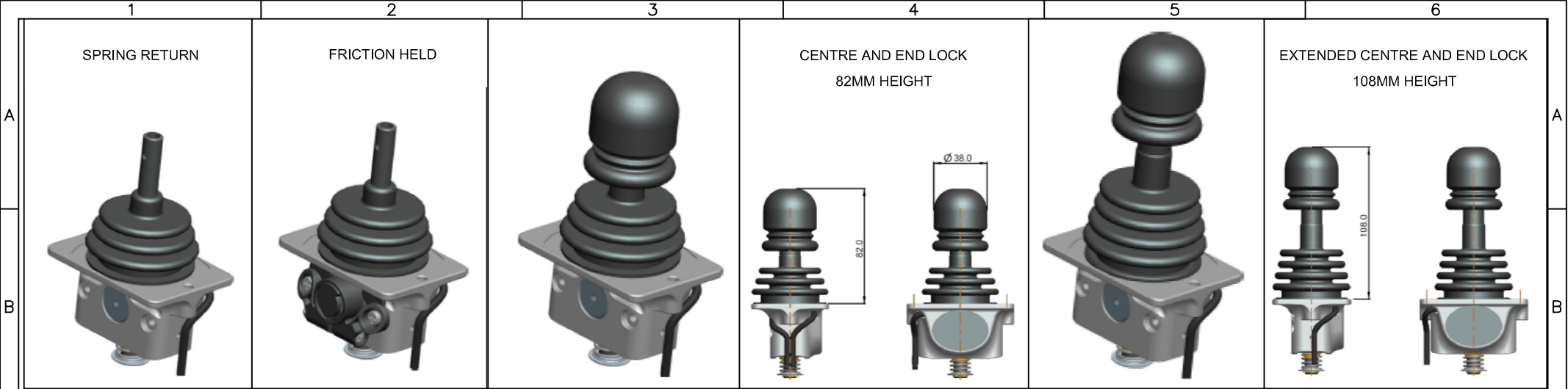


[illegible]

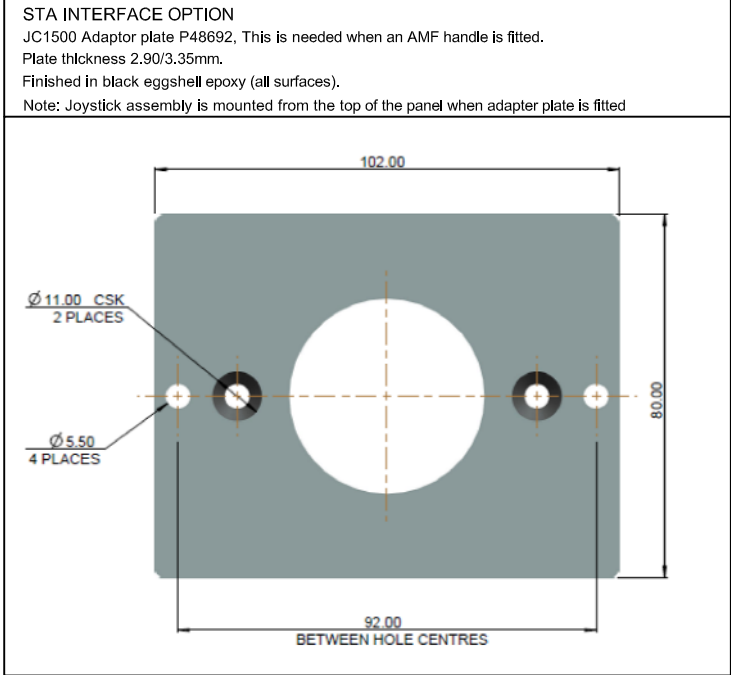
| | | | | | | | | | | | |
|---|--|--|--|---|--|---|--|-----------------|--|-----------|--|
| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | |
| MECHANICAL DATA | | | | | | | | | | | |
| OPERATION (S or F) | | | | | | | | | | | |
| SPRING RETURN | | S | | FRICTION | | F | | | | | |
| SPRING (L, M OR N) | | | | | | | | | | | |
| LIGHT | | L | | MEDIUM | | M | | NO SPRING | | N | |
| Breakout force | | 0.75Nm | | Breakout force | | 1.15Nm | | Breakout force | | 1.50Nm | |
| Operating force | | 1.25Nm | | Operating force | | 1.85Nm | | Operating force | | 1.50Nm | |
| NO SPRING OPTION AVAILABLE ON FRICTION JOYSTICKS ONLY | | | | | | | | | | | |
| Maximum Overload on Axis | | 110Nm | | | | | | | | | |
| Maximum Overload off Axis | | 70Nm | | | | | | | | | |
| Maximum Downward Load | | 1000N | | | | | | | | | |
| Maximum Torque | | 25Nm | | | | | | | | | |
| Mechanical Life (Centre & End Lock, Friction) | | 10 Million (1 Million) | | | | | | | | | |
| The loads required to deflect the joystick are measured 80mm from the joystick pivot point perpendicular to the operating rod, throughout the operating angle, (With no handle fitted). The operating force will be affected by the handle length & type. One cycle is defined as operation from the centre to one extreme and back to centre. The mechanical life is based on a test frequency of 1 Hertz. | | | | | | | | | | | |
| FEATURES (NL, CL, EL, EC, FL, RL, FC, RC) | | | | | | | | | | | |
| NO LOCK | | NL | | Spring Return | | | | | | | |
| CENTRE LOCK | | CL | | Mechanical Lock at Centre | | | | | | | |
| END LOCK | | EL | | Mechanical Lock at both Ends | | | | | | | |
| END LOCK WITH CENTRE LOCK | | EC | | Mechanical Lock at centre and both Ends | | | | | | | |
| FORWARD END LOCK | | FL | | Mechanical Lock In forward direction | | | | | | | |
| REVERSE END LOCK | | RL | | Mechanical Lock In reverse direction | | | | | | | |
| CENTRE AND FORWARD END LOCK | | FC | | Mechanical Lock at centre and forward direction | | | | | | | |
| CENTRE AND REVERSE END LOCK | | RC | | Mechanical Lock at centre and reverse direction | | | | | | | |
| FOR LONGER OPERATING ROD VERSIONS OF THE ABOVE ADD 1 TO THE CODE | | | | | | | | | | | |
| EXAMPLE, CENTRE LOCK WITH LONGER OPERATING ROD = CL1 | | | | | | | | | | | |
| End lock Joysticks are limited to +/-25° travel | | | | | | | | | | | |
| DETENTS (D00 or D01) | | | | | | | | | | | |
| NO DETENT | | D00 | | Used for 0° to 60° travel option (end to end) | | | | | | | |
| CENTRE | | D01 | | Mechanical Detent at Centre | | | | | | | |
| FRICTION HELD ONLY AVAILABLE WITH NO CENTRE DETENT | | | | | | | | | | | |
| HANDLE (NH, NHF, HKN, HB, AMF, MGMF, CL) | | CODE | | HANDLE WIRES | | GAITER OPTION | | | | | |
| NO HANDLE FITTED | | NH | | No Wires | | R or S option | | | | | |
| NO HANDLE FITTED (wires through operating lever) | | NHF | | 28 AWG | | R or S option | | | | | |
| HKN HANDLE FITTED | | HKN | | No Wires | | R or S option | | | | | |
| HB HANDLE RANGE FITTED | | HB* | | 26 AWG | | R or S option | | | | | |
| Refer to HB handle specification for details | | | | | | | | | | | |
| AMF HANDLE RANGE FITTED | | A**** | | 28 AWG | | R option | | | | | |
| Refer to AMF handle specification for details | | | | | | | | | | | |
| MGMF HANDLE RANGE FITTED | | MG** | | 26 AWG | | R or S option | | | | | |
| Refer to MGMF handle specification for details | | | | | | | | | | | |
| PULL COLLAR HANDLE FITTED | | CL | | No Wires | | R option | | | | | |
| CL HANDLE ONLY AVAILABLE WHEN LOCKS HAVE BEEN CHOSEN | | | | | | | | | | | |
| A3 | | Penny + Giles | | METRIC | | NOT TO SCALE: DO NOT SCALE. IF IN DOUBT, ASK. | | | | | |
| ACAD | | @COPYRIGHT RESERVED. | | THIRD ANGLE PROJECTION TO BS 8898 | | CHANGES TO THIS BORDER MUST BE ACTIONED ON SK309927 | | | | | |
| SHT 2 OF 3 SHTS | | THIS DOCUMENT CONTAINS CONFIDENTIAL AND/OR PROPRIETARY INFORMATION AND MAY NOT BE REPRODUCED IN ANY FORM WHATSOEVER. NOR MAY ITS CONTENTS BE DIVULGED TO THIRD PARTIES WITHOUT THE WRITTEN PERMISSION OF THE OWNER. ALL RIGHTS RESERVED. | | | | | | | | | |
| ALL SCREW THREADS TO BS 3643 PT. 2 EXTERNAL CLASS: 6g INTERNAL CLASS: 6H TOLERANCES IN LINE WITH PENNY & GILES STANDARDS 56-301 | | RoHS COMPLIANCE | | TITLE | | SPECIFICATION NUMBER | | | | | |
| YES | | NO | | SINGLE AXIS JOYSTICK | | JC1500-GEN-**** | | | | | |
| 3 | | 06/10/11 | | GC | | RD | | DA | | ECR 14734 | |
| ISSUE | | DATE | | DRAWN | | ENG APPROVAL | | QUAL APPROVAL | | CHANGES | |
| LINEAR (MACHINING) 0. mm +/- 0.5mm 0.0 mm +/- 0.2mm 0.00 mm +/- 0.1mm 0.000 mm +/- 0.01mm | | ANGULAR +/-1° UNLESS OTHERWISE STATED | | | | | | | | | |



| ENVIRONMENTAL DATA | |
|-----------------------------------|-------------------------------------|
| CRITERIA | TESTING STANDARD |
| Sealing (above mounting panel) | DIN 40050-9 rating IP69K |
| Sealing (below mounting panel) | Not Sealed Mechanically Under Panel |
| Sealing (electronics) | DIN 40050-9 rating IP69K |
| Operating Temperature range | BS EN 60068-2-14 (-40°C to +85°C) |
| Storage Temperature range | BS EN 60068-2-1 (-50°C) |
| Storage Temperature range | BS EN 60068-2-2 (+85°C) |
| Temperature \ Humidity | BS EN 60068-2-38 |
| Vibration (Random) | BS EN 60068-2-64 |
| Vibration (Sinusoidal) | BS EN 60068-2-6 |
| Vibration (Shock) | BS EN 60068-2-27 |
| Vibration (Bump) | BS EN 60068-2-29 |
| Salt Spray | BS EN 60068-2-11 |
| Drop Test | BS EN 60068-2-31 |
| ESD | BS EN 61000-4-2 |
| RFI | BS EN 61000-4-3 |
| Fast Transients | BS EN 61000-4-4 |
| Conducted RFI | BS EN 61000-4-6 |
| Power Frequency Magnetic Immunity | BS EN 61000-4-8 |
| Radiated Emissions | BS EN 55022 Class A |

| WIRING DETAILS (dual output, single supply) | | |
|---|--------|-------------------|
| WIRE | COLOUR | FUNCTION |
| 1 | RED | 5V Supply |
| 2 | BLACK | Ground |
| 3 | YELLOW | Joystick Output 1 |
| 4 | WHITE | Joystick Output 2 |
| Sensor wiring looms from Joystick will be 220mm ±10mm Sensor loom is extruded 4 core spec, 55A 24 AWG wires | | |
| Handle wiring looms from Joystick will be 220mm ±10mm See handle options on page 2 for specific wire diameters | | |

| LABELLING DETAIL | | LABEL TO CONTAIN |
|-----------------------|-----------------|-----------------------|
| | | P&G CONTROLS Ltd. U.K |
| Specification Number | JC1500-GEN-**** | |
| | JC1500 JOYSTICK | |
| Serial Number | ***** | |
| Reference | *****MMYYYY | |
| Reference Description | | |
| Job Number | E.g 62854 | |
| Month | MM | |
| Year | YYYY | |



| | | | | | | | | | | | | |
|------------|--|--|--|---|-------|----------|----------------------|--------------|---------------|----------------------|--|--|
| A3 | Penny + Giles ©COPYRIGHT RESERVED. | METRIC NOT TO SCALE: DO NOT SCALE. IF IN DOUBT, ASK. | ALL SCREW THREADS TO BS 3643 PT. 2 EXTERNAL CLASS: 6g INTERNAL CLASS: 6H TOLERANCES IN LINE WITH PENNY & GILES STANDARDS 56-301 | RoHS COMPLIANCE | | | TITLE | | | SPECIFICATION NUMBER | | |
| ACAD | | | | YES | | NO | SINGLE AXIS JOYSTICK | | | JC1500-GEN-**** | | |
| SHT 3 OF 3 | THIS DOCUMENT CONTAINS CONFIDENTIAL AND/OR PROPRIETARY INFORMATION AND MAY NOT BE REPRODUCED IN ANY FORM WHATSOEVER, NOR MAY ITS CONTENTS BE DIVULGED TO THIRD PARTIES WITHOUT THE WRITTEN PERMISSION OF THE OWNER. ALL RIGHTS RESERVED. | THIRD ANGLE PROJECTION TO BS 8888 CHANGES TO THIS BORDER MUST BE ACTIONED ON SK309927 | LINEAR (MACHINING) 0. mm +/- 0.5mm 0.0 mm +/- 0.2mm 0.00 mm +/- 0.1mm 0.000 mm +/- 0.01mm | ANGULAR +/-1° UNLESS OTHERWISE STATED | 3 | 06/10/11 | GC | RD | DA | ECR 14734 | | |
| | | | | | ISSUE | DATE | DRAWN | ENG APPROVAL | QUAL APPROVAL | CHANGES | | |