

## Introduction

The IMP unit has been developed to cover the three control functions of Programmable Logic Controller (PLC), motion controller and communication converter (gateway). By means of the programmable logic controller and motion controller functions, the user can control a process through the fieldbus, serial interface and the inputs/outputs, using his own program. The communication converter function enables the data exchange between different field buses: Modbus TCP/IP, CANBus (Canopen), Profinet, EtherCAT and Modbus-RTU. The coexistence of the three functions in a single unit, simplify the automation of a wide range of industrial applications in a simple way, offering an important economic advantage.

## Specifications

### POWER SUPPLY

24 Vdc - 500 mA max (nominal range 19-30 Vdc)

### CPU PROCESSOR

ARM® CORTEX®-M7 32-bit MCU

### PLC AND MOTION CONTROL PROGRAMMING

TR.I.P.O.S.GW compatible with Windows OS (EN61131-3 ST)

### MEMORY USER PROGRAM

1024K FLASH and 512K SRAM

### CANBUS INTERFACE

up 2 electrically isolated, 1 Mbit/s, ISO11898

### ETHERNET INTERFACE

1 Modbus TCP/IP 100BASE-TX port

### MULTIPROTOCOL INTERFACE

1 port (see versions table)

### MODBUS-RTU SERIAL INTERFACES

1 RS485

### INPUTS

8 electrically isolated, 5÷24 Vdc - PNP

### OUTPUTS

8 protected and electrically isolated, 24 Vdc - PNP

### DIP SWITCHES

8 for user configuration

### DISPLAY

7 segment leds display indicating the unit operational status

### WORKING TEMPERATURE

5 ÷ 40 ° C

### PROTECTION DEGREE

IP20

## Real-time programmable motion control device for multi-axes systems and advanced solutions



# IMP

## Gateway, PLC and Motion Controller

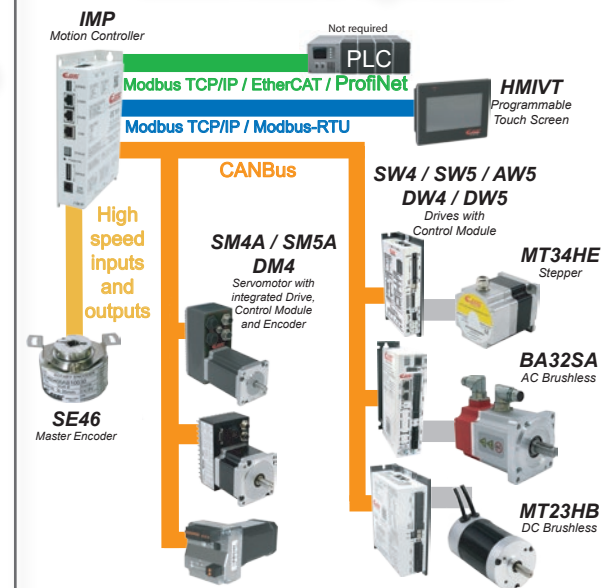
- ✓ Easy programmable
- ✓ Local control of connected devices
- ✓ Execution speed and real-time axes management
- ✓ Data exchange between field buses (Modbus TCP/IP --> EtherCAT - Profinet - Ethernet/IP - PowerLink ----> CANbus)



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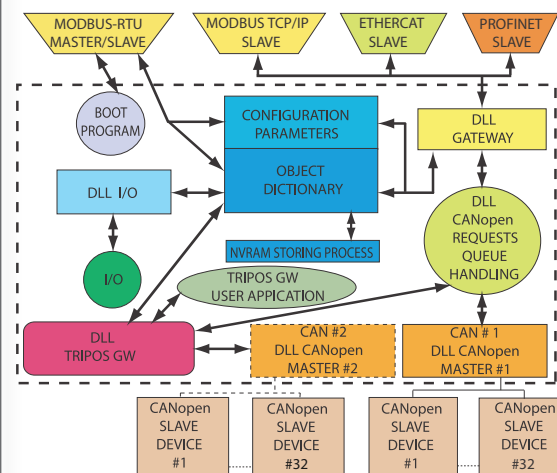
## Multi-Axes Systems



Thanks to the T.R.I.P.O.S.GW programming environment it's possible to personalize the machine cycle and to manage all drives and local resources, diminishing and simplifying the work load of the master PLC if present.

## Block Diagram

Functional schedule of the firmware and system resources.



## TR.I.P.O.S.GW

```

TR.I.P.O.S. for Windows - G:\TRIPPOS\Example\Example1.scp
File Edit Tools Help
-----
Example of TR.I.P.O.S. language program V1.1
Release 1.1 04-03-00 Requires TRIPDS Compiler V1.06 or greater.
Always use HOME S.M.C.

COMMENT 'This is the user comment to the program:'
-----
***** VARIABLE DEFINITION *****
-----
VAR
VAR_D : DINT := -1000; (* Starting value = -1000 *)
VAR_S : DINT := 5; (* Starting value = 5 *)
VAR_F : DINT := 10; (* Starting value = 10 Hz *)
VAR_R : REAL := 1.02; (* Starting value = 1.02 *)
END_VAR
-----
***** CONSTANT DEFINITION *****
-----
VAR CONSTANT
CONST : DINT := 75000; (* This is a integer constant *)
END_CONST
-----
1 1 Front 12/05/09 10:08:46
  
```

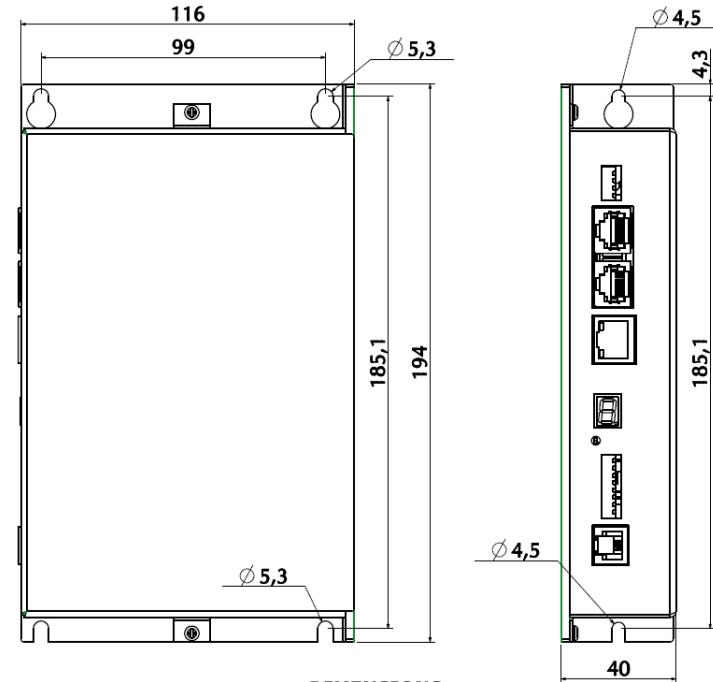
High-level structured language in compliance with the IEC1131-E (ST) standards allowing a wide access to the hardware resources by means of the IMP being open to extensions of the user functions with protection.



- Motion Control Functions**
- Refreshing Time of 1 ms;
  - Management CAMs;
  - Calculation variables with real/integer numbers;
  - Trigonometry (cos, sin, log, tan, sqrt, ...);
- Other Functions**
- Saving data on nvram battery
  - Real-time internal clock (date, hour, minutes, seconds);

- PLC Functions**
- Instructions user program written in structured text;
  - Logics / Boolean (and, or, not, neg, com, shl, shr, xor, ...);
  - Comparison (if ... then ... else);
  - Loop (while ... do ... end\_while, for ... do ... end\_for);
  - Management subroutines (call, ret)
  - Management interrupts (define\_int, int, int\_var, ret\_int)
  - Management errors (on\_error, resume)
  - System multitasking owner (up to 64 tasks)
- Gateway Functions**
- CANopen (read\_obj, write\_obj, read\_sdo, write\_sdo, send\_pdo);
  - ProfiNet (write\_profi\_out, read\_profi\_in);
  - Modbus (master-slave RTU);
  - EtherCAT;
  - Modbus TCP/IP;
- TR.I.P.O.S.GW is available on 5 different licence levels depending on the need and the dimensions of the generated and compiled program:
- The DEMO licence can be used for programs with a maximum dimension of 8 KB;
  - The LIGHT licence can be used for programs with a maximum dimension of 32 KB;
  - The BASIC licence can be used for programs with a maximum dimension of 64 KB;
  - The ADVANCED licence can be used for programs with a maximum dimension of 128 KB;
  - The FULL licence has no limits regarding the dimension of the generated program (256 KB is the limit determined by the hardware characteristics).

## Mechanical Data



**DIMENSIONS**  
194 x 116 x 40 mm

## Ordering Information for the IMP controllers

Ordering code				System Resources									
Versions	Configuration	Connector kit	Software kit	Power supply	Fieldbus / Interface						Digital Inputs	Digital Outputs	Dip Switches
					CAN1	CAN2	Ethernet	Serial	Industrial Ethernet Multiprotocol				
IMPW1100	c1000	IMPWKIT-CO	IMP_SERV10_TRP	24Vdc (500 mA max.)	1	1	1 Modbus TCP/IP 100 BASE-TX	1 Modbus-RTU RS485	---		8	8	8
IMPW11x1	c1000				1	1			x-->H = EtherCAT x-->T = Profinet x-->R = PowerLink x-->I = Ethernet/IP				