INGESYS™ IC2 is a control system aimed at meeting automation requirements in the railway sector (tram, trains, etc.).

Its compact and robust design according to standards EN50155 and EN45545-2 is adapted to the demanding mechanical, environmental and fire protection requirements of the railway sector.

Compact controller according to EN50155 standard

INGESYS™ IC2 is a controller with a modular structure and a wide range of digital and analogue input/output modules that make possible to offer a technical solution suited to each application at an optimum cost.

Two possible architectures are available depending on the application: a compact architecture and a distributed architecture based on standard field buses.

A wide variety of standard communication interfaces used in the railway sector are available, which enables the integration of the controller into the train communications networks commonly used in the railway market.

IEC61131-3 standard compatible user programming tools are provided for application development and testing. A comprehensive functions library (mathematical, regulation, data filling, communications, etc.) and the possibility to incorporate user defined functions to these libraries help the user to optimize the application development.

The integration of a web server allows the user to diagnose and monitor remotely the system easily and flexibly to suit their needs.

Oriented to train subsystems control (HVAC, Toilets, FDS, etc.) and to tram control system.

Benefits

✓ Compact and robust design

✓ Custom-made solution with optimum costs

✓ Compliance to railway standards

Ingeteam

Power Source	
Main Power Supply*	24Vdc (+25% / -30%) Class S1 (EN 50155:2007)
	110Vdc (+25% / -30%) Class S1 (EN 50155:2007)
Maximum Consumption	24V @ 300mA / 110V @ 80mA
Dissipated Power	8W (max.)

Processor Module	
Main Processor	32bit, 400MHz
Memory	Program: 1Mb
	Data: up to 1Mb
	No volatil data: 62Kb
	Registry: 32Mb up to 8Gb
Program	IEC61131-3, specific functions, communication and regulation library
Monitoring and Maintenance	Embedded Web Server
	Local LCD Text Display (optional)
	USB Port for upload / download: firmware, application, data register…
LAN	2 Ethernet 10/100Base TX M12 (internal switch) +1 Ethernet 10/100Base TX M12 (optional)
	Protocols: Modbus TCP/IP, TRDP, Ethernet/IP, CIP, PROFINET I/O, SFTP
Field buses (up to 4 *)	Up to 4 selectable Ports per CPU: CANOpen (Master/Slave), Profibus DP (Slave), RS232/RS485, MVB ESD+, MVB EMD, MVB EMD-R, MVB EMD SNFR
Wireless Interface	3G, 4G and WiFi standard 802.11 a/b/g/n

Input/Output Modules**	
Digital inputs	16 DI (24Vdc @ 3mA) (PNP or NPN)
Digital Outputs	16 DO (HSD 24Vdc @ 500mA) (PNP o NPN)
	8 DO (24VDC @ 2A)
Relay Outputs	3 electromechanical Relay Outputs with switched contacts (150V @ 5A)
Mixed Digital I/Os	8 DI (24Vdc @ 5mA) + 8 DO (HSD 24Vdc @ 500mA)
	12 DI (24Vdc @ 5mA) + 4 DO (HSD 24Vdc @ 500mA)
	4 DI (24Vdc @ 5mA) + 12 DO (HSD 24Vdc @ 500mA)
Analog Inputs	8 AI (±10V or ± 20mA)
	8 AI (PT100, NTC or Thermocouple)
	8 fast synchronous AI, up to 100Ks/s, for (±10V or ± 20mA) or IEPE accelerometers
	1 AI + 4 IEPE inputs + 1 Encoder input
	10 Temperature inputs
Analog Outputs	8 AO (±10V or ± 20mA)
Motor Control	4 DI (24Vdc@ 5mA) + 1 Encoder input + 1 PWM output (up to 12A) H-bridge topology
Audio	2 Audio outputs 2W

Standards	
Immunity and Emission	EN 50121-3-2:2007
Temperature Range	EN 50155:2007 [Class TX (-40ºC at +70ºC)]
Vibrations	EN 50155:2007 [Body Mounted, Class B] / IEC 61373:2007
Fire protection	EN 45545-2

Mechanical Features	
Assembly	Panel Mount
Material	Aluminium
Dimensions (W x H x D)	(149mm to 524mm)*** x 135mm x 34.6mm

*   Optional   ** A combination of up to 10 modules   *** Depending on the number of I/O modules selected, each with a width of 37.5 mm.