General specification for Remote Hand Station

1. General

The Remote Hand Station (RHS) shall be suitable for remote connection to an electric actuator up to 100m distance, include local control facilities, a backlit LCD display and terminals for communication highway connection to the host actuator housed within a self-contained, double-sealed enclosure.

In order to maintain the integrity of the enclosure, setting of the actuator torque levels, position limits and configuration of the indication contacts etc. shall be carried out without the removal of any covers via a *Bluetooth*® wireless interface. Sufficient commissioning tools shall be provided with the actuators and must meet the enclosure protection and certification levels of the actuator and remote hand station. Commissioning tools shall not form an integral part of the actuator and must be removable for secure storage / authorised release. In addition, provision shall be made for the protection of configured actuator settings by a means independent of access to the commissioning tool. Provision shall be made to disable *Bluetooth*® communications or only allow a *Bluetooth*® connection initiated by an Infra-Red command for maximum security.

2. Environmental

Remote hand station shall be suitable for indoor and outdoor use. The unit shall be capable of functioning in an ambient temperature ranging from -50°C (-58°F) to 70°C (158°F), up to 100% relative humidity. Actuators for hazardous area applications shall meet the area classification, gas group and surface temperature requirements specified in data sheet.

3. Enclosure

Enclosures shall be O-ring sealed, watertight to IP66/IP68 7m for 72hrs, NEMA 4, 6. The internal electrical elements of the actuator shall be protected from ingress of moisture and dust when the terminal cover is removed for site for cabling, the terminal compartment having the same ingress protection rating as the actuator with the terminal cover removed.

Enclosures must allow for temporary site storage without the need for electrical supply connection.
All external fasteners shall be plated stainless steel. The use of un-plated stainless steel or steel fasteners is not permitted.

4. Local Controls

The RHS shall incorporate local controls for Open, Close and Stop and a Local/Stop/Remote mode selector switch lockable in any one of the following three positions: local control only, stop (no electrical operation), remote control plus local stop only. It shall be possible to select maintained or non-maintained local control.

The local controls shall be arranged so that the direction of valve travel can be reversed without the necessity of stopping the actuator. Provision should be made to enable control arbitration between the RHS and the connected actuator.

The local controls and display shall be rotatable through increments of 90 degrees to suit mounting orientation and access.

5. Power and communication

Power for the RHS shall be provided from the actuator and shall run in the same cable as the interconnecting communication. Independent power is not acceptable.

Communication between the RHS and actuator should be based on a high-speed CAN bus technology.

6. Local Position Indication

The RHS display shall include a dedicated numeric/symbol digital position indicator displaying valve position from fully open to fully close in 0.1% increments. Valve closed and open positions shall be indicated by symbols showing valve position in relation to the pipework to ensure that valve status is clearly interpreted. With power connected, the display shall be backlit to enhance contrast at all ambient light levels and shall be legible from a distance of at least 5m (16ft).

Red, green, and yellow LEDs corresponding to open, closed and intermediate valve positions shall be included on the RHS display when power is switched on. The yellow LED should also be fully programmable for on/off, blinker and fault indication.

The RHS display shall include a fully configurable dot-matrix display element with a minimum pixel resolution of 168 x 132 to display operational, alarm, configuration and graphical datalogger information. The text display shall be selectable between English and other languages such as: Spanish, German, French, and Italian. Provision shall be made to upload a different language without removal of any covers or using specialized tools not provided as standard with the actuator.

Datalogger graphical displays should as a minimum be able to display log and trend graphs on the local LCD for the following:

- Torque versus Position
- Number of Starts versus Position
- Number of starts per hour
- Average temperature

The display shall be capable of indicating 4 different home-screens of the following configuration:

- Position and status
- Position and torque (analogue)
- Position and torque (digital)
- Position and demand (positioning)

Provision shall be made for the addition of an optional environmental cover to protect the display from high levels of UV radiation or abrasive materials.

The local controls and display shall be rotatable through increments of 90 degrees to suit valve and actuator orientation.

Optional vandal-proof cover should be available to prevent un-authorised operation and to protect the LCD and window from damage.

7. Monitoring Facilities

Facilities shall be provided for monitoring actuator operation and availability directly from the RHS.

Actuator datalogger information shall be accessed via non-intrusive *Bluetooth*® communication via the RHS and data displayed on the LCD. Sufficient standard intrinsically safe tools shall be provided for downloading datalogger and actuator configuration files from the actuators and subsequent uploading to a PC. The actuator manufacturer shall supply PC software to enable datalogger files to be viewed and analysed.

8. Wiring and Termination

A terminal compartment shall be provided to enable interconnecting cables to be terminated without the removal of the main electronics cover.

The terminal compartment shall be separated from the inner electrical components of the actuator by means of a watertight seal.

All wiring supplied as part of the RHS to be contained within the main enclosure for physical and environmental protection.

9. Identification

A durable anodised aluminium nameplate shall be affixed to the RHS housing and contain all relevant serial and approval information.