## **COMMON ABBREVIATIONS AND ACRONYMS**

AC-alternating current A/D-analog-to-digital AEC-architect, engineer and constructor Al-artificial intelligence ANDF-architecture neutral distribution format ASCI-application specific integrated circuit API-application programming interface ATG-automatic tank gauge BCD-binary coded decimal BPS-bits per second CAD-computer-aided design **CAE**-computer-aided engineering CAM-computer-aided manufacturing CASE-computer-aided software engineering C/C-center-to-center CFC-chlorofluorocarbon **CIE**-computer integrated enterprise CIM-computer integrated manufacturing CIP-clean in place CJC-cold junction compensation CMOS-complementary metal oxide semi-conductor **CNC**-computer numerical control CPU-central processing unit CRC-cyclic redundancy check CRT-cathode ray tube CSA-Canadian Standards Association CT-current transformer D/A-digital-to-analog DAS-data acquisitions system DC-direct current DCE-distributed computing environment DCS-distributed control system DES-discrimination expert system **DIN**–Deutsches Institute fur Normung DMA-direct memory access **DNC**-direct numerical control DOS-disk operating system **DP**-differential pressure DPDT-double pole, double throw **DPM**-digital panel meter DRAM-dynamic random access memory EHL-effective heated length **EMI**-electro magnetic interference EMS-expanded memory specification EPA-enhanced performance architecture EPROM-erasable, programmable read-only memory ERP-enterprise resource planning ES-expert system EVOP-evolutionary operations EWMA-exponentially weighted moving average FCS-field control station

FFT-fast Fourier transform FIA-flow injection analysis FID-flame ionization detector FIP-factory information protocol FMS- flexible manufacturing system FS-full scale FTIR-Fourier transform infrared GC-gas chromatograph GPIB-general purpose interface bus GUI-graphical user interface HCFC-hydrochlorofluorocarbon HPLC-high pressure liquid chromatography HPV-high performance vane HTG-hydrostatic tank gauge IC-integrated circuit I/O-input/output ID- inside diameter I/P-current-to-pneumatic **IR**-infrared IS-intrinsic safety JIT-just-in-time LAN-local area network LC-liquid chromatograph LCD-liquid crystal display LCL-lower control unit LDES-linear discrimination expert system LED-light emitting diode LEL-lower explosive limit LIMS-laboratory information management system LP-linear programming MACT-maximum achievable control technology MAP-manufacturing automation protocol MGO-magnesium oxide MIPS-millions instructions per second **MIS**-management information services MMI-man machine interface MMS-manufacturing message system MTBF-meantime between failures MTTD-mean time to detect MTTF-mean time to fail MODEM-modulating/demodulating module MPCS-manufacturing planning and control software MRP-material requirements planning MRP II-manufacturing resource planning NC-normally closed NC-numerical control NDIR-non-dispersive infrared NIR-near infrared NO-normally open **OCR**-optical character recognition **OD**-outside diameter **OEM**-original equipment manufacturer

OI-operator interface **OOD**-object oriented design **OOP**-object oriented programming OSI-open systems interconnection P&ID-piping and instrumentation diagram PB-proportional band PC-personal computer or programmable controller PD-positive displacement P/I-pneumatic-to-current PI-proportional-integral PID-proportional-integral-derivative PLC-programmable logic controller **PROM**–programmable logic controller PSA-pressure sensitive adhesive PRV-pressure reducing valve PV-process variable or process value QC-quality control R&D-research and development RAM-random access memory RF-radio frequency RFI-radio frequency interference **RH**-relative humidity RMS-root mean square ROM-read-only memory RSS-root sum squared RTD-resistance temperature detector RTU-remote terminal unit RV-relief valve SCADA-supervisory control and data acquisition SCR-silicon controlled rectifier SFC-supercritical fluid chromatography SNA-systems networking architecture SP-set point SPC-statistical process control SPDT-single pole, double throw SQC-statistical quality control SSR-solid state relay SSC-single station controller SV-set point value T/C-thermocouple TCD-thermal conductivity detector THD-total harmonic distortion **TOP**-technical office protocol **TPM**-total predictive maintenance TQC-total quality control TVSS-transient voltage surge suppressor UCL-upper control limit **UPS**-uninterruptible power supply UV-ultraviolet VDT-video display terminal VFD-variable frequency drive VME-virtual memory executive system WAN-wide area network

WIP-work-in-process