

INDUSTRIAL CONTROLS CHEAT SHEET

A quick and dirty guide for many of the names and acronyms that are commonly encountered.

| ACRONYM | FULL NAME | QUICK DEFINITION |
|--------------|--|---|
| ICS | Industrial Control System | General name for control systems |
| SCADA | Supervisory Control And Data Acquisition | Control systems primarily for power grid systems |
| IED | Intelligent Electronic Device | Typically referred to as the simplest block of an ICS |
| TLA | Three Letter Acronym | Quick notation for three-word acronyms |
| FLA | Four Letter Acronym | Quick notation for four-word acronyms |
| PLC | Programmable Logic Controller | Standard process control device |
| PAC | Programmable Automation Controller | Another name for a Programmable Logic Controller |
| RTD | Resistive Thermal Device | Device used for sensing and measuring temperature |
| TC | Thermo-Couple | Device used for sensing and measuring temperature |
| SEL-FM | SEL Fast-Message Protocol | SEL proprietary, self-describing, SCADA protocol |
| MB | Mirrored Bits Protocol | SEL proprietary, high-speed protection protocol |
| DNP | Distributed Network Protocol | Industrial standard SCADA protocol |
| MOD | Modbus | Antiquated industrial standard SCADA protocol |
| IEC | International Electrotechnical Commission | Industrial/Electrical standards organization |
| ANSI | American National Standards Institute | Industrial/Electrical standards organization |
| ASCII | American Standard Code for Information Interchange | |
| TCP/IP | Transmission Control Protocol/Internet Protocol | Component of the conceptual ethernet model |
| ETHERNET I/P | Ethernet Industrial Protocol | Not to be confused with TCP/IP (Internet Protocol) |
| GOOSE | Generic Object-Oriented Substation Events | Peer-to-Peer protocol of the IEC-61850 family |
| RTU | Remote Terminal Unit | Remote I/O device |
| VFD | Variable Frequency Drive | Speed control for an AC motor |
| VSD | Variable Speed Drive | Another name for speed control for an AC motor |
| ASD | Adjustable Speed Drive | Another name for speed control for an AC motor |
| MMS | Manufacturing Message Specification | SCADA protocol of the IEC-61850 family |
| SV | Sampled Values | Analog measurement protocol of the IEC-61850 family |
| CFC | Continuous Function Chart | A block style of logic implementation in IEC-61131 |
| LD | Ladder Diagram | A contact style of logic implementation in IEC-61131 |
| ST | Structured Text | A code style of logic implementation in IEC-61131 |
| HMI | Human Machine Interface | Visual monitoring and control interface |
| DB9 | N/A | D-sub 9-pin serial connector (shaped like a D) |
| RJ45 | N/A | Standard ethernet connector |
| COM-PROC | Communications Processor | An IED that processes and aggregates communication |
| RTAC | Real Time Automation Controller | SEL proprietary com-proc and logic controller |
| TCP | Transmission Control Protocol | Reliable, but verbose, method of ethernet comms |
| UDP | User Datagram Protocol | Simple, but error prone, method of ethernet comms |
| OSI | Open System Interconnection | International standard model for comms among IEDs |
| HTTP(S) | Hyper-Text Transfer Protocol (Secured) | Common format for web-based data exchange |
| SSH | Secure Shell | Encrypted protocol intended for Unix terminal access |
| RX | Receive/Receiver | Channel for accepting data input |
| TX | Transmit/Transmitter | Channel for providing data output |
| BASE-T | N/A | Copper Ethernet Port (RJ45 connector) |
| BASE-FX | N/A | Fiber Ethernet Port (commonly LC connector) |
| PTP | Precise Time Protocol | High-accuracy ethernet-based time protocol |
| SNTP | Simple Network Time Protocol | Moderate-accuracy ethernet-based time protocol |
| SNMP | Simple Network Management Protocol | Ethernet control device management protocol |
| STP | Spanning Tree Protocol | Ethernet failover management protocol |
| RSTP | Rapid Spanning Tree Protocol | Medium speed Ethernet failover management protocol |
| IRIG-B | Inter-Range Instrument Group version B | Serial/Coaxial-Based time distribution protocol |
| SMTP | Simple Mail Transfer Protocol | Email transfer protocol |
| PRP | Parallel Redundancy Protocol | Ethernet redundancy and failover method |
| FTP | File Transfer Protocol | Ethernet-based file transfer protocol |
| SFTP | Secure File Transfer Protocol | Secured ethernet-based file transfer protocol |
| DFR | Digital Fault Recorder | Digital system for recording fault data |
| DDR | Digital Disturbance Recorder | Digital system for trending disturbance data |

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|--------------------|--|---|
| SOE/SER | Sequence Of Events/Sequential Event Recorder | Sequential state change recorder |
| RAS | Remedial Action Scheme | Advanced Protection System |
| POTT | Permissive Overreach Transfer Trip | Communication Assisted Tripping Protection Scheme |
| DTT | Direct Transfer Trip | Communication Assisted Tripping Protection Scheme |
| PT/VT | Potential/Voltage Transformer | Transformer to reduce voltage to measurable range |
| CT | Current Transformer | Transformer to reduce current to measurable range |
| COMTRADE | Common Format for Transient Data Exchange | IEEE standardized oscillography event recording files |
| CEV | Compressed Event Record | SEL standardized oscillography event recording file |
| RB | Remote Bit | Binary/Digital point used to send controls to an IED |
| AI/AO | Analog Input/Output (respectively) | IED discrete inputs and outputs used for analog data |
| BI/BO/DI/DO | Binary/Digital Input/Output (respectively) | IED discrete inputs and outputs used for digital data |
| DTE | Data Terminal Equipment | An end instrument such as a protective relay or RTU |
| DCE | Data Communications Equipment | Communications equipment and pass-through devices |