SIREC D
Display Recorder

Catalog
MP 20 News · 2007

Supersedes:
Catalog MP 20 News · 2005

The products contained in this catalog can also be found in the e-Catalog CA 01
Order No.:
E86060-D4001-A110-C5-7600 (CD-ROM)
E86060-D4001-A510-C5-7600 (DVD)

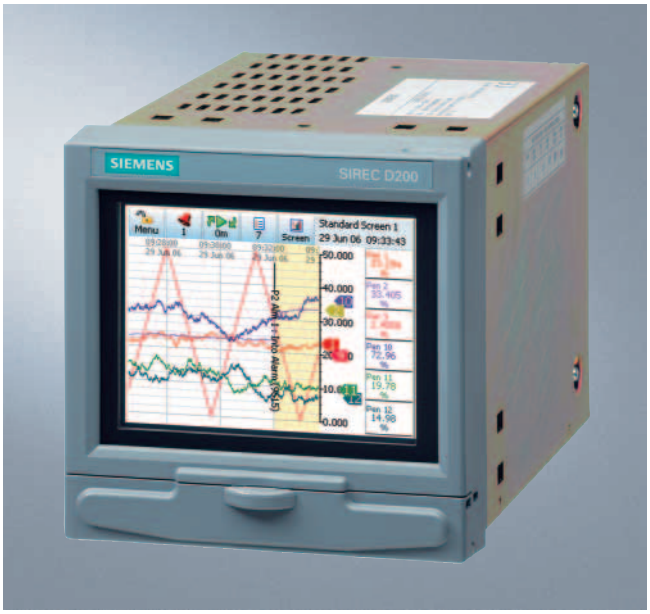
Please contact your local Siemens branch

The products and systems listed in this catalog are distributed/manufactured using a certified quality management system which complies with DIN EN ISO 9001.

SIEMENS

SIREC D200

Overview



Crystal Clear Display

- 5" Digital Colour LCD (TFT)
- QVGA Resolution (320 x 240 pixels)
- Clear and intuitive operation
- Industrial rugged Touch Screen with rapid navigation

Comprehensive Connectivity

- 10/100 Ethernet (DHCP), Web, OPC Server Web and E-mail
- FTP and TCP/IP
- RS485 Modbus Protocol (option)
- Front USB port as standard for keyboard and mouse. Rear USB option.

Data Storage

- On-board non-volatile memory - up to 400 Mbyte
- Removable USB storage
- No moving parts - all solid state Flash memory

Security Stringent - Total Data integrity

- Password Protection - 21CFR Part 11
- ESS - Extended Security System

Plus..

- Health Watch for preventative maintenance
- Remote Access - Advanced Software Data Analysis at your PC
- Independent Chart and Logging speeds
- Global Language Support
- Rapid review and replay of data at recorder
- Approvals - CE, CSA, UL
- NEMA 4X/IP66 option
- Up to 10 Hz (100 msec) Logging (including expansion card option)
- Up to 12 Analog Inputs
- Remote Viewing Tool
- 4 Pulse Inputs via the Digital I/O card (option)

Function

Display

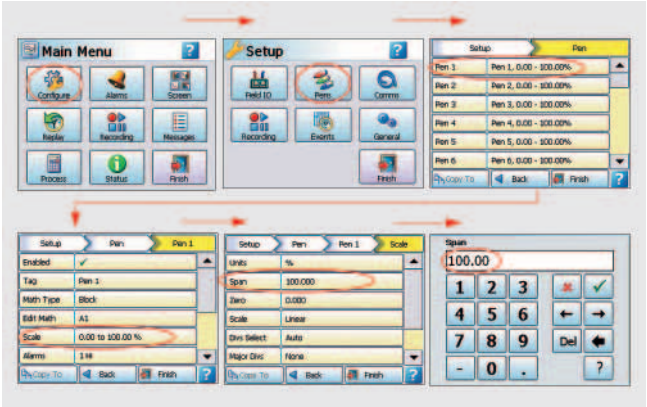
5" Colour Active TFT

With more than 256,000 colours makes it easy to interpret process data and take action with the intuitive bar charts, digital values, trends or trends displays. A screen saver function can be set from 1 to 720 minutes to extend the life of the backlight.

Touch Screen

The heavy duty durable touch screen provides easy data entry and rapid navigation through the menus. The touch screen operator interface provides fast, easy access to the recorder menus making set up and data analysis quick and efficient.

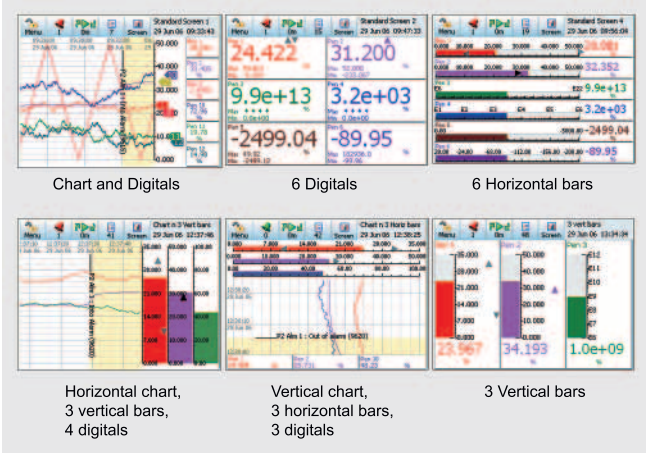
Navigation through the menus and text entry are direct and intuitive:



Example of a recorder menu path from the Main Menu to Pen Scale configuration with clear and rapid navigation

Standard Screens

Up to 10 screens displaying multiple combinations of Charts, Bars and Digitals can be configured, 6 examples below.



Help Files

A complete contextual help system can be accessed and visualised on the screen of the recorder.

Logarithmic Scales

All displayed scales can be set as linear or logarithmic.

Replay with Zoom

Select replay mode and zoom-in on a specific area on the screen. The data can easily be replayed at the recorder with the ability to “zoom”. The touch screen makes it fast to review and analyse historical data. A "jump" function allows you to go from any message list directly to the trend showing the occurence of the alarm.

Language Support

Standard language prompts for

- English UK & US
- French
- German
- Italian
- Spanish
- Portuguese (Braz)
- Polish
- Slovakian
- Czech
- Turkish
- Romanian
- Hungarian
- Russian

Communications

The recorder supports FTP, Modbus TCP/IP (slave mode), web and email over Ethernet (DHCP standard) communications port and Modbus RTU (slave mode) via an RS485 port (option). USB ports allow the use of an ASCII barcode reader. Email sent to your network connected PC triggered by an Alarm or an Event.

Ethernet Connectivity

The Ethernet (DHCP standard) connection, with support for various protocols, provides unlimited connectivity to local area networks (LANs). The standard Ethernet interface makes networking of the recorder to a LAN or the world wide web fast and convenient. Dynamic Host Configuration Protocol (DHCP) automatically acquires the settings (IP address) for network communications from a DHCP server.

Simple Network Time Protocol (SNTP)

The recorder can be synchronised over the ethernet network via a SNTP client or synchronise other recorders via a Server.

Web Server

With the recorder connected to a LAN, all process variables, alarm and messages can be viewed from an internet browser; values are automatically refreshed.

USB Ports

Front and rear USB host ports for data and setup transfers or remote screen through this port. Front USB port is standard and the rear USB port is available with the Communications card option. Use these ports to attach external devices (keyboard or mouse), for direct interfacing with the recorder.

Remote Viewer

Extends the user interface of the recorder onto the desktop PC. Providing remote viewing of the unit launched from a web browser. Full remote control is available as an option. Compatible with Microsoft™ Internet explorer 6 and higher.

Data Storage

Internal Data Storage

70 MByte to 400 MByte expandable internal non-volatile flash memory is available for data storage and chart history.

Pens	70 MByte	400 MByte
6	32 Days	182 Days
12	16 Days	91 Days
24	8 Days	45 Days

Internal memory (Logging rate = 1 s)

Data Export

Removable USB flash storage device. Data is stored in a secure binary encrypted format, with the recorder’s configurations, providing added security of the data files

Events

Certain conditions or operations can be set up and logged according to the time and date of the occurrence. Subsequently events can be reviewed in a list or represented on a graph.

Batch

Batch enhances the management of data collected in non-continuous process, known as batch processing, used in thermal treatment, sterilisation, food processing and chemical reactions.

Soft Alarms

6 "software" alarms per pen are easily set up to display and record selected out-of-limit conditions. These can be tied to the relay or digital outputs to activate the user’s external equipment.

Independent Display Chart Speeds and Logging rates

Logging rates can be programmed completely separate from the chart display speed, allowing the data to be displayed and stored at the rates that best suits the application.

Fuzzy Logging

This standard feature provides a unique method to increase the storage capacity of the recorder. The data is monitored to determine changes in process data; if no changes are observed data is logged periodically. If data is changing rapidly, it is recorded normally at the programmed rate. By not logging data that is static, data compression of up to 100:1 or more can be achieved saving valuable memory.

Pulse Inputs

The 8 Digital I/O option card has 4 channels that can be set as pulse inputs (first 4 channels). The operating frequency for pulse inputs on the Digital I/O card is 1 kHz max.

Data Security

Total Data Integrity

Data is stored in secure encrypted files making it easy to retrieve the data dependent on process information. Data is automatically recognised without having to remember file names.

Password Protection

Up to 4 levels of password protection with up to 50 different users are available. Multiple levels of password protection and an audit trail of actions enhance the security of the data.

Extended Security System (option)

ESS provides extended features including entry of unique User ID’s and associate passwords, time-out of password entry, password expiration, and traceability of user actions. ESS is compatible with the requirements of 21CFR part 11.

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Safety Standards

CE Mark

Conformity with 73/23/EEC, Low Voltage Directive and 89/336/EEC EMC Directive.

Enclosure rating

standard NEMA 3/IP54 type front face protection.
NEMA 4X/IP66 available as an option.

Security tag

"Wire seal provision" that provides added security to seal the front door and rear wiring when using optional rear cover to prevent undetected entry to these areas of the recorder.

Technical specifications

Design Attributes

Display size and Type	5" diagonal, color Diagonal, Digital Colour LCD (TFT) with Touch Screen Industrial grade with brightness adjustment and wide viewing angle
Resolution	QVGA (320 x 240 pixels)
Screen Saver	Set in minutes from 1 … 720, can be set to dim the screen or to switch off. Automatic wake-up facility in the case of an alarm
Brightness adjustment	Adjustable between 10 and 100%, default set to 80% brightness
Backlight life time	40,000 hours to half brightness when used at 100% (62,500 h if used at 80%). Maximum luminosity 450 cd/m²
Touch Screen life	1,000,000 touches
Display Update Rate	Display values updated every second
Status Display	A status bar, at the top of the recorder's screen, displays the real-time icons of the recorder status, such as recording time left and alarm active.
Communications	Ethernet 10/100 base - T with RJ45 connector supporting Modbus/TCP, FTP, Internet, DHCP or fixed IP address. RS485 Modbus RTU (up to 115200 Baud Rate). RS485 is available as an option on the Comms card
Mathematics	Basic maths include Add, Subtract, Multiply, Divide, Modulo and power. Full Maths (option) support up to 100 character free form math expression for each pen. Like SINE, COS, TAN, Log, Parenthesis (eg. A1 + A2), comm variables, free memory, and access to any data item variable (A1, P1, D1 etc.)
Front (standard) and Rear (option) USB Ports	USB host ports front (standard) and rear (option) for data and setup transfers through these ports. External devices keyboard or mouse, Barcode reader, or external mass storage device. (USB 1.1 compliant)
Standard Screens	Fully programmable display values in engineering units. Time & date stamp on every division. Sets of Standard screens are available to display data on a chart, digital reading, bargraphs or numerous combinations thereof. Screen properties can be modified on the recorder and customised to suit. Digital values displayed include • alarms on bars, • engineering units, • pen name, • tag, time and date, • 20 character description and • totalised values.
Data Storage	
• Local Mass Storage Options	• USB memory key - up to 2 GByte • USB hard drive - up to 120 GByte
• Internal Data Buffer	Non-volatile, 70 MByte (16 million acquisition values) and 400 MByte (up to 90 Million points)
• Setup and screens	Stored internally on non-volatile memory
• Manual Saving	Data saving by inserting USB memory stick
• Data Saving Period	Related to log rate, number of pens, totals and alarms. Each pen is capable of its own independent storage rate (200 ms … 60 h)
• Data Format	Binary encoded format
• Recycling Mode	Internal memory has FIFO (First In First Out) capability where the newest data over-writes the oldest data
Power Requirements	
• Voltage (VRMS)	100 V AC … 250 V AC (auto select)
• Frequency	50/60 Hz
• Power Consumption	< 40 W
• 24 V optional instrument power	20 … 30 V DC / 20 … 25 V AC Power Consumption: < 40 W
Battery	Battery backed up for clock, replaceable lithium battery Type 6032, 3.0 V – 10 years life (Recorder powered), 4 years life, typical (Recorder unpowered).
Password Protection	Multiple Administrator control of password setup and management with four levels of password protection for – Engineer, Supervisor, Technician, and Operator. Up to 50 different users are available. Password protection restricts user entry to the recorder set up and specific screens.
• Engineer	Highest access to all levels, Supervisor, Technician and Operator
• Supervisor	2nd highest level including Technician and Operator access
• Technician	3rd level including Operator access
• Operator	4th and lowest level of access

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Languages	• English UK & US • French • German • Italian • Spanish • Polish • Portuguese (Braz) • Slovakian • Czech • Turkish • Romanian • Hungarian • Russian
Temperature Units	°C, °F, K
Recorder Identification	Status bar: Alternately displays Recorder ID and Recorder Screen Name, Displays Time and Date
Clock	
• Accuracy	± 29 ppm (± 1 minute/month) at 25 °C Summer/Winter manual or automatic time adjustment or via communications. SNTP Client and/or Server included for synchronising over Ethernet
Alarm Set Points	6 per pen integral “soft” alarm set points easily set by user to announce selected out of limit conditions; user can select if an alarm triggers a change in the chart background colour
• Alarm triggers	Alarm triggers can be set for Hi, Lo, Deviation. Latched alarms require acknowledgement from the operator
• Alarm Damping	1 s … 24 h
• Hysteresis	± 100% of pen scale An alarm can change the log rate on the affected pen
Data Replay Mode	Data replay facility on chart displays at normal, fast or slow speeds with zoom and cursor. Jump facility from the alarm history list directly to the occurance on the chart
Display Chart Speeds	
• Chart rates	• 1 mm/h • 5 mm/h • 10 mm/h • 20 mm/h • 30 mm/h • 60 mm/h • 120 mm/h • 600 mm/h • 1200 mm/h • 6000 mm/h Combinations of rates can be mixed and chart speeds can be set independently for each chart. Display speeds are independent of logging rate
Messages Screen	The message screen displays system information and records any setup activity that has been changed. It also provides warning and error message updates, lists alarm activity and will display user defined marks on a chart

CE Conformity (CE Mark)	This product conforms with the protection requirements of the following European Council Directives: 73/23/EEC, the Low Voltage Directive, and 89/336/EEC, the EMC Directive. Conformity of this product with any other “CE Mark” Directive(s) shall not be assumed.
Immunity Product Classification	Complies with EN 61326 Class I: Cord Connected, Panel Mounted Industrial Control Equipment with protective earthing (grounding), (EN 61010-1)
Enclosure Rating	Front panel designed to NEMA 3/IP54 (Optional NEMA 4X/IP66)
Installation Requirements	Category II: Overvoltage (EN 61010-1) Pollution Degree 2
EMC Standards	Emissions - EN 61326 Class B Immunity - EN 61326 Industrial Levels
Safety	Complies with EN 61010-1: 2001 Panel Mounted Equipment, Terminals must be enclosed within the panel
Analog Inputs	
Number of Inputs	3, 6, 9 or 12 input channels
Input Types	mV, V, mA with external shunt (provided as standard), Thermocouple, RTD and ohms
Minimum Input Span	Range is fully configurable with span limitation of the operating range selected with 4% under range to 4% over-range capability (50 V Range 2%)
Burnout (T/C)	Active (High or Low), Passive and Health watch/maintenance (option)
Cold Junction Compensation	Internal compensation with the ability to manually adjust values, External Input for compensation, External CJC value specified
Input Resolution	0.0015% (16 Bit ADC)
Input Impedance	
• Current loop resistance	10 Ω, use ± 0.1% external resistor, Volts > 1 MΩ, all other > 10 MΩ
Source Impedance	
• T/C and RTD	100 Ω per lead maximum (a single point cal on Slot A will improve accuracy for a lead resistance above 10 Ω)
Square Root Extraction	Available as standard on Volts and mA input types
Sensor Compensation	Single point and Dual point for every input type
Input Sampling Rate	Recorder has 2 available slots with up to 6 analog inputs each; first slot fixed
• Analog Input card (standard)	200 ms (5 Hz), 500 ms (2 Hz)
• Analog Input expansion card (option)	100 ms (10 Hz), 200 ms (5 Hz), 500 ms (2 Hz)
Linear Scales	• Normal and Scientific notation • Decimal Point automatic or programmable • Engineering units, user definable (10 characters)

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Logarithmic Scales	
• Logarithmic Decade limits	-38 min … +38 max, (recommend up to 20 decades on one screen to ensure clarity)
Input Isolation	300 V AC channel-to-channel, channel-to-ground (Resistance thermometers are not isolated for initial card, expansion card option RTs are isolated)
Noise Rejection	At 50/60Hz ± 2%
• Analog Input card (standard)	
- Common mode	2 Hz = -120 dB, 5 Hz = -120 dB
- Normal Mode	2 Hz = -80 dB, 5 Hz = -25 dB
• Analog Input expansion card (option)	
- Common mode	2 Hz = -120 dB, 5 Hz = -120 dB, 10 Hz = -120 dB
- Normal Mode	2 Hz = -85 dB, 5 Hz = -80 dB, 10 Hz = -48 dB
Input Range Performance and Accuracy	For Analog Input standard and expansion cards
Input Actuation (Linear)	Range
• mV (DC)	-1000 … +1000
• V (DC)	-50 … +50
• mA	4 … 20, 0 … 20
• 200 Ω	0 … 200
• 500 Ω	0 … 500
• 1000 Ω	0 … 1000
• 4000 Ω	0 … 4000
Thermocouples	Temperatur range
• B	260 ... 538 °C (500 ... 1000 °F) 538 ... 1816 °C (1000 ... 3300 °F)
• E	-270 ... -200 °C (-454 ... -328 °F) -200 ... -70 °C (-328 ... -94 °F) -70 ... 1000 °C (-94 ... 1832 °F)
• J	-210 ... 0 °C (-346 ... 32 °F) 0 ... 1200 °C (32 ... 2192 °F)
• K	-270 ... -70 °C (-454 ... -94 °F) -70 ... 1372 °C (-94 ... 2502 °F)
• R	-50 ... 260 °C (-58 ... 500 °F) 260 ... 650 °C (500 ... 1202 °F) 650 ... 1768 °C (1202 ... 3214 °F)
• S	-50 ... 260 °C (-58 ... 500 °F) 260 ... 1000 °C (500 ... 1832 °F) 1000 ... 1768 °C (1832 ... 3214 °F)
• T	-270 ... -210 °C (-454 ... -346 °F) -210 ... 400 °C (-346 ... 752 °F)
• L	-200 ... 0 °C (-328 ... 32 °F) 0 ... 900 °C (32 ... 1652 °F)
• G (W_W26)	0 ... 100 °C (32 ... 212 °F) 100 ... 316 °C (212 ... 600 °F) 316 ... 830 °C (600 ... 1526 °F) 830 ... 1515 °C (1526 ... 2759 °F) 1515 ... 2315 °C (2759 ... 4119 °F)
• C (W5, W26)	0 ... 180 °C (32 ... 356 °F) 180 ... 1220 °C (356 ... 2228 °F) 1220 ... 2315 °C (2228 ... 4199 °F)
• M (NiMo-NiCo) (NNM90)	-50 ... 370 °C (-58 ... 698 °F) 370 ... 1410 °C (698 ... 2570 °F)
• N (Nicosil Nisil)	-200 ... 100 °C (328 ... 212 °F) 100 ... 1300 °C (212 ... 2372 °F)
• Chromel/Copel	-50 ... 600 °C (-58 ... 1112 °F)
• P (Platinel)	0 ... 1390 °C (32 ... 2534 °F)
• D	0 ... 180 °C (32 ... 356 °F) 180 ... 1840 °C (356 ... 3344 °F) 1840 ... 2490 °C (3344 ... 4515 °F)
Resistance thermometers	Temperatur range
• Pt100 α = 0,00385	-200 ... 850 °C (-328 ... 1562 °F)
• Pt200 α = 0.00385	-200 ... 850 °C (-328 ... 1562 °F)
• Pt500 α = 0.00385	-200 ... 850 °C (-328 ... 1562 °F)
• Pt1000 α = 0.00385	-200 ... 850 °C (-328 ... 1562 °F)
• Nickel, 100 Ω	-60 ... 180 °C (-76 ... 356 °F)
• Nickel, 120 Ω	-80 ... 260 °C (-112 ... 500 °F)
Logging	
Logging Method	Sample, Average, Min/Max - can be set independently per pen
Logging Types	Continuous, Fuzzy
Logging Rate	From 100 ms … 60 h per Pen
Fuzzy Logging	A secure data storage technique which delivers data compression ratio of 100:1 or more; self teaching, storing the data at a variable rate to match the process
Mechanical Design	
Enclosure/Bezel	Zinc plated steel case with high impact resistant polycarbonate bezel; scratch resistant lens (Polyethylene Terephthalate). NEMA 3/IP54 protection rating standard. Optional NEMA 4X/IP66 (Front face only)
• Enclosure Rating	Front panel designed to NEMA 3/IP54 (Optional NEMA 4X/IP66)
• Colour	Bezel: Grey
Mounting Panel	Unlimited mounting angle For the best view of the display the viewing angle should not exceed: • 55° from the left or right, • 10° looking down and • 30° looking up at the recorder display. Mounting adjustable for panel thickness of 2 mm … 20 mm. Adapter kits available for covering existing panel cutouts.
Dimensions (W x H x D) in mm	144 x 144 x 200 (5.67 x 5.67 x 7.87") Additional 80 mm (3.15") clearance recommended for a straight type power cable and signal connectors
Cutout (W x H) in mm	138 x 138 mm (5.43 x 5.43")
Weight	Max. 2.4 kg (5.3lb)
Wiring Connections	IEC Power Plug. Removable terminal strip for input and alarm connections
Environmental and Operating Conditions	
Ambient Temperature	0 °C … 50 °C (32 °F ... 122 °F)
Relative Humidity (%RH)	10 ... 90
Vibration	
• Frequency (Hz)	0 ... 70
• Acceleration (g)	0.1
Mechanical Shock	
• Acceleration (g)	1

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• Duration (ms)	30
Mounting Position from Vertical	
• Tilted Forward	40°
• Tilted Backward	65°
• Tilted to Side (±)	65°
Power Requirements	
• Mains Voltage (Vrms)	100 … 250
• Low Voltage AC (Vrms)	20 … 25
• DC Voltages	20 … 30
• Frequency (Hz)	47 … 63
Power Consumption	AC: < 40 W (max), DC: <40 W (max), typical 20 W
Warm Up	30 minutes minimum

Options

Alarm Outputs	Programmable alarm set points (6 per pen) can be configured to activate up to 8 outputs
• Update rate	200 ms for all alarms
• Number/Type	• 4 or 8 relay contacts SPDT, 3 A 240 V AC, 3 A 24 V AC/DC, 0.2A 240 V DC (non-inductive, internally suppressed) • 8 I/O - SPNO 1 A 24 V DC (non-inductive, internally suppressed)
• Activation	Fully programmable internal alarm levels. Assignable to any relay output
Digital Input/Output	
• Quantity	• 8 I/O All channels may be selected freely as either digital inputs or outputs. The Digital I/O card also has 4 channels that can be set as pulse inputs (channels 1 … 4). The operating frequency for pulse inputs on the Digital I/O card is 1kHz max.
- Inputs	Voltage free, isolated
- Outputs	4 relay outputs, all four channels are relay outputs only
• Relays/DI card	• 8 relays/ 2 DI card 2 outputs can be configured for use as digital inputs: A digital input is provided by a volt free contact between the normally open (NO) and the common (C) terminals of an output relay. If the 2 Digital inputs are used only 6 relay outputs are available. Closed < 500 Ω, Open > 300 kΩ
Email	Setup email accounts to send the following: When an Alarm is triggered or an Email can be sent as a part of an Event occurring, such as: Alarms - In/Out/Ack, Totaliser – Start, Stop or Reset, Digital Inputs – On, Off or State change, TC Burnout – on a specific Analog Input channel, Scheduled Events – Once, Interval, Specific days, Month End
OPC Server	OPC DA and AE 3.0 compliant. Totalisers and up to 24 pens can be transmitted via OPC server, max poll rate 1/s
Events	User defined process events are recorded and can be set to cause particular recorder actions. Events can consist of recording start/stop, digital inputs, alarms, totalising actions, timers, bar-code, etc. Once an event has been caused it can produce a definable set of effects on the recorder which can include, mark on chart, relay outputs, recording control, acknowledge alarm, trigger an Event, set/clear Relay, Screen change, E-mail a message and Reset max/mins. Each event marker can be recorded for analysis using the SIREC D application software.
Health Watch/ Maintenance Capability	The recorder keeps track of important “life actions” for improved diagnostics and preventative maintenance notification. Including • Powered On • Last powered On • Time On since power up • Total On time • Total Off time • Longest Off time • Lithium cell life • Backlight life left at 100% brightness • Hi/Lo CJC value (Hi & Lo temps), • Analog In last factory/user cal • Relay operations • last configuration change
Agency Approval	
• CSA	CSA22.2-No.1010.1-2004 Certificate Number L211230
• UL	ANSI/UL61010-1-2004 File # 201698
	FM Class 1 Division 2 (optional)
Transmitter Power	130 mA at 24 V DC ± 3 V DC
Extended Security System (ESS)	Provides full support for 21 CFR Part 11. Includes features for entry of unique User ID’s and associated passwords: • Timeout on inactivity (1 … 10 min) • Password expiration (1 … 365 days) • Up to 50 users • Password re-entry lock out for incorrect entry of password more than 3 times, no re-use of passwords (programmable 4 … 12 times) • Traceability by user name

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Totaliser/Sterilisation*	One totaliser per input. Totaliser value must be assigned to a pen for display and storage. Multiple totalisations (Maths option) are possible with the use of extra pens (option). Reset may be manual or programmed. Totalisation values are 10 digits plus exponent. Each pen can be totalised according to the Fo or Po sterilisation* function at 121.11°C (250 °F). The Standard Reference Temperature and Thermal Resistance (Z Value) are fully adjustable values of X, Y, W and V. Start temp, Reference temp and Z factor are all user defined, allowing support for many different types of sterilisation applications. ***Specification table for Sterilisation** The definition of Fo/Po is the sterilisation/pasteurisation time in minutes required to destroy a stated number of organisms with a known z at temperature T.
Batch	The Batch function allows the user to segment portions of data for further analysis. Batch controls include • Start, • Stop, • Pause, • for viewing, • Resume and Abort.
Print Support	Network printing from status, message and replay screens. Plus screen capture facility of process screens instantly using a basic USB standard PCL printer.
Math Algorithms	All analog input channels have a math expression block. This is a fully user programmable 100 character free form math expression for each pen. Math calculations are available on all pens, one per input plus 12 extra pens for the SIREC D200 recorder.
Miscellaneous	Optional customer ID Tagging (3 lines of up to 22 characters each line)

Firmware Credit System

The credits system is a flexible way of adding to the recorder features without having to upgrade the firmware. Simply purchase a number of credits to cover your current and possibly future requirements and the recorder will be delivered with the credits loaded. The credit value in each recorder is displayed in the Factory menu.

- Select the Options button and by activating and de-activating the options in the credit list, the recorder will change its functionality. Any greyed out options on the list will mean there are not enough credits available for that feature on the recorder.

Credits can be applied as desired to the Firmware functions until the total number of credits purchased has been used up. Additional credits can be purchased later if new features are to be activated and not enough credits are available to support these additional functions.

Firmware option	Credit value	Description
Full Maths	4	Full Math - this can handle math expressions that can consist of expressions up to 100 characters in length. (Note 1)
Events	6	Events are certain conditions or operations that can be set up and logged according to the time and date of an occurrence. Subsequently events can be reviewed or displayed on a graph. Events can be set up to produce the following actions: Mark on Chart, start/stop Logging, start/stop/reset Totalisers, acknowledge alarm, trigger an Event, set/clear Relay, Screen change, E-mail a message and Reset max/mins. (Note 2)
Totalisers/ Sterilisation calculation	4	Each pen can be associated with a totaliser. Using extra pens, the totalised values can be displayed and recorded; multiple totals can be calculated out of the same variable (weekly, monthly, etc.). The totaliser function can handle Fo and Po sterilisation calculation. (Note 1)
Health Watch/ Maintenance	2	The recorder keeps track of important “life actions” for improved diagnostics and preventative mainte-nance notification. Including Powered On, Last powered On, Time On since power up, Total On time, Total Off time, Longest Off time, Lithium cell life, Backlight life left at 100% brightness, Hi/Lo CJC value (Hi & Lo temps), Analog In last factory/user cal, Relay operations.
Print Support	2	Network printing from status, message and replay screens. Plus screen capture facility of process screens instantly using a basic USB standard PCL printer.
Batch	3	The Batch function allows the user to segment portions of data for further analysis. Batch controls include Start, Stop, Pause, for viewing, Resume and Abort.
Groups	2	Groups of Pens can be specified and named with a Group number to display on the recorder.
Remote Viewer	3	Extends the user interface of the recorder onto the desktop PC. Providing full remote control of the unit launched from a web browser.
Email	3	Setup email accounts to send the following: When an Alarm is triggered or an Email can be sent as a part of an Event occurring, such as: Alarms - In/Out/Ack, Totaliser – Start, Stop or Reset, Digital Inputs – On, Off or State change, TC Burnout – on a specific Analog Input channel, Scheduled Events – Once, Interval, Specific days, Month End.
OPC Server	8	OPC (OLE for Process Control) -Software application for realtime interfacing between servers and clients. OPC is a software standard that defines common interfaces for data exchange between devices such as recorders, controllers, PLC’s and Microsoft Windows™ based applications
Extra Pens	2	4 extra pens to store and display totalised values, results of calculations, etc. Maximum is up to 12 extra pens for the SIREC D200 recorder.

Notes

- (1) Additional pens (“Extra Pens”) can be used to display and store the results of calculations, totalisers, variables imported via communications, or to store values.
- (2) Event markers are required to automatically reset the totalisers, for example on a periodic basis or on an external condition. (Not necessary if the totalisers are reset manually)

Additional information is available in the Internet under:

http://www.siemens.com/sirec

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Selection and Ordering Data

		Order No.
SIREC D200 display recorder [1]		**7ND4121-** ■■A■■-■■■■
Front dimensions: 144 mm x 144 mm, for all standard applications/ 5 TFT display, Ethernet interface (rear side) and USB interface (front face)		
Power supply		
50 or 60 Hz, 90 ... 240 V AC	►	**1**
24 V DC	►	**4**
Signal inputs		
Universal inputs (mA, mV, V, TC, RTD, R)		
• 3 inputs	►	**A**
• 6 inputs	►	**B**
• 12 inputs	►	**C**
Switching outputs and inputs		
None (retrofitting digital input/digital output not possible)		**0**
None (retrofitting digital input/digital output possible)	►	**1**
4 relays (240 V)		**2**
8 relays, of which 2 can be optionally configured as binary input (240 V)		**3**
8 binary outputs and inputs (24 V relay/freely-configurable)		**4**
Internal data storage		
70 Mbyte (standard)		**1**
400 Mbyte		**2**
Transmitter power supply/ rear side ports		
None	►	**1**
24 V DC max. 200 mA/USB and RS485 (rear side)		**2**
Firmware options (see table below „Firmware options and required credits“)		
None	►	**A**
10 credits		**B**
20 credits		**C**
30 credits		**D**
40 credits		**E**
Extended Security System (ESS)		
IP54 protection rating standard (front face)		
• without ESS	►	**A**
• with ESS		**B**
IP66 (NEMA 4X) protection rating standard (front face)		
• without ESS		**C**
• with ESS		**D**
Documentation		
Manual in German	►	**1**
Manual in English		**2**

► Available ex stock

[1] Subject to export regulations AL:N, ECCN: EAR99

Scope of delivery:
Recorder, CD-ROM with manual in German or English, SIREC D software (SIREC D-Viewer).

Accessories

	Order No.
Firmware options for SIREC D200 Code No. of recorder required	
10 credits	**7ND4 801-8AD**
20 credits	**7ND4 801-8BD**
30 credits	**7ND4 801-8CD**
40 credits	**7ND4 801-8DD**
Options/enabling of SIREC D software Code No. of recorder required	
Enabling of SIREC D-Manager	**7ND4 800-8BA**
Enabling of SIREC D-Server	**7ND4 800-8CA**
Upgrading of SIREC D-Manager to SIREC D-Server	**7ND4 800-8EA**
SIREC D software Only for subsequent orders; software is included in delivery of recorder Evaluation software for SIREC D200/D300/D400 (on CD) incl. enabling for SIREC D-Viewer and manual for the software on CD in German, English, French	**7ND4 800-8AA**
Documentation Included on CD-ROM in scope of delivery	
SIREC D200 recorder manual	
• German (can also be downloaded from Internet)	**A5E01001785-03**
• English (can also be downloaded from Internet)	**A5E01001767-03**
• French (can only be downloaded from Internet)	

Firmware options and required credits

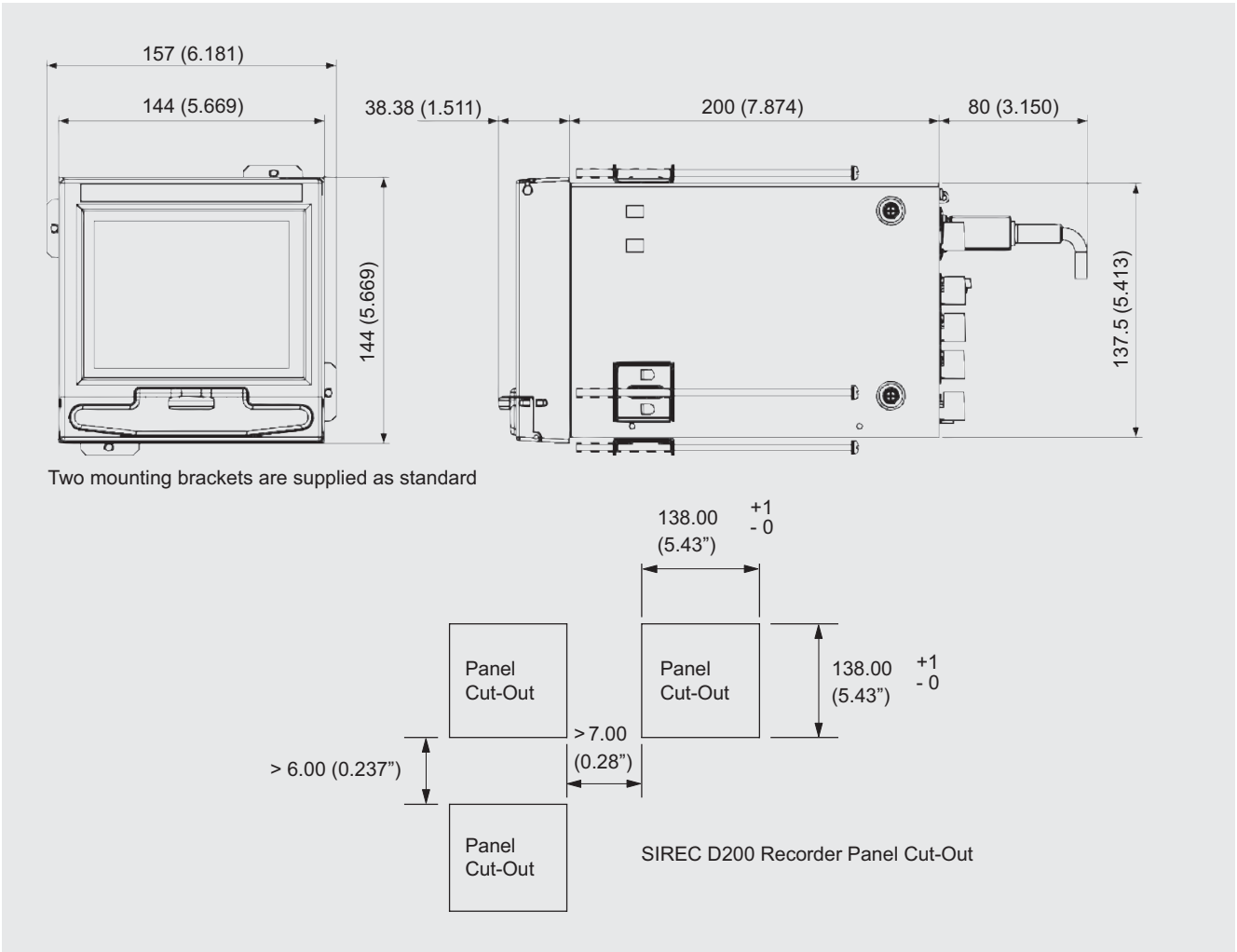
Options	Required credits
Groups/summarize channels	2
Diagnostic functions	2
Print Support	2
8 Extra Pens	2
Counter	2
Remote Viewer	3
Batch	3
E-mail function	3
Totalisers	4
Maths (free functions)	4
Events (logical connections)	6
OPC Interface	8

Options

Options - Hardware

- Alarm Card
  - 4 or 8 outputs relay contacts SPCO 240 V
  - 8 Digital I/O - SPNO 24 V DC
  - Programmable alarm set points can be configured to activate up to 8 outputs
- RS485 Modbus
  - the RS485 connection allows process data to be transferred to other devices, or to record data received in MODBUS RTU protocol (slave mode only).
- Portable Recorders
  - Portable cases available as an accessory item
- Digital Input
  Two digital input options are available:
  - 2 inputs on 8 channel Alarm card,
  - 8 inputs on Digital I/O card.
  The digital inputs allow users to initiate, from a remote location via a dry contact closure, selected recorder functions.
- Approvals
  - CSA and UL
- 24 V AC/DC Power Supply
  - 20 to 30 V DC
  - 20 to 25 V AC
- 24 V DC Transmitter Power Supply
  - Can supply up to 130 mA to external transmitters.
- Print Support
  - Network printing from status, message and replay screens. Plus screen capture facility of process screens instantly using a basic USB standard PCL printer.

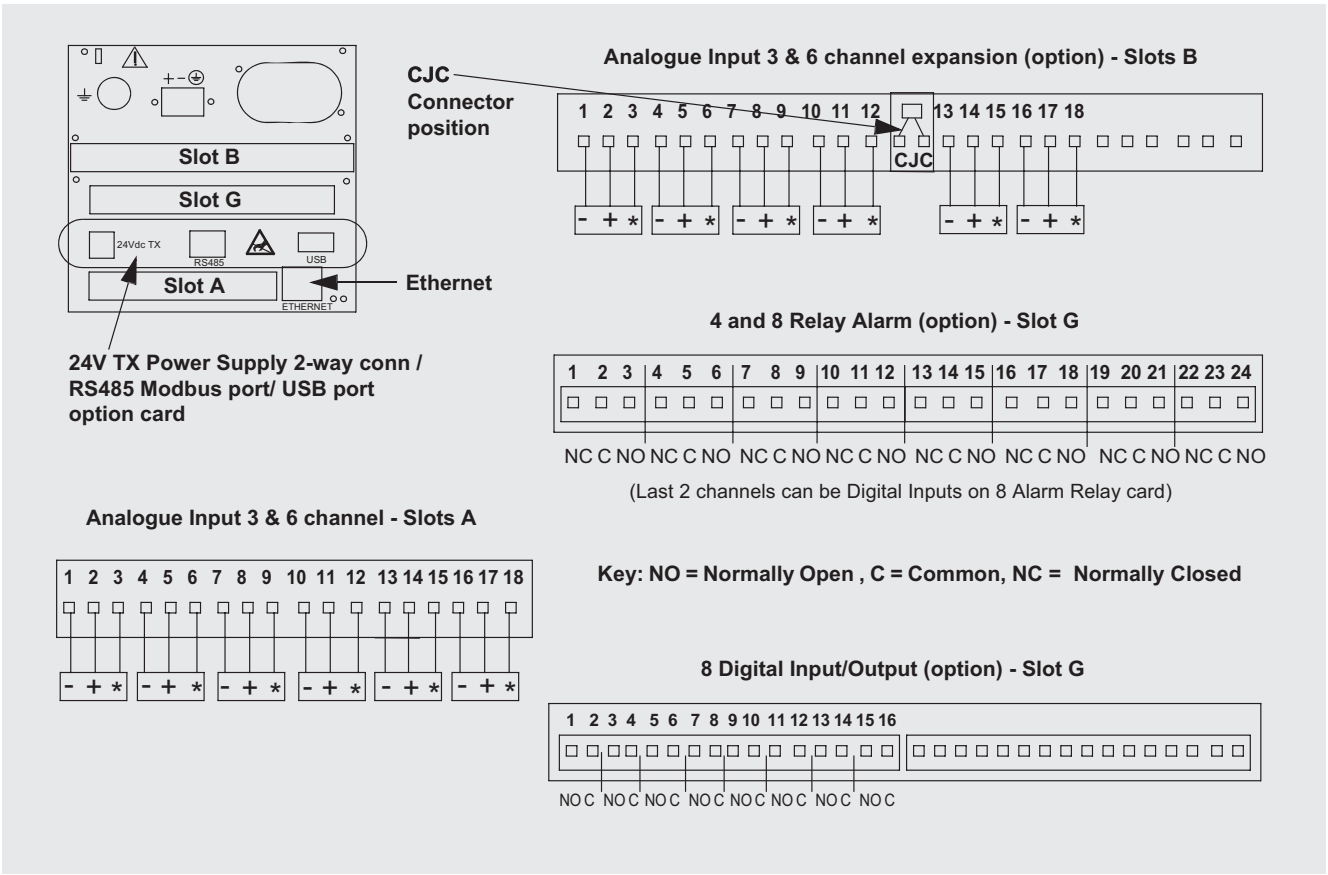
Dimensional drawings



SIREC D200, dimensions in mm (inch) and panel cut-out

SIREC D200

Schematics



SIREC D200 - Terminal assignments and power requirements (rear of unit)

More information

Additional information is available in the Internet under:

http://www.siemens.com/sirec

SIREC D300 and SIREC D400

Overview

Crystal Clear Display

- Digital Colour LCD (TFT)
- Resolution
  - SIREC D300: QVGA Resolution (320 x 240 pixels)
  - SIREC D400: SVGA Resolution (800 x 600 pixels)
- Clear and intuitive operation
- Industrial rugged Touch Screen with rapid navigation
- Custom Screens

Comprehensive Connectivity

- 10/100 Ethernet (DHCP), Web, Email, OPC Server
- FTP, TCP/IP and RS485 Modbus Protocol
- USB ports for keyboard and mouse

Data Storage

- On-board non-volatile memory - up to 1850 MByte
- Removable Compact Flash and USB storage
- No moving parts - all solid state data storage

Security Stringent - Total Data integrity

- Password Protection - 21CFR Part 11
- ESS - Extended Security System

Plus..

- Health Watch for preventative maintenance
- Remote Access - Advanced Software Data Analysis
- Analysis at your PC
- Independent Chart and Logging speeds
- Global Language Support
- Rapid review and replay of data at recorder
- Approvals - CE, CSA, UL, FM
- NEMA 4X/IP66 (option)
- Up to 50 Hz (20 ms) Logging
- Analog Inputs
  - SIREC D300: Up to 16 Analog Inputs
  - SIREC D400: Up to 48 Analog Inputs
- Remote Viewing Tool

Function

Display

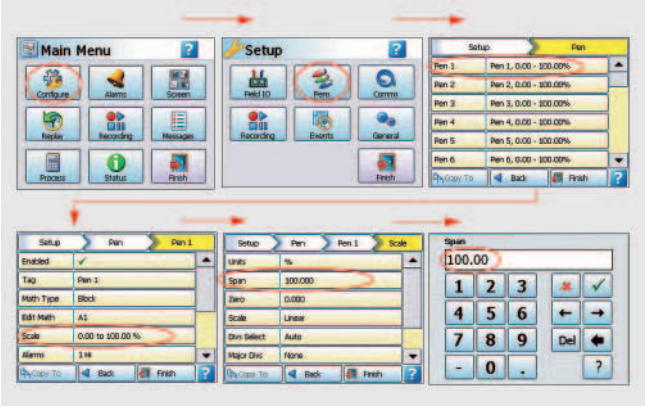
12.1” Colour Active TFT (SIREC D300)/5.5” Colour Active TFT (SIREC D400)

With more than 256,000 colours makes it easy to interpret process data and take action with the intuitive bar charts, digital values, trends or customised displays. A screen saver function can be set from 1 to 720 minutes to extend the life of the backlight.

Touch Screen

The heavy duty durable touch screen provides easy data entry and rapid navigation though the menus. The touch screen operator interface provides fast, easy access to the recorder menus making set up and data analysis quick and efficient.

Navigation through the menus and text entry are direct and intuitive:



Example of a recorder menu path from the Main Menu to Pen Scale configuration with clear rapid navigation

SIREC D300 and SIREC D400

Standard Screens

Up to 20 screens (SIREC D300) respectively 30 screens (SIREC D400) displaying multiple combinations of Charts, Bars and Digitals can be configured, 4 respectively 6 (SIREC D300 respectively SIREC D400) examples below.

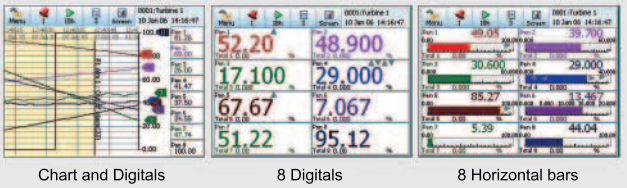
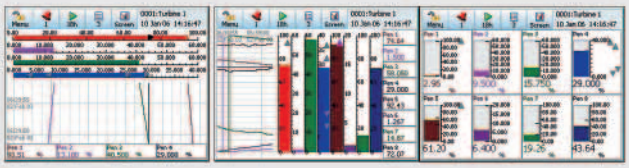
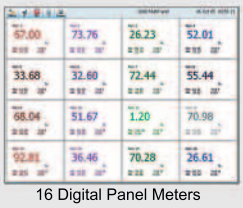


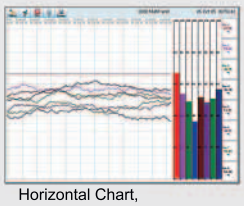
Chart and Digitals | 8 Digitals | 8 Horizontal bars



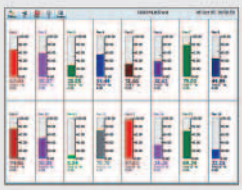
Vertical chart, 4 horizontal bars, 4 digitals | Horizontal chart, 8 vertical bars, 8 digitals | 8 Vertical bars



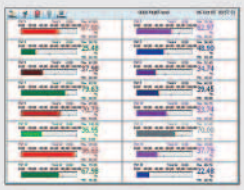
16 Digital Panel Meters



Horizontal Chart, 8 Vertical Bars and 8 DPMS



16 Vertical Bars



16 Horizontal Bars

Help Files

A complete contextual help system can be accessed and visualised on the screen of the recorder.

Logarithmic Scales

All displayed scales can be set as linear or logarithmic.

Replay with Zoom

Select replay mode and zoom-in on a specific area on the screen. The data can easily be replayed at the recorder with the ability to “zoom”. The touch screen makes it fast to review and analyse historical data. A "Jump" function allows you to go from any message list directly to the trend showing the occurence of the alarm.

Language Support

Standard language prompts for

- English UK & US
- French
- German
- Italian
- Spanish
- Portuguese
- Brazilian
- Polish
- Slovakian
- Czech
- Turkish
- Romanian
- Hungarian
- Russian

Communications

The recorder supports FTP, Modbus TCP/IP (slave mode), Web and Email over Ethernet (DHCP standard) communications port and Modbus RTU (slave mode) via an RS485 port. USB ports allow the use of an ASCII barcode reader. Email sent to your network connected PC triggered by an Alarm or an Event.

Ethernet Connectivity

The Ethernet (DHCP standard) connection, with support for various protocols, provides unlimited connectivity to local area networks (LANs). The standard Ethernet interface makes networking of the recorder to a LAN or the world wide web fast and convenient. Dynamic Host Configuration Protocol (DHCP) automatically acquires the settings (IP address) for network communications from a DHCP server.

RS485 Modbus

The RS485 connection allows process data to be transferred to other devices, or to record data received in MODBUS RTU protocol (slave mode only).

Simple Network Time Protocol (SNTP)

The recorder can be synchronised over the ethernet network via a SNTP client or synchronise other recorders via a Server.

Web Server

With the recorder connected to a LAN, all process variables, alarm and messages can be viewed from an internet browser with automatic refresh.

USB Ports

Front and rear USB host ports for data and setup transfers or remote screen through this port. Front USB port is standard and the rear USB port is available with the Communications card option. Use these ports to attach external devices (keyboard or mouse), for direct interfacing with the recorder.

Common Relay Output

A separate relay alarm output at the rear of the unit can be set up as an alarm output.

Remote Viewer

Extends the user interface of the recorder onto the desktop PC. Providing remote viewing of the unit launched from a web browser. Full remote control is available as an option. Compatible with Microsoft™ Internet explorer 6 and higher.

Data Storage

Internal Data Storage

70MB to 400MB expandable internal non-volatile flash memory is available for data storage and chart history.

Pens	70 MByte	180 MByte	400 MByte	890 MByte	1850 MByte
16	12 Days	30,5 Days	68,5 Days	750 Days	311 Days
32	6 Days	15 Days	34 Days	75 Days	155 Days
48	4	10 Days	22 Days	50 Days	103 Days
96	2	5 Days	11 Days	25 Days	51 Days

Internal memory (Logging rate = 1 s) - SIREC D400

Pens	70 MByte	180 MByte	400 MByte	890 MByte	1850 MByte
8	24 Days	61 Days	137 Days	301 Days	622 Days
16	12 Days	30,5 Days	68,5 Days	750 Days	311 Days
32	6 Days	15 Days	34 Days	75 Days	155 Days

Internal memory (Logging rate = 1 s) - SIREC D300

Data Export

Removable compact flash and USB flash storage device provides multiple data storage alternatives. Data is stored in a secure binary encrypted format, with the recorder's configurations, providing added security of the data files. Removable Compact flash and USB flash storage devices.

Events

Certain conditions or operations can be set up and logged according to the time and date of the occurrence. Subsequently events can be reviewed in a list or represented on a graph.

Batch

Batch enhances the management of data collected in non-continuous process, known as batch processing, used in thermal treatment, sterilisation, food processing and chemical reactions.

Soft Alarms

6 "software" alarms per pen are easily set up to display and record selected out-of-limit conditions. These can be tied to the relay or digital outputs to activate the user's external equipment.

Independent Display Chart Speeds and Logging rates

Logging rates can be programmed completely separate from the chart display speed, allowing the data to be displayed and stored at the rates that best suits the application.

Fuzzy Logging

This standard feature provides a unique method to increase the storage capacity of the recorder. The data is monitored to determine changes in process data; if no changes are observed data is logged periodically. If data is changing rapidly, it is recorded normally at the programmed rate. By not logging data that is static, data compression of up to 100:1 or more can be achieved saving valuable memory.

Pulse Inputs

The 8 Digital I/O option card has 4 channels that can be set as pulse inputs (first 4 channels). The operating frequency for pulse inputs on the Digital I/O card is 1kHz max.

Data Security

Total Data Integrity

Data is stored in secure encrypted files making it easy to retrieve the data dependent on process information. Data is automatically recognised without having to remember file names.

Password Protection

Up to 4 levels of password protection with up to 50 different users are available. Multiple level of password protection and an audit trail of actions enhance the security of the data.

Extended Security System (option)

ESS provides extended features including entry of unique User ID's and associate passwords, time-out of password entry, password expiration, and traceability of user actions. ESS is compatible with the requirements of 21CFR part 11.

Safety Standards

CE Mark

Conformity with 73/23/EEC, Low Voltage Directive and 89/336/EEC EMC Directive.

Enclosure rating

Standard NEMA 3/IP54 type front face protection. NEMA 4X/IP66 available as an option.

Security tag

"Wire seal provision" that provides added security to seal the front door and rear wiring when using optional rear cover to prevent undetected entry to these areas of the recorder.

SIREC D300 and SIREC D400

Technical specifications

Design Attributes

Display size and Type	Diagonal, Digital Colour LCD (TFT) with Touch Screen Industrial grade with brightness adjustment and wide viewing angle
• SIREC D300	5.5“ (14 cm) diagonal, color
• SIREC D400	12.1“ (30.7 cm) diagonal, color
Resolution	
• SIREC D300	QVGA (320 x 240 pixels)
• SIREC D400	SVGA (800 x 600 pixels)
Screen Saver	Set in minutes from 1 … 720, can be set to dim the screen or to switch off
Brightness adjustment	Adjustable between 10 and 100%, default set to 80% brightness.
Backlight life time	
• SIREC D300	55,000 hours to half brightness when used at 100% (86,000 h if used at 80%). Maximum luminosity 400 cd/m²
• SIREC D400	43,000 hours to half brightness when used at 100% (67,000 h if used at 80%). Maximum luminosity 400 cd/m²
Display Update Rate	Display values updated every second
Status Display	A status bar, at the top of the recorder's screen, displays the real-time icons of the recorder status, such as Recording Time left and alarm active
Communications	Ethernet 10/100 base -T with RJ45 connector supporting Modbus/TCP, FTP, Internet, DHCP or fixed IP address. RS485 Modbus RTU (up to 115200 Baud Rate)
Mathematics	Basic Maths include Add, Subtract, Multiply, Divide, Modulo and power. Full Maths and Scripting (option) support up to 100 character free form math expression for each pen. For example SINE, COS, TAN, Log, Parenthesis (eg. A1 + A2), comm variables, free memory, and access to any data item variable (A1, P1, D1 etc.).
Front and Rear USB Ports	USB host ports front and rear for data and setup transfers through these ports. External devices (keyboard or mouse), Barcode reader, or external mass storage device. (USB 1.1 compliant)
Standard Screens and Custom Screens	Fully programmable display values in engineering units. Time & date stamp on every division. Sets of Standard screens are available to display data on a chart, digital reading, bargraphs or numerous combinations thereof. Screen properties can be modified on the recorder and customised to suit. Custom screens created in the Screen Designer software can be imported into the recorder for specialist applications. Custom Screen firmware option is required. Digital values displayed include • alarms on bars, • engineering units, • pen name, • Measuring point number • tag, time and date, • 20 character description and • totalised values.
Data Storage	
• Removable Media	Compact Flash card, supports up to 1850 MByte
• Local Mass Storage Options	• USB memory key - up to 2 GByte • USB hard drive - up to 120 GByte
• Internal Data Buffer	Non-volatile, 70 MByte (16 million acquisition values) upwards to 1,850 MByte (400 Million points)
• Setup and screens	Stored internally on non-volatile memory
• Manual Saving	Data saving by inserting compact flash card or USB memory stick
• Data Saving Period	Related to log rate, number of pens, totals and alarms. Each pen is capable of its own independent storage rate (20 ms … 60 h)
• Data Format	Binary encoded format
• Recycling Mode	Internal memory has FIFO (First In First Out) capability where the newest data over-writes the oldest data
Power Requirements	
• Voltage (VRMS)	100 V AC … 250 V AC (auto select)
• Frequency	50/60 Hz
• Power Consumption	
- SIREC D300	< 40 W
- SIREC D400	< 60 W
• Optional instrument power Voltage	
- SIREC D300	20 … 55 V DC / 20 … 30 V AC Power Consumption: < 40 W
- SIREC D400	20 … 55 V DC / 20 … 30 V AC Power Consumption: < 60 W
Common Relay Output (SPNC)	
• NC common alarm relay	2 contacts, normally open when the recorder is powered (no active alarms), rating 24 V, 1 A
Battery	Battery backed up for clock, Lithium battery Type 6032, 3.0 V – 10 years life (Recorder powered), 4 years life, typical (Recorder unpowered)

SIREC D300 and SIREC D400

Password Protection	Multiple Administrator control of password setup and management with 4 levels of password protection for – Engineer, Supervisor, Technician, and Operator. Up to 50 different users are available. Password protection restricts user entry to the recorder set up and specific screens.
• Engineer	Highest access to all levels, Supervisor, Technician and Operator
• Supervisor	2nd highest level including Technician and Operator access
• Technician	3rd level including Operator access
• Operator	4th and lowest level of access
Languages	• English UK & US • French • German • Italian • Spanish • Portuguese • Brazilian • Polish • Slovakian • Czech • Turkish • Romanian • Hungarian • Russian
Temperature Units	°C, °F oder K (Kelvin)
Recorder Identification	Status bar: Alternately displays Recorder ID and Recorder Screen Name. Displays Time and Date.
Clock	Accuracy: ± 29 ppm (± 1 minute/month) at 25°C. Summer/Winter manual or automatic time adjustment or via communications. SNTP Client and/or Server included for synchronising over Ethernet.
Alarm Set Points	6 per pen integral “soft” alarm set points easily set by user to announce selected out of limit conditions; user can select if an alarm triggers a change in the screen background colour
• Alarm triggers	Alarm triggers can be set for Hi, Lo, Deviation (latched or unlatched) for alarm acknowledgement
• Alarm Damping	1 s … 24 h
• Hysteresis	± 100% of pen scale
• Common relay output	1 A , 24 V; can be activated on any alarm
Data Replay Mode	Data replay facility on chart displays at normal, fast or slow speeds with zoom and cursor

Display Chart Speeds	
• Chart rates	• 1 mm/h • 5 mm/h • 10 mm/h • 20 mm/h • 30 mm/h • 60 mm/h • 120 mm/h • 600 mm/h • 1200 mm/h • 6000 mm/h Combinations of rates can be mixed and chart speeds can be set independently for each chart. Display speeds are independent of logging rate.
Messages Screen	The message screen displays system information and records any setup activity that has been changed. It also provides warning and error message updates, lists alarm activity and will display user defined marks on a chart.
CE Conformity (CE Mark)	This product conforms with the protection requirements of the following European Council Directives: 73/23/EEC, the Low Voltage Directive, and 89/336/EEC, the EMC Directive. Conformity of this product with any other “CE Mark” Directive(s) shall not be assumed.
Immunity Product Classification	Complies with EN 61326 Class I: Cord Connected, Panel Mounted Industrial Control Equipment with protective earthing (grounding), EN 61010-1
Enclosure Rating	Front panel designed to NEMA3/IP54 (Optional NEMA 4X/IP66)
Installation Requirements	Category II: Overvoltage (EN 61010-1) Pollution Degree 2
EMC Standards	Emissions - EN 61326 Class B Immunity - EN 61326 Industrial Levels
Safety	Complies with EN 61010-1: 2001 Panel Mounted Equipment, Terminals must be enclosed within the panel

Analog Inputs

Number of Inputs	
• SIREC D300	4, 6, 8, 12 or 16 input channels
• SIREC D400	4, 6, 8, 12, 16, 24, 32, 40 or 48 input channels
Input Types	mV, V, mA with external shunt (provided as standard), Thermocouple, RTD and ohms
Minimum Input Span	Range is fully configurable with span limitation of the operating range selected with 4% under range to 4% over-range capability (50 V Range 2%)
Burnout (T/C)	Active (High or Low), Passive and Health watch/maintenance (option).
Cold Junction Compensation	Internal compensation with the ability to manually adjust values, External Input for compensation, External CJC value specified

SIREC D300 and SIREC D400

Input Resolution	0.0015% (16 Bit ADC)
Input Impedance	
• Current loop resistance	10 Ω, use ± 0.1% external resistor, Volts > 1 MΩ, all other > 10 MΩ
Source Impedance	
• T/C and RTD	100 Ω per lead maximum (Cu10 = 15 Ω)
Square Root Extraction	Available as standard on every input type
Sensor Compensation	Single point and Dual point
Input Sampling Rate	
• SIREC D300	Recorder has 2 available slots with up to 8 analog inputs each; the input sampling rate is dependent on actuation type
• SIREC D400	Recorder has 6 available slots with up to 8 analog inputs each; the input sampling rate is dependent on actuation type
• All Inputs	100 ms (10 Hz), 200 ms (5 Hz), 500 ms (2 Hz)
• Fast Sampling	20 ms (50 Hz) - mA, mV, Volts and Ohms only
Linear Scales	• Normal and Scientific notation • Decimal Point automatic or programmable • Engineering units, user definable (10 characters)
Logarithmic Scales	Logarithmic Decade limits: -38 min, to +38 max, (recommend up to 20 decades on one screen to ensure clarity)
Input Isolation	300 V AC channel-to-channel, channel-to-ground
Noise Rejection	At 50/60Hz ± 2%
• Common mode	2 Hz = -120 dB, 5 Hz = -120 dB, 10 Hz = -120 dB
• Normal Mode	2 Hz = -85 dB, 5 Hz = -80 dB, 10 Hz = -48 dB
Input Actuation (Linear)	Range
• mV (DC)	-1000 … +1000
• V (DC)	-50 … +50
• mA	4 … 20, 0 … 20
• 200 Ω	0 … 200
• 500 Ω	0 … 500
• 1000 Ω	0 … 1000
• 4000 Ω	0 … 4000
Thermocouples	Temperatur range
• B	260 ... 538 °C (500 ... 1000 °F) 538 ... 1816 °C (1000 ... 3300 °F)
• E	-270 ... -200 °C (-454 ... -328 °F) -200 ... -70 °C (-328 ... -94 °F) -70 ... 1000 °C (-94 ... 1832 °F)
• J	-210 ... 0 °C (-346 ... 32 °F) 0 ... 1200 °C (32 ... 2192 °F)
• K	-270 ... -70 °C (-454 ... -94 °F) -70 ... 1372 °C (-94 ... 2502 °F)
• R	-50 ... 260 °C (-58 ... 500 °F) 260 ... 1768 °C (500 ... 3214 °F)
• S	-50 ... 260 °C (-58 ... 500 °F) 260 ... 1768 °C (500 ... 3214 °F)
• T	-270 ... -210 °C (-454 ... -346 °F) -210 ... 400 °C (-346 ... 752 °F)
• L	-200 ... 0 °C (-328 ... 32 °F) 0 ... 900 °C (32 ... 1652 °F)
• G (W_W26)	0 ... 100 °C (32 ... 212 °F) 100 ... 316 °C (212 ... 601 °F) 316 ... 2315 °C (601 ... 4199 °F)
• C (W5, W26)	0 ... 180 °C (32 ... 356 °F) 180 ... 1220 °C (356 ... 2228 °F) 1220 ... 2315 °C (2228 ... 4199 °F)
• M (NiMo-NiCo) (NNM90)	-50 ... 370 °C (-58 ... 698 °F) 370 ... 1410 °C (698 ... 2570 °F)
• N (Nicosil Nisil)	-200 ... 100 °C (328 ... 212 °F) 100 ... 1300 °C (212 ... 2372 °F)
• Chromel/Copel	-50 ... 600 °C (-58 ... 1112 °F)
• P (Platinel)	0 ... 1390 °C (32 ... 2534 °F)
• D	0 ... 180 °C (32 ... 356 °F) 180 ... 1840 °C (356 ... 3344 °F) 1840 ... 2490 °C (3344 ... 4515 °F)
Resistance thermometers	Temperatur range
• Pt100 α = 0,00385	-200 ... 850 °C (-328 ... 1562 °F)
• Pt200	-200 ... 850 °C (-328 ... 1562 °F)
• Pt500	-200 ... 850 °C (-328 ... 1562 °F)
• Pt1000	-200 ... 850 °C (-328 ... 1562 °F)
• Nickel, 100 Ω	-60 ... 180 °C (-76 ... 356 °F)
• Nickel, 120 Ω	-80 ... 260 °C (-112 ... 500 °F)
• Cu10	-200 ... 260 °C (-328 ... 500 °F)
• Cu53	0 ... 150 °C (32 ... 302 °F)

Logging

Logging Method	Sample, Average, Min/Max - can be set independently per pen
Logging Types	Continuous, Fuzzy
Logging Rate	From 200 ms … 60 h per Pen
Fuzzy Logging	A secure data storage technique which delivers data compression ratio of 100:1 or more; self teaching, storing the data at a variable rate to match the process

Mechanical Design

Enclosure/Bezel	Zinc plated steel case with high impact resistant polycarbonate bezel; scratch resistant lens
• Enclosure Rating	• NEMA 3/IP54 protection rating standard • Optional NEMA 4X/IP66 (Front face only)
• Colour	Bezel: Grey
Mounting Panel	Unlimited mounting angle For the best view of the display the viewing angle should not exceed: SIREC D300 • 55° from the left or right, • 40° looking down and • 50° looking up at the recorder display. SIREC D400 • 70° from the left or right, • 45° looking down and • 55° looking up at the recorder display. Mounting adjustable for panel thickness of 2 mm … 20 mm. Adapter kits available for covering existing panel cutouts.

SIREC D300 and SIREC D400

Dimensions (W x H x D) in mm	Additional 80 mm (3.15") clearance recommended for a straight type power cable and signal connectors
• SIREC D300	144 x 144 x 200 (5.67 x 5.67 x 7.87")
• SIREC D400	288 x 288 x 247 (11.34 x 11.34 x 9.72")
Cutout (W x H) in mm	
• SIREC D300	138 x 138 mm (5.43 x 5.43")
• SIREC D400	281 x 281 mm (11.06 x 11.06")
Weight	
• SIREC D300	Max. 3.5 kg (7.7lb)
• SIREC D400	Max. 10 kg (22 lb)
Wiring Connections	IEC Power Plug. Removable terminal strip for input and alarm connections

Environmental and Operating Conditions

Ambient Temperature	0 °C … 50 °C (32 °F ... 122 °F)
Relative Humidity (%RH)	10 ... 90
Vibration	
• Frequency (Hz)	0 ... 70
• Acceleration (g)	0.1
Mechanical Shock	
• Acceleration (g)	1
• Duration (ms)	30
Mounting Position from Vertical	
• Tilted Forward	40°
• Tilted Backward	65°
• Tilted to Side (±)	65°
Power Requirements	
• Mains Voltage (Vrms)	100 … 250
• Low Voltage AC (Vrms)	20 … 30
• DC Voltages	20 … 55
• Frequency (Hz)	47 … 63
Power Consumption	
• SIREC D300	AC: < 40 W (max), DC: < 40 W (max). Typical 20 W
• SIREC D400	AC: < 60 W (max), DC: < 60 W (max) . Typical 30 W
Warm Up	30 minutes minimum
Seismic Qualification	Complies with IEEE 323-1974 and/or 1983 and IEEE 344-1975 and/or 1987 (optional)

Options

Pulse Input	
• Quantity	4 isolated inputs per board
• Frequency	1 Hz … 25 kHz, updated once per second
• Input	Low < 1V, High > 4 V … < 50 V or Volt free input: Low = short circuit, High = open circuit.
Alarm Outputs	Programmable alarm set points (6 per pen) can be configured to activate up to 16 (SIREC D300) respectively 48 outputs (SIREC D400)
• Update rate	200 ms for all alarms
• Number/Type	• 4 or 8 relay contacts SPDT, 3 A 240 V AC, 3 A 24 V AC/DC, 0.2A 240 V DC (non-inductive, internally suppressed) • 8 I/O or 16 I/O - SPNO, 1 A 24 V DC (non-inductive, internally suppressed)
• Activation	Fully programmable internal alarm levels. Assignable to any relay output
Digital Input/Output	
• Quantity	• 8 I/O or 16 I/O All channels may be selected freely as either digital inputs or outputs. The Digital I/O card also has 4 channels that can be set as pulse inputs (channels 1 … 4). The operating frequency for pulse inputs on the Digital I/O card is 1kHz max.
• Relay Outputs	• 4 relay outputs All four channels are relay outputs only
• Relays/DI card	• 8 relays/ 2 DI card 2 outputs can be configured for use as digital inputs: A digital input is provided by a volt free contact between the normally open (NO) and the common (C) terminals of an output relay. If the 2 Digital inputs are used only 6 relay outputs are available. Closed < 500 Ω, Open > 300 kΩ.
Custom Screens	Provides the capability in the recorder to accept custom screen designs from the Screen Designer.
Email	Setup email accounts to send the following: When an Alarm is triggered or an Email can be sent as a part of an Event occurring, such as: Alarms - In/Out/Ack, Totaliser – Start, Stop or Reset, Digital Inputs – On, Off or State change, TC Burnout – on a specific Analog Input channel, Scheduled Events – Once, Interval, Specific days, Month End
OPC Server	OPC 3.0 DA and AE compliant. Totalisers and up to 96 pens can be transmitted via OPC server, max poll rate 1/s
Event marker	User defined process events are recorded and can be set to cause particular recorder actions. Events can consist of recording start/stop, digital inputs, alarms, totalising actions, timers, barcode, etc. Once an event has been caused it can produce a definable set of effects on the recorder which can include, mark on chart, relay outputs, recording control, acknowledge alarm, trigger an Event, set/clear Relay, Screen change, E-mail a message and Reset max/mins. Each event marker can be recorded for analysis using the SIREC D application software.
Analog Outputs (Re-transmission Outputs)	Re-transmission outputs available; a pen drives each output. Analog inputs, totalised values or any mathematical result can be re-transmitted.

SIREC D300 and SIREC D400

• Quantity	
- SIREC D300	2 or 4 re-transmission outputs
- SIREC D400	2, 4, 6 or 8 re-transmission outputs
• Update Rate	250 ms all channels
• Accuracy	± 0.1% (0 … 500 Ω load), ± 0.25% (500 Ω, 1 kΩ load)
• Type	0 … 20 mA, 4 … 20 mA
• Maximum Load Resistance	1 kΩ
• Resolution	0,002%
• Isolation	300 V AC
Health Watch/Maintenance Capability	The recorder keeps track of important "life actions" for improved diagnostics and preventative maintenance notification. Including • Powered On • Last powered On • Time On since power up • Total On time • Total Off time • Longest Off time • Hardware/Firmware updates • Lithium cell life • Backlight life left at 100% brightness • Compact Flash insertions, • Hi/Lo CJC value (Hi & Lo temps), • Analog In last factory/user calibration • Relay operations
Agency Approval	
• CSA	CSA22.2-No.1010.1-2004 Certificate Number L211230
• UL	ANSI/UL61010-1-2004 File # 201698 FM Class 1 Division 2 (optional)
Transmitter Power (optional)	
• SIREC D300	200 mA at 24 V DC ± 3 V DC
• SIREC D400	1 A at 24 V DC ± 3 V DC
Extended Security System (ESS)	Provides full support for 21 CFR Part 11. Includes features for entry of unique User ID's and associated passwords: • Timeout on inactivity (1 … 10 min) • Password expiration (1 … 365 days) • Up to 50 users • Password re-entry lock out for incorrect entry of password more than 3 times, no re-use of passwords (programmable 4 … 12 times) • Traceability by user name

Totaliser/Sterilisation	One totaliser per input. Totaliser value must be assigned to a pen for display and storage. Multiple totalisations (Maths option) are possible with the use of extra pens (option). Reset may be manual or programmed. Totalisation values are 10 digits plus exponent. Each pen can be totalised according to the Fo or Po sterilisation function at 121.11°C (250 °F). The Standard Reference Temperature and Thermal Resistance (Z Value) are fully adjustable values of X, Y, W and V. Start temp, Reference temp and Z factor are all user defined, allowing support for many different types of sterilisation applications. **Specification table for Sterilisation** The definition of Fo/Po is the sterilisation/pasteurisation time in minutes required to destroy a stated number of organisms with a known z at temperature T.
Batch	The Batch function allows the user to segment portions of data for further analysis. Batch controls include • Start, • Stop, • Pause, • for viewing, • Resume and Abort.
Print Support	Network printing from status, message and replay screens. Plus screen capture facility of process screens instantly using a basic USB standard PCL printer.
Math Algorithms	All analog input channels have a math expression block. This is a fully user programmable 100 character free form math expression for each pen. Math calculations available on all pens, one per input plus 16 extra pens for the SIREC D300 and 48 extra pens for the SIREC D400 recorder. Scripting maths includes conditions and multi-line scripting in pen maths expressions. Allow functions, permanent variables and constants, timers. 500 characters maximum per pen.
Miscellaneous	Optional customer ID Tagging (3 lines of up to 22 characters each line)

Firmware Credit System

The credits system is a flexible way of adding to the recorder features without having to upgrade the firmware. Simply purchase a number of credits to cover your current and possibly future requirements and the recorder will be delivered with the credits loaded. The credit value in each recorder is displayed in the Factory menu.

- Select the Options button and by activating and de-activating the options in the credit list, the recorder will change its functionality. Any greyed out options on the list will mean there are not enough credits available for that feature on the recorder.

Credits can be applied as desired to the Firmware functions until the total number of credits purchased has been used up. Additional credits can be purchased later if new features are to be activated and not enough credits are available to support these additional functions.

Firmware option	Credit value	Description
Full Maths	4	Full Math - this can handle math expressions that can consist of expressions up to 100 characters in length. (Note 1)
Full Maths with Scripting	6	A powerful multi-line scripting ability available to solve complex state based applications. Eg.: "**If** .. X happens, then Y will happen, **else**.. Z will occur. (Note 1)
Events	6	Events are certain conditions or operations that can be set up and logged according to the time and date of an occurrence. Subsequently events can be reviewed or displayed on a graph. Events can produce the following actions: Mark on Chart, start/stop Logging, Start/stop/reset Totalisers, Set/clear Relay (Digital), Acknowledge alarm, trigger an Event, Screen change, E-mail a message and Reset max/mins. (Note 3)
Fast Scanning mode	5	For fast processes, the scan rate and recording of the data can be set for up to 50 times per second (20 ms) for • SIREC D300: up to 8 inputs • SIREC D400: up to 16 inputs
Totalisers/ Sterilisation calculation	4	Each pen can be associated with a totaliser. Using extra pens, the totalised values can be displayed and recorded; multiple totals can be calculated out of the same variable (weekly, monthly, etc.). The totaliser function can handle Fo and Po sterilisation calculation. (Note 1)
Custom Screens	4	Import custom built screens that have been created in SIREC D-Designer. (Note 2)
Health Watch/ Maintenance	2	The recorder keeps track of important "life actions" for improved diagnostics and preventative mainte-nance notification. Including Powered On, Last powered On, Time On since power up, Total On time, Total Off time, Longest Off time, Lithium cell life, Backlight life left at 100% brightness, Compact Flash insertions, Hi/Lo CJC value (Hi & Lo temps), Analog In last factory/user cal, Relay operations
Print Support	2	Enables the printer option to print text from various screens using a basic USB standard PCL printer.
Batch	3	The Batch function allows the user to segment portions of data for further analysis. Batch controls include Start, Stop, Pause, for viewing, Resume and Abort.
Groups	2	Groups of Pens can be specified and named with a Group number to display on the recorder.
Remote Viewer	3	Extends the user interface of the recorder onto the desktop PC. Providing full remote control of the unit launched from a web browser.
Email	3	Setup email accounts to send the following: When an Alarm is triggered or an Email can be sent as a part of an Event occurring, such as: Alarms - In/Out/Ack, Totaliser – Start, Stop or Reset, Digital Inputs – On, Off or State change, TC Burnout – on a specific Analog Input channel, Scheduled Events – Once, Interval, Specific days, Month End.
OPC Server	8	OPC (OLE for Process Control) -Software application for realtime interfacing between servers and cli-ents. OPC is a software standard that defines common interfaces for data exchange between devices such as recorders, controllers, PLC's and Microsoft Windows™ based applications
Extra Pens (4)	2	4 extra pens to store and display totalised values, results of calculations, etc. • SIREC D300: Maximum is up to 16 extra pens • SIREC D400: Maximum is up to 48 extra pens

Notes

- (1) Additional pens ("Extra Pens") can be used to display and store the results of calculations, totalisers, variables imported via communications, or to store values.
- (2) Screens from Screen Designer for SIREC D300 and SIREC D400 cannot be imported.
- (3) Event markers are required to automatically reset the totalisers, for example on a periodic basis or on an external condition. (Not necessary if the totalisers are reset manually).

Additional information is available in the Internet under:

http://www.siemens.com/sirec

SIREC D300 and SIREC D400

Selection and Ordering Data — Order No.

SIREC D300 display recorder [1]	**7ND4421-**									
Front dimensions: 144 mm x 144 mm, for all applications, Cycle time: 200 ms for mA,V,mV/500 ms for TC/RTD/R Rear side: Ethernet interface; RS485; USB Front face: slot for CF card; USB interface	■	■	A	■	■	-	■	■	■	■
Power supply										
50 or 60 Hz, 90 ... 240 V AC										
▶ • without transmitter power supply	1									
• 24 V DC max. 200 mA transmitter power supply	2									
24/48 V DC / 24 V AC, 50/60 Hz, without transmitter power supply	4									
Analog inputs/ Pulse inputs										
8 analog inputs										
▶ • without analog outputs		A								
• 2 analog outputs		B								
• 4 analog outputs		C								
14 analog inputs, without analog outputs		D								
16 analog inputs, without analog outputs		E								
4 pulse inputs										
• without analog outputs		H								
• 2 analog outputs		J								
• 4 analog outputs		K								
• 8 analog inputs, without analog outputs		L								
8 pulse inputs, without analog outputs		M								
Switching outputs and inputs										
▶ None			0							
4 relays (240 V)			1							
8 relays, of which 2 can be optionally configured as binary input (240 V)			2							
8 binary outputs and inputs (24 V relay/freely-configurable)			3							
16 binary outputs and inputs (24 V relay/freely-configurable)			4							
Internal data storage										
▶ 70 Mbyte (standard)				1						
180 Mbyte				2						
400 Mbyte				3						
890 Mbyte				4						
1850 Mbyte				5						
Extended Security System (ESS)										
▶ With					1					
None					2					

Selection and Ordering Data — Order No.

SIREC D300 display recorder [1]	**7ND4421-**									
Front dimensions: 144 mm x 144 mm, for all applications, Cycle time: 200 ms for mA,V,mV/500 ms for TC/RTD/R Rear side: Ethernet interface; RS485; USB Front face: slot for CF card; USB interface	■	■	A	■	■	-	■	■	■	■
Firmware options										
(see table below " Firmware options and required credits")										
▶ None							A			
10 credits							B			
20 credits							C			
30 credits							D			
40 credits							E			
50 credits							F			
60 credits							G			
Protection rating standard (front face)										
IP54										
▶ • without earthquake-proof version								A		
IP66 (NEMA 4X)										
• without earthquake-proof version								D		
• Earthquake-proof version								E		
Documentation										
▶ Manual in German									1	
Manual in English									2	

▶ Available ex stock

[1] Subject to export regulations AL:N, ECCN: EAR99

Scope of delivery:
Recorder, CD-ROM with manual in German or English, SIREC D software (SIREC D-Viewer).
Note: CF card is included in the scope of delivery.

Selection and Ordering Data

	Order No.
SIREC D400 display recorder [1]	**7ND4461-**
Front dimensions: 288 mm x 288 mm, for all applications	■■■■■-■■■■
Power supply	
50 or 60 Hz, 90 ... 240 V AC	
• without transmitter power supply ▶	1
• 24 V DC max. 200 mA transmitter power supply	2
24/48 V DC / 24 V AC, 50/60 Hz, without transmitter power supply	4
Analog inputs (slot allocation 1 ... 4)	
16 analog inputs	
• without pulse inputs ▶	A
• 4 pulse inputs	B
• 8 pulse inputs	C
24 analog inputs	
• without pulse inputs	D
• 4 pulse inputs	E
32 analog inputs, without pulse inputs	F
without analog inputs	
• 4 pulse inputs	G
• 8 pulse inputs	H
• 12 pulse inputs	J
• 16 pulse inputs	K
Analog inputs/Pulse inputs (slot allocation 5 and 6)	
without analog inputs	
• without analog outputs ▶	A
• 2 analog outputs	B
• 4 analog outputs	C
8 analog inputs	
• without analog outputs	D
• 2 analog outputs	F
16 analog inputs, without analog outputs	G
Switching outputs and inputs (distributed on 3 slots)	
None ▶	0
4 relays (240 V)	1
8 relays, of which 2 can be optionally configured as binary input (240 V)	2
16 relays, of which 4 can be optionally configured as binary input (240 V)	3
24 relays, of which 6 can be optionally configured as binary input (240 V)	4
8 binary outputs and inputs (24 V relay/freely-configurable)	5
16 binary outputs and inputs (24 V relay/freely-configurable/ 1 x 16)	6
24 binary outputs and inputs (24 V relay/freely-configurable/16 + 8)	7
48 binary outputs and inputs (24 V relay/freely-configurable/3 x 16)	8

Selection and Ordering Data

	Order No.
SIREC D400 display recorder [1]	**7ND4461-**
Front dimensions: 288 mm x 288 mm, for all applications	■■■■■-■■■■
Internal data storage	
70 Mbyte (standard) ▶	1
180 Mbyte	2
400 Mbyte	3
890 Mbyte	4
1850 Mbyte	5
Extended Security System (ESS)	
With	1
None	2
Firmware options (see table "Firmware options and required credits")	
None ▶	A
10 credits	B
20 credits	C
30 credits	D
40 credits	E
50 credits	F
60 credits	G
70 credits	H
Protection rating standard (front face)	
IP54	
• without earthquake-proof version ▶	A
IP66 (NEMA 4X)	
• without earthquake-proof version	D
• Earthquake-proof version	E
Documentation	
Manual in German ▶	1
Manual in English	2

▶ Available ex stock

[1] Subject to export regulations AL:N, ECCN: EAR99

Scope of delivery:
Recorder, CD-ROM with manual in German or English, SIREC D software (SIREC D-Viewer).
Note: CF card is included in the scope of delivery.

SIREC D300 and SIREC D400

Accessories	Order No.
Firmware options for SIREC D300 and SIREC D400 Code No. of recorder required	
10 credits	**7ND4 801-8AC**
20 credits	**7ND4 801-8BC**
30 credits	**7ND4 801-8CC**
40 credits	**7ND4 801-8DC**
50 credits	**7ND4 801-8EC**
60 credits	**7ND4 801-8FC**
70 credits (SIREC D400 only)	**7ND4 801-8GC**
Options/enabling of SIREC D software Code No. of software required	
Enabling of SIREC D-Manager	**7ND4 800-8BA**
Enabling of SIREC D-Server	**7ND4 800-8CA**
Enabling of SIREC D-Designer (only for SIREC D300 and SIREC D400)	**7ND4 801-8DA**
Upgrading of SIREC D-Manager to SIREC D-Server	**7ND4 800-8EA**
SIREC D software Only for subsequent orders; software is included in delivery of recorder Evaluation software for SIREC D200/D300/D400 (on CD) incl. enabling for SIREC D-Viewer and manual for the software on CD in German, English, French	**7ND4 800-8AA**
Documentation Included on CD-ROM in scope of delivery	
SIREC D300 and SIREC D400 recorder manual	
• German (can also be downloaded from Internet)	**A5E01001785-03**
• English (can also be downloaded from Internet)	**A5E01001767-03**
• French (can only be downloaded from Internet)	

Scope of delivery:
Recorder, CD-ROM with manual in German or English, SIREC D software (SIREC D-Viewer).
Note: CF card is included in the scope of delivery.

Firmware options and required credits

SIREC D300

Options	Required credits
Groups/summarize channels	2
Diagnostic functions	2
Print support	2
8 extra pens (virtual channels)	2
16 extra pens (virtual channels)	4
Counter	2
Remote viewer	3
Batch	3
E-mail function	3
Totalisers	4
Maths (free functions)	4
Maths and Scripts (free functions)	6
Events (logical connections)	6
OPC Interface	8
Custom specified screens	4
Fast scanning (20 ms/only with mV/V/mA)	5

SIREC D400

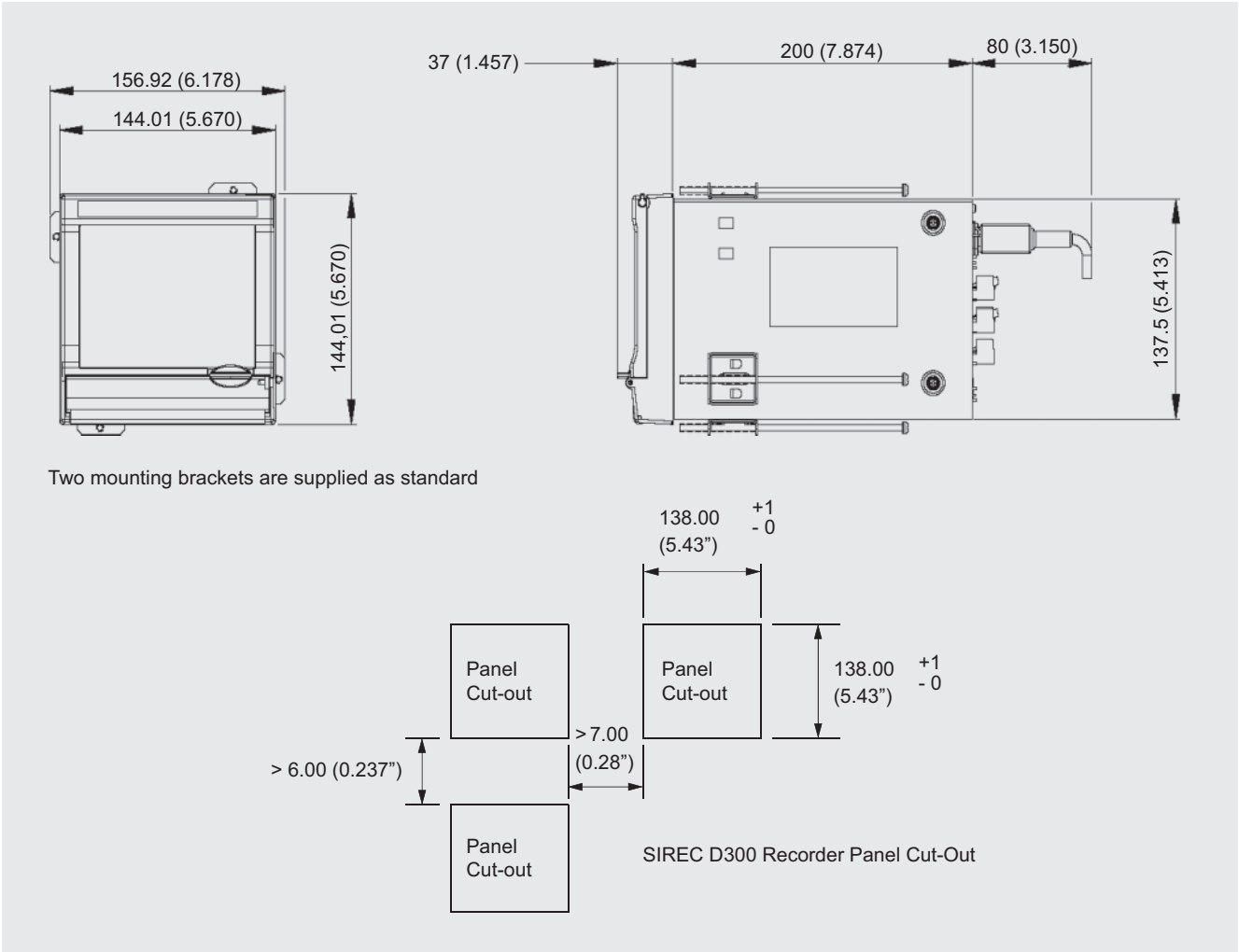
Options	Required credits
Groups/summarize channels	2
Diagnostic functions	2
Print support	2
8 extra pens (virtual channels)	2
16 extra pens (virtual channels)	4
32 extra pens (virtual channels)	8
48 extra pens (virtual channels)	12
Counter	2
Remote Viewer	3
Batch	3
E-mail function	3
Full Maths	4
Maths (free functions)	4
Maths and Scripts (free functions)	6
Events (logical connections)	6
OPC Interface	8
Custom specified screens	4
Fast scanning (20 ms/only with mV/V/mA)	5

Options

Options - Hardware

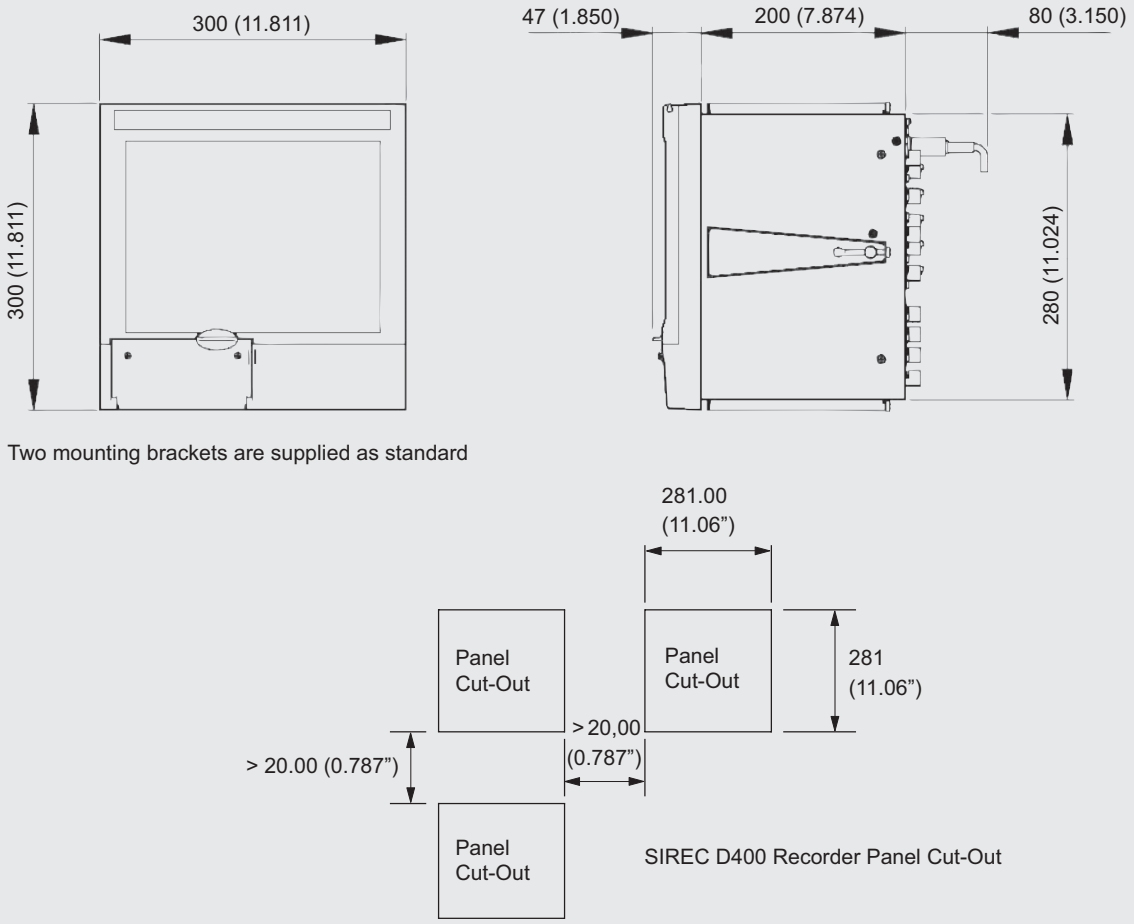
- Alarm Card
  - 4 or 8 outputs relay contacts SPCO 240 V
  - 8 Digital I/O or 16 Digital I/O - SPNO 24 V DC
  - Programmable alarm set points can be configured to activate up to 16 outputs for the SIREC D300 and 48 outputs for the SIREC D400.
- Analog Output
  - 2 or 4 outputs available per card
  - Output type: 0-20 mA or 4-20 mA
- Nema 4X/IP66
  - Nema 4X/IP66 protection available as an option.
- Portable Recorders
  - Portable cases available as an accessory item.
- Digital Input
  Two digital input options are available:
  - 2 inputs on 8 channel Alarm card, 8 inputs on 8 Digital I/O card and 16 inputs on a 16 Digutal I/O card. The digital inputs allow users to initiate, from a remote location via a dry contact closure, selected recorder functions.
- Pulse Counting
  - Up to four counting inputs per board, are available to count signals up to 25 kHz (SIREC D300: max. 2 cards; SIREC D400: max. 6 cards).
- Approvals
  - CSA, UL and FM CL1 Div 2 approvals
- 24 V AC/DC or 48 V DC Power Supply
  - 20 to 55 V DC
  - 20 to 30 V AC
- 24 V DC Transmitter Power Supply
  - Can supply up to 200 mA (SIREC D300) respectively 1 A (SIREC D400) to external transmitters.
- Print Support
  - Network printing from status, message and replay screens. Plus screen capture facility of process screens instantly using a basic USB standard PCL printer.

Dimensional drawings



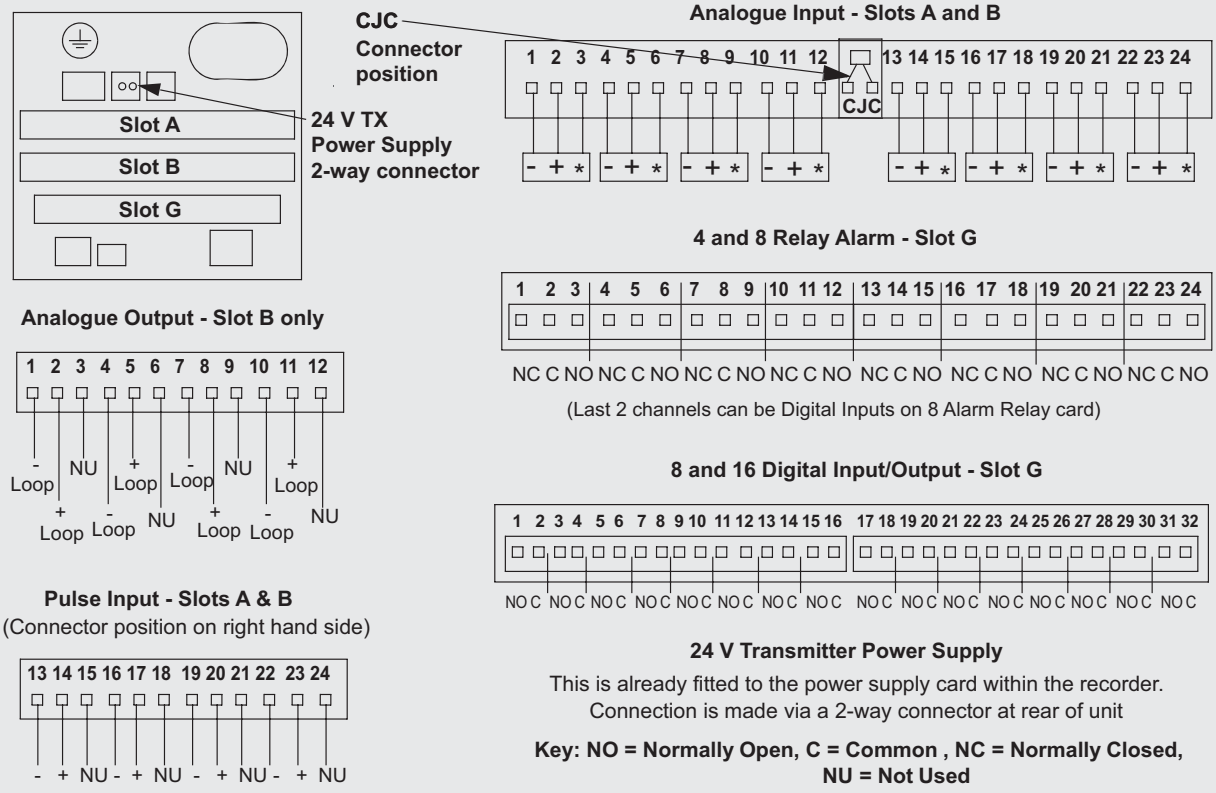
SIREC D300, dimensions in mm (inch) and panel cut-out

SIREC D300 and SIREC D400



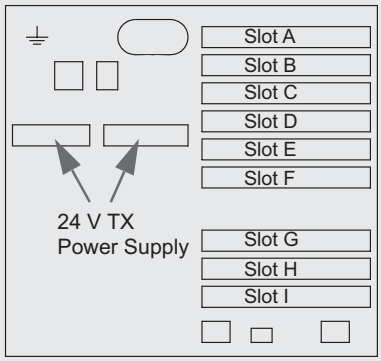
SIREC D400, dimensions mm (inch) and panel cut-out

Schematics

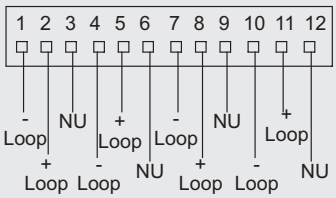


SIREC D300 - Terminal assignments and power requirements (rear of unit)

SIREC D300 and SIREC D400

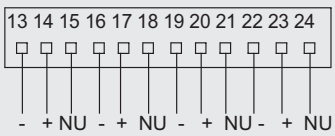


Analogue Output - Slots E and F



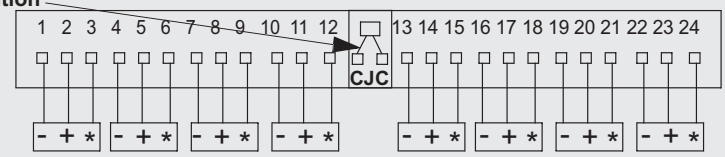
Pulse Input - Slots A to F

(Connector position on right hand side)

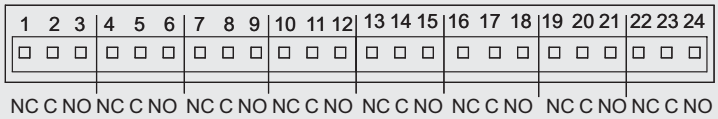


CJC Connector position

Analogue Input - Slots A to F

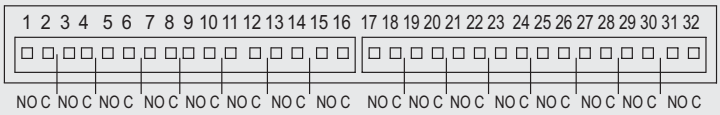


4 and 8 Relay Alarm - Slots G to I



(Last 2 channels can be Digital Inputs on the 8 Alarm Relay card)

8 and 16 Digital Input/Output - Slots G to I



24 V Transmitter Power Supply

Connection is made via two 10-way connector at rear of unit

Key: NO = Normally Open , C = Common , NC = Normally Closed, NU = Not Used

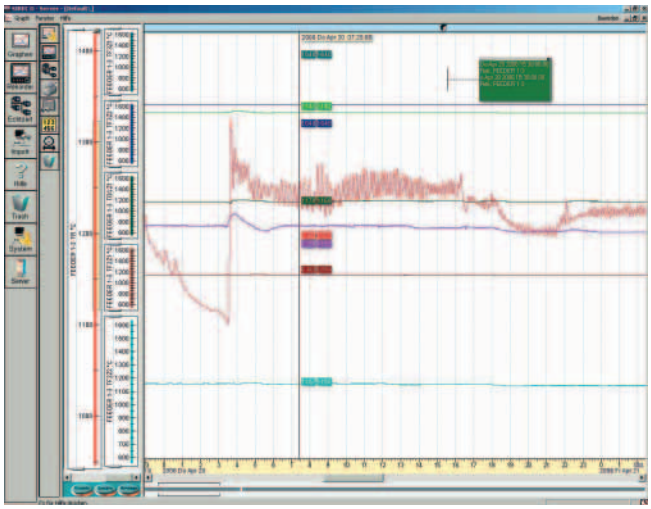
SIREC D400 - Terminal assignments and power requirements (rear of unit)

More information

Additional information is available in the Internet under:

http://www.siemens.com/sirec

Overview



SIREC D-Viewer and SIREC D-Manager

The SIREC D-Viewer software is included in the scope of delivery of the recorder. It permits the graphical or numerical display and printout of measured values and data.

The SIREC D-Manager software package permits PC-based configuration and simulation of the recorder as well as the archiving, graphic display, printing and exporting of data with CSV format.

SIREC D-Server

SIREC D-Server is a network solution for data display and archiving as well as for communication with up to 256 recorders. An RS485 network or also the Ethernet TCP/IP option of the recorder is used for this, and permits direct interfacing to existing LANs. The standard package provides archiving, e-mail, graphics, printing and export functions

An integral OPC function permits export to software from other vendors in real-time mode.

Database Tool

This software application works with SIREC D-Manager and SIREC D-Server to provide safe administration of data with tools to archive, sort, move, copy and delete the data stored in local and remote databases.

The Database Tool software is supplied with SIREC D-Server.

SIREC D-Designer (only for SIREC D300 and SIREC D400)

The SIREC D-Designer permits the user to draft own graphic pages which are subsequently output on the recorder display. Any combination of display elements can be used such as trends, digital displays, bargraphs, bitmaps, digitized displays and plant displays. Various aspects of these elements can be modified if required to obtain a truly individual display.

The SIREC D-Designer software is compatible with both SIREC D300 and SIREC D400 recorders. Complete graphic pages can be loaded via diskette/PC card into any number of recorders. In this manner it is particularly easy to achieve consistent and standardized display of the process data.

Function

Comparison of functions of SIREC D-Viewer, Manager and Server

Functions	SIREC D-Viewer	SIREC D-Manager	SIREC D-Server
Importing of data from diskette	X	X	X
Graphic display of data	X	X	X
Upgrades available from Internet	X	X	X
Printout of all graphic data	X	X	X
Access to recorder via Internet browser	X	X	X
Printout of all configuration data		X	X
PC-based configuration of graphic recorders		X	X
Configuration of fuzzy logging function		X	X
Configuration of event system		X	X
Archiving of data in protected databases		X	X
Exporting of measured data in CSV format		X	X
Exporting of online measured data with OPC			X
Communication with up to 256 recorders via RS485			X
Communication with recorders via Ethernet TCP/IP			X
Access to recorder data from a LAN			X
FTP and real-time Ethernet communication			X
User administration and password protection			X
Configuration of recorders via Ethernet			X
Audit trail manager			X

SIREC D application software

Technical specifications

System requirements	SIREC D-Viewer, SIREC D-Manager, SIREC D-Designer	SIREC D-Server
Processor	Pentium 1 GHz or higher	Pentium 1 GHz or higher
Main memory	512 MByte RAM (min. 512 MByte recommended)	512 MByte RAM (min. 512 MByte recommended)
Free hard disk space	50 MByte	2 GByte
Operating system	Microsoft Windows 2000, XP	Microsoft Windows 2000, XP
Monitor screen resolution	1024 x 768 (recommended minimum), high colour (16 bit), 24 bit recommended (SIREC D-Designer only)	1024 x 768 (recommended minimum), high colour (TCP/IP installed)
Flash card reader or USB port	X	X
CD-ROM drive	X	X
Mouse	X	X
OPC server		OPC 2.0 compatible

Selection and Ordering Data

	Order No.
SIREC D software Evaluation software for SIREC D200/D300/D400 incl. enabling for SIREC D-Viewer and manual for the software in German, English, French Software is included in delivery of recorder	**7ND4 800-8AA**
Options/enabling of SIREC D software Code No. of software required	
Enabling of SIREC D-Manager	**7ND4 800-8BA**
Enabling of SIREC D-Server	**7ND4 800-8CA**
Enabling of SIREC D-Designer (only for SIREC D300 and SIREC D400)	**7ND4 801-8DA**
Upgrading of SIREC D-Manager to SIREC D-Server	**7ND4 800-8EA**

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  (for customers based outside Germany)

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(Germany: A&D Mall Online-Help System)

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A&D/VuL_ohne MZ/En 05.09.06

Catalogs of the Automation and Drives Group (A&D)

Further information can be obtained from our branch offices listed in the appendix or at www.siemens.com/automation/partner

	Catalog
Automation and Drives	
Interactive catalog on CD-ROM and on DVD	
• The Offline Mall of Automation and Drives	CA 01
Automation Systems for Machine Tools	
SINUMERIK & SIMODRIVE	NC 60
SINUMERIK & SINAMICS	NC 61
Drive Systems	
Variable-Speed Drives	
SINAMICS G130 Drive Converter Chassis Units, SINAMICS G150 Drive Converter Cabinet Units	D 11
SINAMICS G110 Inverter Chassis Units	D 11.1
SINAMICS GM150/SINAMICS SM150 Medium-Voltage Converters	D 12
SINAMICS S120 Drive Converter Systems	D 21.1
SINAMICS S150 Drive Converter Cabinet Units	D 21.3
Asynchronous Motors Standardline	D 86.1
Synchronous Motors with Permanent-Magnet Technology, HT-direct	D 86.2
DC Motors	DA 12
SIMOREG DC MASTER 6RA70 Digital Chassis Converters	DA 21.1
SIMOREG K 6RA22 Analog Chassis Converters	DA 21.2
SIMOREG DC MASTER 6RM70 Digital Converter Cabinet Units	DA 22
SIMOVERT PM Modular Converter Systems	DA 45
SIEMOSYN Motors	DA 48
MICROMASTER 410/420/430/440 Inverters	DA 51.2
MICROMASTER 411/COMBIMASTER 411	DA 51.3
SIMOVERT MASTERDRIVES Vector Control	DA 65.10
SIMOVERT MASTERDRIVES Motion Control	DA 65.11
Synchronous and asynchronous servomotors for SIMOVERT MASTERDRIVES	DA 65.3
SIMODRIVE 611 universal and POSMO	DA 65.4
Low-Voltage Three-Phase-Motors	
IEC Squirrel-Cage Motors	D 81.1
Automation Systems for Machine Tools SIMODRIVE	NC 60
• Main Spindle/Feed Motors	
• Converter Systems SIMODRIVE 611/POSMO	
Automation Systems for Machine Tools SINAMICS	NC 61
• Main Spindle/Feed Motors	
• Drive System SINAMICS S120	
Drive and Control Components for Hoisting Equipment	HE 1
Electrical Installation Technology	
PDF: ALPHA Small Distribution Boards and Distribution Boards, Terminal Blocks	*ET A1*
PDF: ALPHA 8HP Molded-Plastic Distribution System	*ET A3*
PDF: BETA Low-Voltage Circuit Protection	*ET B1*
PDF: DELTA Switches and Socket Outlets	*ET D1*
GAMMA Building Controls	ET G1
Human Machine Interface Systems SIMATIC HMI	ST 80

	Catalog
Industrial Communication for Automation and Drives	IK PI
Low-Voltage	
Controls and Distribution – SIRIUS, SENTRON, SIVACON	LV 1
Controls and Distribution – Technical Information SIRIUS, SENTRON, SIVACON	LV 1 T
SIDAC Reactors and Filters	LV 60
SIVENT Fans	LV 65
SIVACON 8PS Busbar Trunking Systems	LV 70
Motion Control System SIMOTION	PM 10
Process Instrumentation and Analytics	
Field Instruments for Process Automation Measuring Instruments for Pressure, Differential Pressure, Flow, Level and Temperature, Positioners and Liquid Meters	FI 01
PDF: Indicators for panel mounting	*MP 12*
SIREC Recorders and Accessories	MP 20
SIPART, Controllers and Software	MP 31
SIWAREX Weighing Systems	WT 01
Continuous Weighing and Process Protection	WT 02
Process Analytical Instruments	PA 01
PDF: Process Analytics, Components for the System Integration	*PA 11*
SIMATIC Industrial Automation Systems	
SIMATIC PCS Process Control System	ST 45
Products for Totally Integrated Automation and Micro Automation	ST 70
SIMATIC PCS 7 Process Control System	ST PCS 7
Add-ons for the SIMATIC PCS 7 Process Control System	ST PCS 7.1
Migration solutions with the SIMATIC PCS 7 Process Control System	ST PCS 7.2
pc-based Automation	ST PC
SIMATIC Control Systems	ST DA
SIMATIC Sensors	FS 10
SIPOS Electric Actuators	
Electric Rotary, Linear and Part-turn Actuators	MP 35
Electric Rotary Actuators for Nuclear Plants	MP 35.1/.2
Systems Engineering	
Power supplies SITOP power	KT 10.1
System cabling SIMATIC TOP connect	KT 10.2
System Solutions	
Applications and Products for Industry are part of the interactive catalog CA 01	
TELEPERM M Process Control System	
PDF: AS 488/TM automation systems	*PLT 112*

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