



Office: Rotterdam

Date: 16 September 2014

This certificate is issued to DIAC USA LLC (Dependable Industrial Automation Consultancy USA LLC) in order to certify that the undersigned Surveyor has carried out on DIAC's request a review of report no: DIACUSA-BSMA-2014-061-R1-SIL_BCS_BCX dated August 2014 dealing with Safety Integrity Level, SIL Classification assessment of the following products:

- BSM Actuators and Controls B.V. located in the Netherlands BCS-BCX Pneumatic and Hydraulic Rotary Actuator-SR & DA, Range minimum: BC(*)30-H20-SR1 – maximum BC(*)100-H220-SR4, minimum: BC(*)30-P90-SR1 – maximum BC(*)100-P610-SR4 and are classified per IEC 61508 as type A equipment.

In order to assess compliance with IEC 61508 a performance assessment has been carried out by Dependable Industrial Automation Consultancy USA LLC (DIAC USA) of the BSM BCS-BCX Pneumatic Rotary Actuator SR & DA. This assessment reviews the SIL's up to which the BSM BCS-BCX Pneumatic Rotary Actuator SR & DA within the scope of this assessment can realistic be applied in safety related applications.

The review was based on verifying the compliance with IEC 61508 with regard to the following aspects:

- method used
- consistency throughout the report
- clearness of communication evidence
- justification of evidence & source references

The IEC 61508's first premises is that there is equipment intended to provide a function, there is a system which controls it, and between them they pose a risk. The standard's second premises is that " safety functions" are to be provided to reduce the risk posed by the " Equipment Under Control " (EUC) and it's control system.

Any system which is designated to implement the required safety functions necessary to achieve a safe state for the EUC and which are intended to achieve the necessary safety integrity for the required safety function are classified as safety related systems.

Safety integrity is defined as the likelihood of a safety related system satisfactorily performing the required safety functions under all stated conditions, within a stated period of time and a safety integrity level (SIL) as a discrete level for specifying the safety integrity requirements of the safety functions.

We hereby confirm that the above is reflected in the DIAC report no. DIACUSA-BSMA-2014-061-R1-SIL_BCS_BCX dated August 2014, as a result of the method applied, demonstrated consistency, clearness of communicated evidence and the justification of evidence and source references.

Results are such that the BCS-BCX Pneumatic Rotary Actuator-SR and BCS-BCX Hydraulic Rotary Actuator-SR actuator series are confirmed to be IEC61508 systematic capable to perform at (SC3) SIL-3 in a single configuration and is confirmed to be capable to perform at (SC4) SIL-4 in a Double configuration, taking into account conservative failure data at a half year Proof Test Interval Time for class Naval Unsheltered Unclean Duty services. (one year using selected proven in use high performance associated components).

And results are such that the BCS-BCX Pneumatic Rotary Actuator-SR BCS-BCX Pneumatic/Hydraulic Actuator – Double Acting actuator series series are confirmed to be IEC61508 systematic capable to perform at (SC2) SIL-2 in a single configuration and is confirmed to be capable to perform at (SC3) SIL-3 in a Double configuration, taking into account conservative failure data at a half year Proof Test Interval Time for class Naval Unsheltered Unclean Duty services. (one year using selected proven in use high performance associated components).

Recommendation: 1) It is strongly recommended to closely consult BSM Actuators and Controls B.V. to finalise issues with regard to installation, commissioning, operation, maintenance and safety-related proof testing or any other deployment relevant matter and utilise their knowledge and expertise for demanding applications.
2) It is recommended to update this operational installed base assessment in approximately three years.

Note: This Certificate expires in September 2017



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