ASA-RT s.r.l.

Strada del Lionetto 16/a, 10146 Torino, ITALY
Tel +39 011 796333 - FAX +39 011 712339
E-Mail: info@asa-rt.com http:// www.asa-rt.com

Universal programmable control unit for load cells and positioning

ARP

Datasheet ARP / 03 / 2

ARP / T: with built-in terminal

- Built-in terminal TR5
- Embedded panel mounting
- Rear connections
- Dimensions: 192x96x140p (mm)
  connectors not included
- Embedding window 186x90mm

ARP: without terminal

- For mounting inside the cabinet
- Frontal connections
- Dimensions: 218x90x135p (mm)
  connectors not included
- Fixing: 4 holes d=4,5mm on rectangle 206x70mm
- Terminal to be connected on the CAN fieldbus link

TR4: terminal for ARP

- Graphic display 240 x 64 dots with backlight
- Membrane keyboard,
  with numeric keys and function keys
- CAN-bus connection
- Power supply 24Vcc/±10%

TR5: terminal for ARP

- Graphic display 128 x 64 dots with backlight
- Membrane keyboard,
  with numeric keys and function keys
- CAN-bus connection
- Power supply 24Vcc/±10%

HARDWARE TECHNICAL DATA

- Power supply 24Vdc/±10%
- 40 MIPS DSP processor, with 64 K flash-eprom on-chip memory.
- N. 2 interfaces for load cell with sense wires completely independent - 24 bits converter
  - bridge power supply: 5Vdc / 60mA total for all load cells - programmable sampling frequency.
- N. 2 analog inputs ±10V or 4-20 mA, with 16 bits resolution *(to be defined when ordering)* .
- N. 2 analog inputs 10V, with 10 bits resolution
- N. 2 analog outputs ±10V, or 4-20mA (only one) *(to be defined when ordering).*
- N. 2 interfaces for 5V RS422 incremental encoder, channels A and B
- N. 8 digital inputs 24Vdc (active high).
- N. 4 digital outputs 24Vdc/0,1A (active high)
- RS232 serial line for connection to the programming PC
- CAN-bus master interface for the operating terminal and the I/O expansion modules (CANOpen DS 301).
- Aluminium case suitable to be placed inside the cabinet or for panel mounting

SOFTWARE TECHNICAL DATA

**ARP, a freely programmable unit for the tension control with feedback from load cells.
It can manage position control for two axis, and has an autonomous capacity to operate and to manage the machine cycle.**

The ARP unit needs to be programmed with an application program, to be developed in a simple basic-like language; the developement and test of this program can be done with the WinAxis interface by ASA-RT (always supplied with the unit), and a PC connected through an RS232 serial line. WinAxis permits to write the application program in its internal editor, compile it to generate the executable code, send it to the ARP through the serial line, and then test the application with the help of several debug window.

The application program is stored in the internal eeprom memory, and it is executed in realtime with high speed. It can operate through symbolic names with variables, flags, analogue and digital I/Os, and manage all the resources connected to the unit; several mathematichal capabilities are also available for application calculations.

Resources for the user program
- 1000 permanent variables (32 bit words) - ± 6.3 integer format (ex. 999999.99)
- 256 volatile bit flags (8 word x 32 bits each)
- 6 timers with time reading and automatic flags management
- 6 electric cams for automatic managing of outputs according to an encoder position
- 6 functions in interrupt of the main program
- Symbolic identifiers for variables, digital I/O, program line
- Program organization instructions: goto, call, if

Bit manage istructions (input, output, flag)
- Reading - writing of digital I/O
- Assignment: set, res
- Logic functions: and, or, xor, not

Variable manage istructions
- Assignment: ==, +=, -=, *=, /=
- Logic and arithmetical operations: +, -, *, /, and, or xor
- Trigonometric operations: sen(x), cos(x)
- More: square root, integer part, remainder, left shift, right shift
- Indexed variables capabilities (variable pointers)

Analogue I/O instructions
- Read of an analogue input or of a load cell input
- Write of an analogue output

Motion instructions
- Operation in engineering units (mm, degrees, etc.)
- Setting of maximum speed and acceleration
- Absolute and relative positioning
- Table-defined Master -Slave electronic gearing,
  with automatic continuos variation in position and speed among different portions (20 couples of points)
- Immediate stop of an axis in a controlled ramp according to the set deceleration

Regolation instructions
- PID regulation function with feedback from the load cell or from an analog input,
  specific for applications on linear tension regulators or on winding and unwinding machines

Terminal managing instructions
- Message setting
- Message viewing

Expansion on CAN fieldbus
- Managing digital I/O modules CANOpen DS301