2025

FRANCIS SEARCHLIGHTS LIMITED . UNION ROAD . BOLTON . BL2 2HJ

Francis SEARCHLIGHTS

THIRD ANGLE PROJECTION

DO NOT SCALE DRAWING

MOTOR GEARBOX

24V PSU
BROWN L
BLUE N
G/Y E
BLACK −
RED +

58W HEATER 240V 0.24A 115V 0.50A
58W HEATER 240V 0.24A 115V 0.50A

HEAD CONNECTOR O H F S
FBUS CONNECTOR O T + − 24

AC IN L N E / AC OUT L N E

DC OUT +V −V / AC IN L N
DC DRIVER

UP DOWN
TILT ENCODER
MR MB ER EG EW OV UL DL
TILT CONNECTOR
TILT MOTOR 24v 3A
RED + BLACK − ORANGE 5V BLUE 'A' YELLOW 'B' BROWN ORANGE BLUE

RIGHT LEFT
PAN ENCODER
MR MB ER EG EW OV CL AL
PAN CONNECTOR
PAN MOTOR 24v 3A
RED + BLACK − ORANGE 5V BLUE 'A' YELLOW 'B' BROWN ORANGE BLUE

RELAY

E E 1(L) 1(L) 2(N) 2(N) HL HL
G/Y G/Y BRN BRN BLU BLU BRN BRN
3A 3A 3A 3A

PAN HEATER (10)
TILT HEATER (9)

3 4 5 6 7 8 0 + − 24
BRN BLK RED RED RED BLK BLK WHI BLK RED
BROWN BLACK RED RED RED BLACK SCREEN WHITE BLACK RED

BLUE

MAINS SUPPLY 115v/230v AC 6A

2 PAIR TWISTED 0.22mm 100 OHM SCREENED PAIRS + & − 0 & 24

JOYSTICK PANEL
PANEL 1 2 3 4
LAMP 1 2 3 4 5
FBUS CONNECTOR O T + − 24
BK Y BL R
RED YELLOW BLUE BLACK

SLAVE PANEL
PANEL 1 2 3 4
LAMP 1 2 3 4 5
FBUS CONNECTOR O T + − 24
BK Y BL R
RED YELLOW BLUE BLACK

SEARCHLIGHT
FAN
LED CREE
FOCUS 24v 0.04A
HEATER 24V 2.5A 60W
BLACK − RED + RED +
BLACK −

M20 CONDUIT

E 8 7 6 5 4

G/Y BLACK RED RED RED BLACK

ISS No	MODIFICATION DETAILS	DATE & INIT'S
1	AS FIRST DRAWN	10.16 D.S.
2	CUT OUT CHAM 6 WAS 9 (EC1778)	8.19 LW
3	'O' RING & NYLON WASHERS ADDED (EC1984)	10.23 D.S.

MKC1823 SR2 ISSUE B

FSL C27268-00

PANEL APBN
ON APBN
1 2 3 4

LAMP APBN
ON APBN
1 2 3 4 5 6

JOYSTICK
BK Y BL R

FBUS

CUT-OUT DETAILS
104.00 HOLE CTRS

106.00 SQUARE

104.00 HOLE CTRS

4 HOLES Ø3.50

CORNERS
6.00 x 45°

(43)

(29)

(120)

(120)

PANEL

LAMP

FOCUS

Francis
SEARCHLIGHTS

NOTES

PLACE 'O' RING OVER THE JOYSTICK REAR
'O' RING IS REQUIRED TO STOP THE JOYSTICK FROM ROTATING

POSITION THE JOYSTICK WITH THE
INDICATOR AT THE TOP AS SHOWN *
& CLAMPING RING NOTCH TO THE RIGHT
DO NOT OVER TIGHTEN THE NUTS.

ITEM	PART No.	DRG No.	DESCRIPTION	QTY
1	C26528	C26528	CONTROL PANEL 3 BUTTON	1
2	C26537	C26537	JOYSTICK	1
3	C27268		CONTROL PANEL INTERFACE	1
4	C27020		SPACER	3
5	C30117		'O' RING	1
6	C08028		M3 PLAIN WASHER	7
7	C15271		M3 NYLON WASHER	3
8	C05298		M3 FULL NUT	7
9	C27435		5 WAY CONNECTOR	1

DRAWN	D.S.	DATE	10.16	TOLERANCES	
CHECKED		SCALE	1:1	General: ±	Angular: ±
	ALL DIMENSIONS IN MILLIMETRES				

Sand Casting: To ISO 8062 CT10
Die Casting: To ISO 8062 CT8
Hole centres & posns: ±

FRANCIS SEARCHLIGHTS LIMITED . UNION ROAD . BOLTON . BL2 2HJ

MATERIAL

FINISH

DESCRIPTION
3 BUTTON CONTROL PANEL ASSY (2017)

STANDARD PRACTICE
Deburr all cut/machined edges
Break corners R0.25(Max) U.O.S.

Francis
SEARCHLIGHTS

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PART No./DRG. No.
C27312

A2 CONT ON SHEET

SHT
1

Parts List

ITEM	PART No.	DRG No.	DESCRIPTION	QTY
1	C30454	C30454	CHASSIS PLATE SUB ASSY	1
2	C30431	C30431	GEARBOX DIN RAIL ASSY	1
3	C27699		DRIVER	1
4	C09895		M5 x 10 BUTTON HD SCREW	2
5	C26955		M4 x 10 HEX HD SCREW	4
6	C08392		M5 PLAIN WASHER	2
7	C09231		M5 S/C SPRING WASHER	2
8	C04376		M4 PLAIN WASHER	4
9	C08793		M4 S/C SPRING WASHER	4

THIRD ANGLE PROJECTION

DO NOT SCALE DRAWING

FIRST USED ON
L300RC
110W HV
A7123

CHASSIS PLATE ASSY

STANDARD PRACTICE
Deburr all cut/machined edges
Break corners R0.25(Max) U.O.S.

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PART No./DRG No.   C30456   SHT 1

ISS No	MODIFICATION DETAILS	DATE & INIT'S
1	AS FIRST DRAWN	4.25 D.S.

DRAWN D.S. DATE 4.25
CHECKED   SCALE 1:1
ALL DIMENSIONS IN MILLIMETRES

TOLERANCES
General: ±
Angular: ±

MATERIAL
Sand Casting: To ISO 8062 CT10
Die Casting: To ISO 8062 CT8
Hole centres & posns: ±

DESCRIPTION

FINISH

0 10 20 30 40 50mm

INPUT
OUTPUT

SEARCHLIGHT – MANUAL FOCUS

FAN

LED
CREE

4	BLACK –
	BLACK –
3	RED +
	RED +

SEARCHLIGHT – REMOTE FOCUS

FAN

LED
CREE

BLACK –
BLACK –
RED +
RED +

E	0
8	0
7	0
6	0
5	0
4	0

FOCUS
24v +
0.04A –

24V –
2.5A +
60W
HEATER

VIEW FROM THE REAR OF THE LED/ADAPTOR
NOTE THE POSITION OF THE LED CABLES

LED ADAPTER

LED CHIP

COOLER SUPPORT

COOLER (HEATSINK)

IN 2 POSN'S

④

②

③

STORE ALL FIXINGS SAFELY FOR RE–ATTACHING

1...RELEASE THE FOUR LATCHES & REMOVE THE REAR BEZEL ASSEMBLY

2...RELEASE THE LED WIRES THAT ARE CONNECTED TO THE TERMINAL BLOCK

3...UNSCREW THE TWO M4 SCREWS THAT HOLD THE COOLER SUPPORT

4...REMOVE THE LED ADAPTER BY UNDOING THE FOUR M3 SCREWS
   THE LED CAN NOW BE REMOVED
   SOMETIMES THE OLD LED MAY HAVE TO BE PRISED OFF THE COOLER
   AS THE THERMAL COMPOUND ACTS AS A ADHESIVE AFTER SEVERAL YEARS USE

5...BEFORE FITTING THE NEW LED ENSURE THE FIXING AREA ON THE COOLER
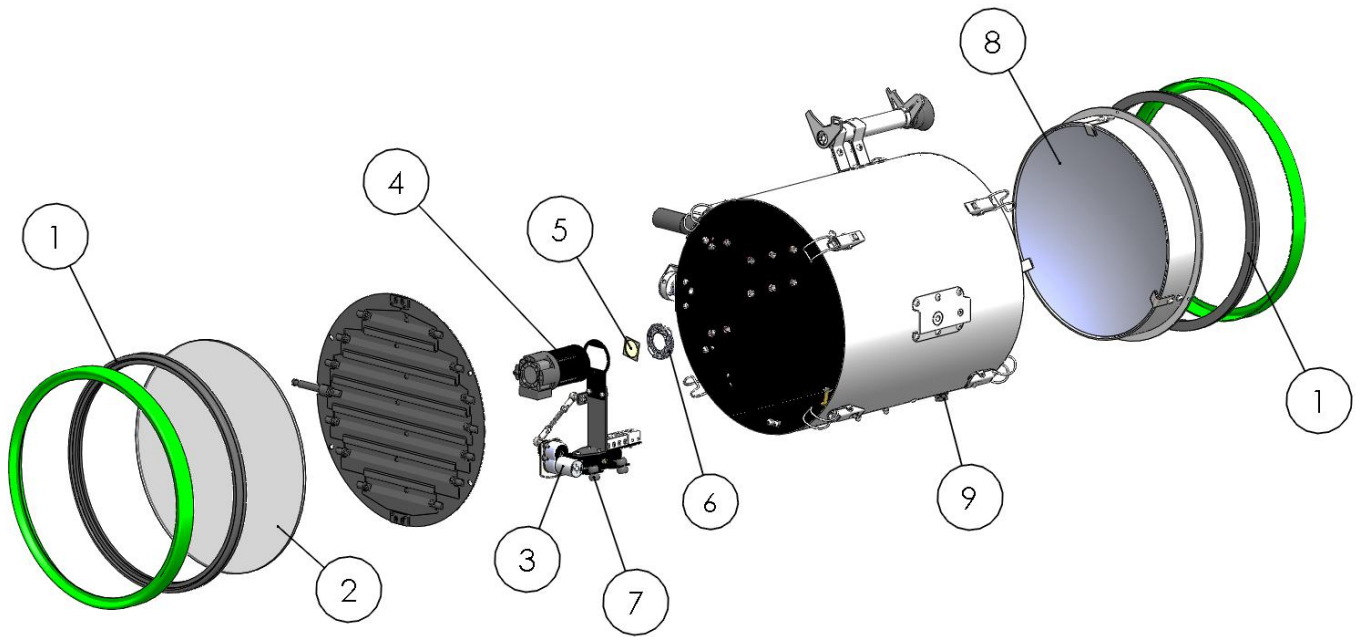   HAS BEEN CLEANED & IS TOTALLY FREE OF DEBRIS

6...APPLY THERMAL COMPOUND TO THE REAR OF THE LED FACE
   BEFORE RE ATTACHING THE NEW LED

7...WHEN FITTING THE NEW LED, MAKE SURE THE LED IS CLIPPED INTO THE ADAPTOR
   BEFORE ATTACHING TO THE HEATSINK (WITH THE CORRECT POLARITY.

8...WHEN FITTING THE NEW LED, MAKE SURE THE LED IS LOCATED IN THE SQUARE CUTOUT IN THE ADAPTOR
   BEFORE ATTACHING TO THE HEATSINK

9...THE NEW LED ADAPTER/LED CAN NOW BE REFITTED TO THE COOLER USING JUST 2 OFF M3 SCREWS AND SPRING WASHERS

10...RE–ATTACH THE COOLER SUPPORT

11...FIT THE LED & HEATSINK CABLES INTO THE TERMINAL BLOCK AS PER WIRING DIAGRAM
   NOTE BOTH THE LED AND HEATSINK CABLES NOW GO TO THE TERMINAL BLOCK

12...RE–FIT THE REAR BEZEL ASSEMBLY

DO NOT SCALE DRAWING

THIRD ANGLE PROJECTION

FIRST USED ON
FSP300
110W LED
A6233–36

ISS No	MODIFICATION DETAILS	DATE & INITS
1	AS FIRST DRAWN	12.21 D.S.
2	VERSION 2 EC1991	11.23 D.S.

C30182 115/240v Barrel Assembly

Item Number	Part Number	Description	Quantity
1	C20567-00	Gasket	2
2	C28953-00	Front Glass	1
3	C28025-01	Focus Motor Assembly	1
4	C27715-01	LED Heatsink	1
5	C27691-01	LED Replacement Kit	1
6	C27713-00	LED Adaptor	1
7	C16761-00	Lamp Holder AV Mount	4
8	C05403-00	Reflector	1
9	C22268-00	Breather Assembly	1

C30355 Gearbox Assembly 115/240v
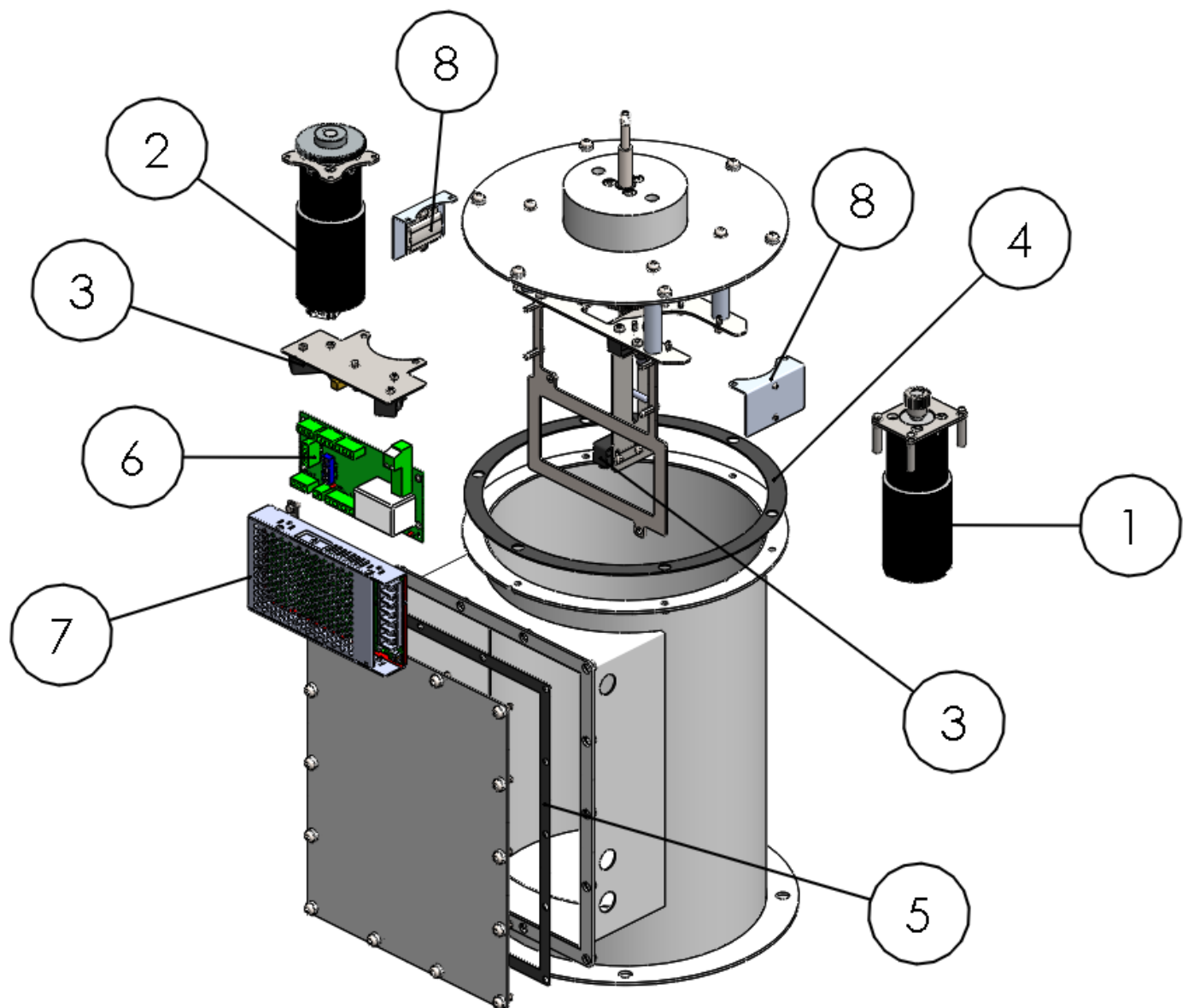
Item Number	Part Number	Description	Quantity
1	C29501-01	Pan Motor Assembly	1
2	C29500-01	Tilt Motor Assembly	1
3	C29275-00	Micro-switch	4
4	C23234-00	Pedestal Sealing Gasket	1
5	C30361-01	Rear Sealing Gasket	1
6	C29535-01	Speed Controller PCB	1
7	C29162-00	PSU	1
8	C23277-00	Heater 115/240v	2

10 - Spare Parts List

The following spare parts can be ordered directly from the manufacturer:

Part Number	Description
Searchlight Spares	
C20567-00	Gasket
C28955-00	Filter Front Glass
C28025-01	Focus Motor Assembly
C27715-01	LED Heatsink
C27691-01	LED Replacement Kit
C27713-00	LED Adaptor
C16761-00	Lamp Holder AV Mount
C05403-00	Reflector
C22268-01	Breather Assembly
C01461-00	Eyepiece
C21657-00	Signalling Handle
C20281-00	Bellows
C28596-00	Red Filter
C28597-00	Green Filter
C28958-00	Blue Filter
C30154-00	Orange Filter
Motor Gearbox Spares	
C29501-01	Pan Motor Assembly
C29500-01	Tilt Motor Assembly
C29275-00	Micro switch
C23234-00	Pedestal Sealing Gasket
C30361-00	Rear Cover Sealing Gasket
C29535-01	Speed Controller PCB
C29162-00	PSU
C23277-00	Heater 115/240v
Joystick Panel Spares	
C26537-01	Joystick
C27268-00	Joystick Controller PCB

To prolong the life and performance of your product, we recommend that you only specify Francis Searchlights spare parts. This will ensure that any warranties on your equipment will not be invalidated.

When ordering spare parts please contact the Sales Department at Francis Searchlights Limited sales@francis.co.uk . Please always quote the searchlight model and serial number, which you can find within the front of the barrel head to the right, on the name plate. This will enable a fast response to your spares' requirements.