SOUTHCORP CLEAN AIR SYSTEMS
EXTENDING YOUR CLEAN AIR OPTIONS

GLOSSARY OF TERMS

Term	Explanation
AC	Coupling In electronic circuitry, the use of a capacitor to couple each amplifier stage to the next, so that only the perturbations (AC component) of the signal are carried forward, leaving the mean value (DC component) behind.
Address	A number within a PC, PLC or microprocessor representing the location of certain information or hardware, eg the output value in an emission monitor or a relay output card in a PC. Addresses start from 0, but in the case of Modbus and some other older PLC based addressing schemes, the first digit of the address indicates a logical memory space, and the remaining digits the actual address offset within that logical space, in 16 bit registers, starting with 1.
(Network) Bias	By default, an idle network carries no voltage or current. Because this is an undefined state, it can easily be incorrectly interpreted as a signal, leading to the reception of false messages. Network bias is the deliberate addition of voltage / current to the network so that all receivers see the proper idle state.
Bag Filter	A highly effective device for the removal of particulate matter from a gas stream. Large arrays of vertical tubular fabric filter elements are suspended so that the gas stream passes inwards through the fabric. Periodically, the fabric is pulsed mechanically or by a jet of compressed air, dislodging the particulate matter which has collected on the outside of the fabric, so it falls into a hopper below.
Binary	Literally "two state". The binary number system is based on binary digits ("bits") with only 2 states (0 and 1). Binary or "discrete" devices also have 2 states, generally represented as either "off" and "on" or "0" and "1".
CEM	Continuous Emission Monitor, that is an Emission Monitor which measures continuously (as opposed to periodically sampling).
Comms	Communications, usually as serial data (one bit after another along a single circuit.
Com port	Communication port. On a PC, Com ports are labelled as COM1, COM2 etc.

DC (Direct)	Coupling An arrangement in electronic circuitry which couples every part of a signal between each amplifier stage and the next, including the mean value (DC component). In an Emission Monitor the DC component has been found to s , so that only the perturbations (AC component) of the signal are carried forward, leaving the mean value (DC component) behind.
DCS	Distributed Control System. Essentially a network of high level PLCs configured to work co-operatively.
DDE	Dynamic Data Exchange - a Microsoft standard for the exchange of data between programs running under Microsoft Windows. DDE cannot function outside of Windows, for example on a PLC.
Dynamic Separator	A device with separates particulate matter from a gas stream by inertia. The most common form is a centrifuge or cyclone, in which the gas is forced to flow in a helix, causing the heavier particulate matter to be thrown to the outside where it can be collected.
ElectroStatic	Related to the various effects of static electric charge (ie, opposite charges attract, similar charges repel).
ESP ElectroStatic Precipitator	A device for removing particulate matter from a gas stream. The gas stream passes a series of electrodes which are charged electrically to a high potential. The electrodes attract and collect the dust particles, and are periodically knocked mechanically to dislodge the dust, so it is collected in the hoppers below.
(Particulate) Emission Monitor	An instrument which detects and indicates particulate matter in the effluent gas from an industrial process.
Gas Stream	The moving gaseous stream, often mostly air, in which is which is carried or suspended the particulate matter to be detected.
Hexadecimal	The common decimal number system is based on the number 10. Each of the 10 symbols (0 to 9) represents a digit, which is the coefficient of a power of 10. The decimal number 16 has the same value as the hexadecimal number 10, on which the hexadecimal system is based. It uses the same 10 symbols (0 to 9) plus 6 more (A to F), and is often more convenient when working with computers.
Master - Slave	A common form of networking for industrial control. At any one time there can be only one master, and all network activity takes the form of a command message from the master to a slave, and a reply from the slave to the master. The command may instruct the slave to simply return some information, or to store information in it's own memory, or to perform a task.

Network ID	A unique identifier number assigned to a Network Node, which allows it to be identified by the network master. The master must start each message with the Network ID of the Node to which it wishes to send the message.
Network Node	A device capable of network communications, either a slave device like EMS6 or a master device like a PLC or PC.
Poll	Polling In a typical Master - Slave network, the master periodically polls (interrogates) each slave in turn, extracting any data it needs, and sending any it wants to to the slaves.
RS232	A serial communication standard which uses balanced transmission. RS232 works at relatively low speed and over short distances only. RS232 is an old, poorly performing standard.
RS485	A serial communication standard which uses balanced transmission. RS485 works at relatively high speed and over long distance. RS485 is an old but reliable standard.
PC	Personal Computer, most commonly based on Intel hardware and Microsoft software.
PLC	Programmable Logic Controller. While modern PLCs can control much more than just logic, the acronym is still used. PLCs commonly include serial communications (RS232 or RS485) either to gather data from other PLCs or other slave devices, or to allow themselves to be accessed by other masters.
Protocol	An agreed set of rules which allow two devices to communicate, usually over a comnmon serial communications medium such as RS232 or RS485. Modbus RTU is a protocol.
Purge Air	A periodic high intensity air blast which is introduced expressly to clear away deposits from electrodes and insulators.
SCADA	Supervisory Control And Data Acquisition. This is the general term used for a high level control system. The data acquisition function gathers data from a plant and allows it to be viewed, logged, reported, etc. The supervisory control function allows the operator to control the plant by issuing high level commands to other controllers such as PLCs. Although all are classed as realtime systems, it is the PLCs and DCSs which perform safety interlocks, fast sequencing and closed loop control. The SCADA system supports and performs the management of those controllers.
Spur See Trunk	
(Network) Termination	A resistor connected across each end of an electrical network to avoid reflections, and the resultant data corruption.

Triboelectric	The TRIBOELECTRIC effect is the transfer of electric charge on contact between dissimilar materials by contact (traditionally by rubbing). Because of this effect all airborne dust becomes electrically charged, which enables it to be detected electrically by triboelectric emission monitors.
Trunk	The longest part of a cable network, analagous to the trunk of a tree. From the trunk, relatively short branches or spurs are run out to each device on the network.