lamaPLC Communication: AS-i

Actuator Sensor Interface (**AS-Interface** or **AS-i**) is an industrial networking solution (physical layer, data access method, and protocol) used in PLC, DCS, and PC-based automation systems. It is designed for connecting simple field I/O devices (e.g., binary ON/OFF devices such as actuators, sensors, rotary encoders, analog inputs and outputs, push buttons, and valve position sensors) in discrete manufacturing and process applications using a single two-conductor cable.

AS-Interface is an 'open' technology supported by many automation equipment vendors. The AS-Interface has been an international standard according to IEC 62026-2 since 1999.

AS-Interface is a networking alternative to the hard wiring of field devices. It can be used as a partner network for higher level fieldbus networks such as Profibus, DeviceNet, Interbus and Industrial Ethernet, for whom it offers a low-cost remote I/O solution. It is used in automation applications, including conveyor control, packaging machines, process control valves, bottling plants, electrical distribution systems, airport baggage carousels, elevators, bottling lines, and food production lines.

AS-Interface provides a basis for Functional Safety in machinery safety/emergency stop applications. Safety devices communicating over AS-Interface follow all the normal AS-Interface data rules. AS-International, a member-funded non-profit organization in Gelnhausen/Germany, manages the AS-Interface specification. Several international subsidiaries exist around the world.

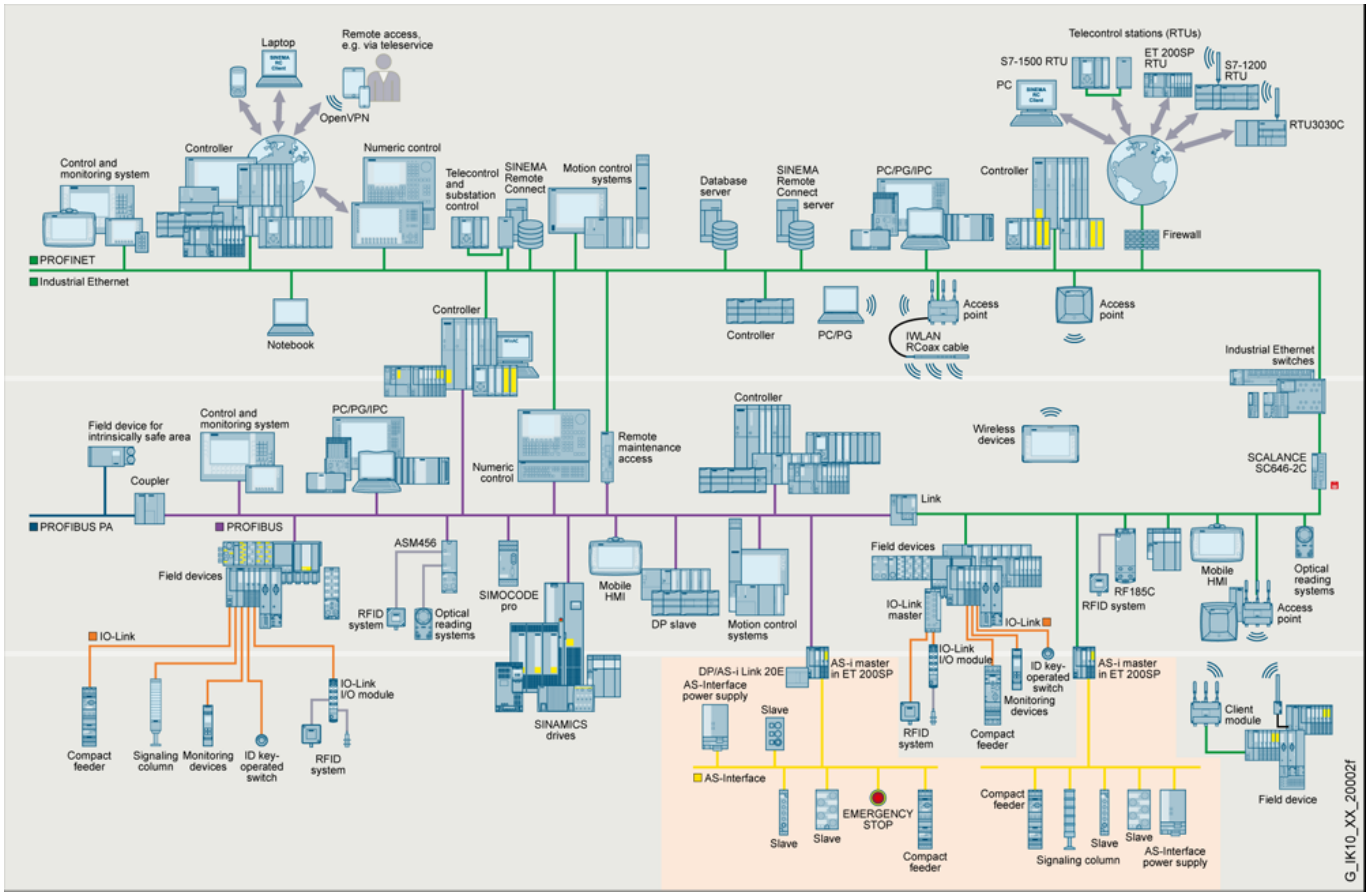
Sources

Wikipedia (here)

AS-i versions

feature	Version 2.0	Version 2.1	Version 3.0
number of slaves	max. 31	max. 62	
I/O number	124 I / 124 O	248 I / 186 O	496 I / 496 O
signals	Data and power supply up to a maximum of 8A (value dependent on power supply unit).		
maximum current consumption	65 mA / participant		
wire	unshielded, untwisted, special 2 x 1.2 mm² wire (more under wires)		
request time per slave	150µs		
maximum cycle time	5 ms	10 ms (with extended addressing, otherwise 5 ms)	
analog value transfer	through a function block	operation integrated into the master	

feature	Version 2.0	Version 2.1	Version 3.0
number of analog values	16 bytes of digital and analog values	124 analog values	
data transfer rate	167 kBit / s, net 53.3 kBit/s (with pauses)		
topology	optional, typically ring, tree, chain or bus.		
type of connection	master / slave (monomaster)		
wire length	100 m per segment, can be extended to a maximum of 300 meters with a maximum of 2 repeater (there can still only be one master in the entire network).		100 m per segment, maximum 600 m.
addressing	with addressing unit or automatic		
coding		Manchester-II / APM	



Sources

Wikipedia (here)

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