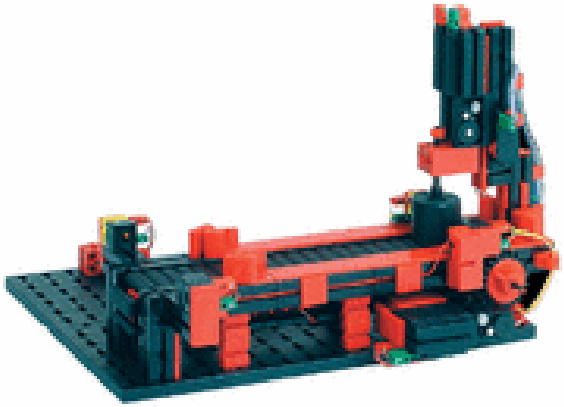
SRT100 & SRT100-DAI

BURTON Electro Technical Inc.

Specifications & Options

SRT100

Programmable trainer unit
Computer technology integration with professional grade free software
Digital logic, ladder logic and SFC functions
Analog programming functions
Schematic reading and wiring exercises
AutoCad Electrical integration with supplied templates
Interface with Fischertechnik training modules (8 input 4 output models)



SRT100 Detailed Specifications

- Programmable smart relay controller unit with LCD, clock function, 8 inputs, 4 configurable analog inputs and 4 front panel buttons, and 4 relay contact outputs.
- CLASS II CSA compliant 24VDC external power supply.
- Industrial grade input and output devices.
- Interconnection lead set RHOS compliant.
- Programming interface cable to connect to PC via USB.
- Field device circuit protection (thermal magnetic trip resettable).
- Ladder logic, digital function block, sequential function chart, free programming software included.
- Solar tracking and astro time clock function (function block only).
- Fully enclosed desktop heavy duty metal housing.
- Protected logic level devices (they cannot be damaged from accidental short circuits).
- Multi level training workbooks and solution labs available.

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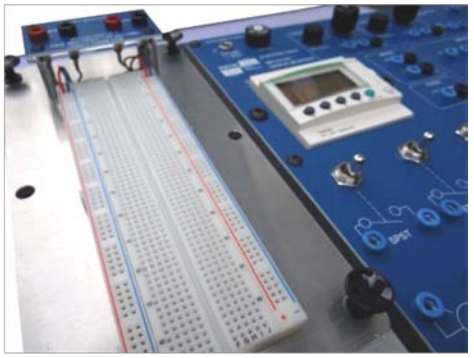
SRT100-DAI Specifications & Options

Programmable trainer unit with optional module expansion bay
GSM communications add on module available
Self powered circuit experimenter add on module available
Computer technology integration with professional grade free software
Digital logic, ladder logic and SFC functions
Analog programming and device integration with on board 10 VDC power supply
AutoCad Electrical integration with supplied templates
Integrate to Fischertechnik training modules (8 input 4 output models)

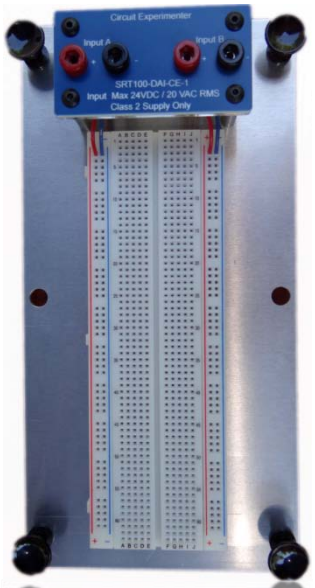


The SRT100-DAI incorporates a side bar expansion module bay. We can custom design add on modules to accommodate customer requests for specific training requirements.

SRT100-DAI shown with “GSM/SMS Remote Monitoring Interface Trainer” add on module

GSM / SMS Trainer add on module

Circuit experimenter add on module



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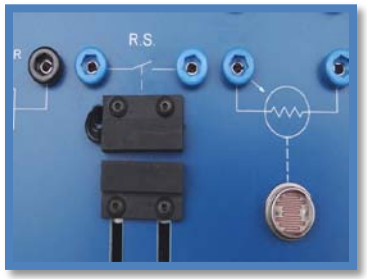
Built in protective features that facilitate trouble free instructing…

External class 2 power supply, safe for students and equipment. The power supply will automatically shut down if short circuited. The on board circuit protection device will trip if a sustained overload occurs.

The potentiometer wiper leads are fused. If the wiper is connected across the power supply it will be protected.

The logic level devices are protected by a current limiting resistor. If they are accidently shorted across the supply, they will not be damaged.



SRT100-DAI Detailed Specifications

- Digital, analog and binary function programmable smart relay controller unit with LCD, clock function, 8 inputs, 4 configurable analog inputs and 4 front panel buttons, and 4 relay contact outputs.
- CLASS II CSA compliant 24VDC external power supply.
- 10VDC supply for on board analog input devices.
- Two heavy duty potentiometers with fused wiper lead.
- One heavy duty 16 position binary encoded switch.
- One 3 position selector switch.
- Industrial grade input and output devices.
- Interconnection lead set RHOS compliant.
- Programming interface cable to connect to PC via USB.
- Field device circuit protection (thermal magnetic trip resettable)
- Ladder logic, digital function block, sequential function chart, free programming software included.
- Solar tracking and astro time clock function (function block only).
- Fully enclosed desktop heavy duty metal housing with side bar expansion bay.
- Protected logic level devices (they cannot be damaged from accidental short circuits).

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The SRT100 & SRT100 DAI powerful function block programming elements

Function block diagram language (FBD / Grafcet SFC / Logic functions) *(1)*

Definition

FBD language allows graphical programming based on the use of predefined function blocks; it provides the use of:

- 34 pre-programmed functions for counting, time delay, timing, definition of switching threshold, (for example: temperature regulation), generation of impulses, time programming, multiplexing, display,
- 7 SFC functions,
- 6 logic functions.

Pre-programmed functions

Zelio Logic smart relays provide a high processing capacity, up to 200 function blocks, including 34 pre-programmed functions:

TIMER AC

Timer. Function A/C
(ON-delay and OFF-delay)

TIMER BH

Timer. Function BH.
(adjustable pulsed signal)

TIMER Li

Pulse generator
(ON-delay, OFF-delay)

TIMER BW

Timer. Function BW
(pulse on rising/falling edge)

TIMER AC

Timer. Function A/C with
external preset adjustment
(ON-delay and OFF-delay)

TIMER BH

Timer. Function BH with
external preset adjustment
(adjustable pulsed signal)

TIMER Li

Pulse generator with
external preset adjustment
(ON-delay, OFF-delay)

BISTABLE

Impulse relay function

SET- RESET

Bistable latching
- Priority assigned either to
SET or RESET function

BOOLEAN

Allows logic equations to be
created between connected
inputs

CAM

Cam programmer

PRESET COUNT

Up/down counter

UP DOWN COUNT

Up/down counter
with external preset

PRESET H-METER

Hour counter
(hour, minute preset)

TIME PROG

Time programmer,
weekly and annual.

GAIN

Allows conversion of an
analogue value by
change of scale and offset.

TRIGGER

Defines an activation zone with
hysteresis

MUX

Multiplexing functions
on 2 analogue values

COMP IN ZONE

Zone comparison
(Min. ⩽ Value ⩽ Max.)

ADD/SUB

Add and/or subtract function

MUL/DIV

Multiply and/or divide function

TEXT

Display of 4 pieces of data:
digital, analogue, date,
time, messages for
Human-Machine interface.

DISPLAY

Display of digital and analogue
data, date, time, messages for
Human-Machine interface.

COM

Sending of messages
with communication interface
(see page 32)

COMPARE

Comparison of 2 analogue
values using the operands
=, >, <, ⩽, ⩾.

STATUS

Access to smart relay status

ARCHIVE

Storage of 2 values
simultaneously

SPEED COUNT

Fast counting up to 1 kHz

CAN

Analog/digital converter

CNA

Digital/analogue converter

SL In

Input of a word via serial link

SL Out

Output of a word
via serial link

SUNTRACK

Follows the sun's position

SUNRISE/SUNSET

Outputs the sunrise and
sunset times

SFC functions *(2)* (GRAFCET)

RESET-INIT

Reinitialisable step

INIT STEP

Initial step

STEP

SFC step

DIV-OR 2

Divergence to OR

CONV-OR 2

Convergence to OR

DIV-AND 2

Divergence to AND

CONV-AND 2

Convergence to AND

Logic functions

AND

AND function

OR

OR function

NAND

NOT AND function

NOR

NOT OR function

XOR

Exclusive OR function

NOT

NOT function

(1) Function Block Diagram
(2) Sequential Function Chart.

The SRT100 & SRT100-DAI ladder language functions

LADDER language

Definition


Text function block


Timer


Up/down counter


Fast counter


Analogue comparator


Clock


Control relay


Counter comparator


LCD backlighting


Summer/Winter time switching


Output coil


Message

LADDER language enables a LADDER program to be written with elementary functions, elementary function blocks and derived function blocks, as well as with contacts, coils and variables.
The contacts, coils and variables can be annotated. Text can be placed freely within the graphic.

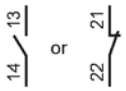
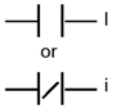
■ **Control scheme input modes**

"Zelio input" mode enables users who have directly programmed the Zelio Logic smart relay to find the same user interface, even when using the software for the first time.
"Free input" mode, which is more intuitive, is very user-friendly and incorporates many additional features.
With LADDER programming language, two alternative types of symbol can be used:
□ LADDER symbols,
□ electrical symbols.
"Free input" mode also allows the creation of mnemonics and notes associated with each line of the program.
Instant switching from one input mode to the other is possible at any time, by simply clicking the mouse.
Up to 120 control scheme lines can be programmed, with 5 contacts and 1 coil per program line

■ **Functions:**

□ 16 Text function blocks,
□ 16 time delay function blocks; parameters of 11 different types can be set for each of these (1/10th second to 9999 hours),
□ 16 up/down counter function blocks from 0 to 32767,
□ 1 fast counter (1 kHz),
□ 16 analogue comparator function blocks,
□ 8 clock function blocks, each with 4 channels,
□ 28 control relays,
□ 8 counter comparators,
□ LCD screen with programmable backlighting,
□ automatic Summer/Winter time switching,
□ variety of functions: coil, latching (Set/Reset), impulse relay, contactor,
□ 28 message blocks (with communication interface, see page 32).

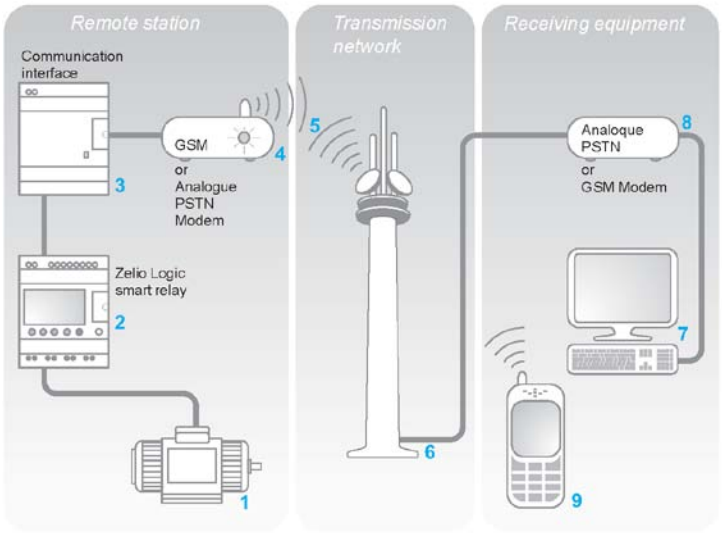
Functions

Function	Electrical scheme	LADDER language	Notes
Contact			I corresponds to the real state of the contact connected to the input of the smart relay. i corresponds to the inverse state of the contact connected to the input of the smart relay.
Standard coil			The coil is energised when the contacts to which it is connected are closed.
Latch coil (Set)			The coil is energised (set) when the contacts to which it is connected are closed. It remains set even if the contacts are no longer closed.
Unlatch coil (Reset)			The coil is de-energised (reset) when the contacts to which it is connected are closed. It remains disabled even if the contacts are no longer closed.

Close the loop on electrical training using the SRT100-DAI powerful communications interface

Use the controller and the add-on communications module to:

- Monitor lift pumps, livestock buildings (ventilation, feed level, etc.) refrigeration units, car washes, and much more.
- Send alarms in the event of failure of heating systems.
- Remotely control lighting systems.
- Monitor remote sites such as wind mills, solar array inverters, and other infrastructure.
- Receive system variable information and send inquires to the system.



With Burton Electro Technical and the SRT100 Trainer Units, the possibilities are endless.

- Use our existing course-ware or have us custom design course-ware to suit your curriculum requirements or geographical region.
- Custom design add-on modules or integrate third party hardware.
- Integrate our electrical drawings into your motor control and schematic reading programs.
- Design and build full integration trainers utilizing hard wired terminations.
- Integrate the SRT100 systems with VFD Trainer Units.

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SRT-100 Hardware and Workbook Part Numbers

Burton Electro Technical Training Hardware Offerings		
Model Number	Description	Expansion Modules
SRT100	Desktop portable programmable controls trainer	N/A
SRT100-DAI	Desktop portable programmable controls trainer with expansion module add on side bar	Yes
Expansion Modules		
SRT100-DAI-GSM-RMIT-1	Remote monitoring interface trainer add on module for SRT100-DAI	N/A
SRT100-DAI-CE-1	Circuit Experimenter add on module for SRT100-DAI	N/A
SRT100 Work Books		
Part Number	Description	
SRT100-IL	Introductory wiring exercises	
SRT100-L1FBD-ST	Level 1 function block diagram with 15 wiring and programming exercises	
SRT100-L1LD-ST	Level 1 ladder logic with 20 wiring and programming exercises	
SRT100-L2LD-ST	Level 2 ladder logic with 15 wiring and programming exercises	
SRT100-DAI Work Books		
Part Number	Description	
SRT100-DAI-ILSW	Introductory hardware familiarization and wiring exercises	
SRT100-DAI-L1FBD-ST	Level 1 function block diagram with 15 wiring and programming exercises	
SRT100-DAI-L1LD-ST	Level 1 ladder logic with 20 wiring and programming exercises	
SRT100-DAI-L2LD-ST	Level 2 ladder logic with 15 wiring and programming exercises	
SRT100-DAI-L3LD-ST	Level 3 ladder logic with 10 wiring and programming exercises	

For more information, click: betechnical.ca

See us on YouTube

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