NEW!

smiths medical
bringing technology to life

CADD®-Solis
Ambulatory Infusion System

CADD™

NEW!

CADD®-Solis

Ambulatory Infusion System

A state-of-the-art, **smart** pain management system that meets industry recognized standards for advanced error-reduction features in PCA pumps

Summary of recognized standards for error-reduction features in PCA pumps*	CADD®-Solis Ambulatory Infusion System Features
Initial programming Include drug name, concentration, dosing units, initial settings for bolus doses, continuous flow setting, lockout intervals and time-based dosing limits	✔ INCLUDED
Dose Limits Set dose limits for subsequent reprogramming of the pump and maximum rate limits and lockout intervals for each order	✔ INCLUDED
Indication of overridden limit Clear indication should be displayed on the pump when limits are overridden	✔ INCLUDED
Configure protocol library to current practices Specifically configure a facilities protocol/drug library to current ordering and delivery practices	✔ INCLUDED
Simple to operate Encourage consistent use by being simple to operate	✔ INCLUDED
Display protocol/drug name at all times Display the protocol/drug name and dosing information at all times	✔ INCLUDED
Track limit overrides and programming changes Provide the ability to track limit overrides, programming changes and the ability to retain data for 1 year and downloadable for analysis	✔ INCLUDED
Provide facility-based support with implementation of advanced safety features Provide facility-based support with the implementation of advanced safety features	✔ INCLUDED

*Health Devices, January 2006, Volume 35, Number 1 This information is for illustrative purposes only – ECRI has not evaluated the CADD®-Solis ambulatory infusion system

Patient Centered
Smart
Pain Management Infusion Solution
in a truly ambulatory pump

CADD®-Solis
Ambulatory Infusion System

CADD®-Solis Ambulatory Infusion Pump
CADD®-Solis Medication Safety Software
CADD® Medication Cassette Reservoirs
and Administration Sets

Breakthrough Advancements in

Patient Safety
Individual Patient Care
Scalable Connectivity

Designed to help you connect

Patient Safety

Built-in medication safety features and advanced programming simplicity enable a patient-focused, treatment-oriented infusion system designed to address medication safety goals and reduce the risk of programming errors.

Designed to meet industry recognized standards for advanced error reduction (SMART infusion) features in PCA pumps

- Optimize medication delivery safety features with CADD®-Solis medication safety software
- Encourages safety and standardization for all pain management therapies

Customizable therapy-based protocol library deploy user's best practices in all care areas

- Facility-defined protocol library reflects treatment-based clinical pathways
- Specifically configure a facilities protocol library to current ordering and delivery practices

Personalized programming to meet individual patient needs

- On-board library holds up to 500 protocols
- User-defined soft and hard limits provide flexibility and added safety

Secure access and simple menu structure with soft-key interface and familiar CADD® pump scroll keys

- Soft key interface helps make programming and navigating intuitive and easy
- Scroll keypad helps prevent entering values outside of defined program limits
- Designate authorized users with levels of security access

Studies show the risk of harm from medication errors

The Institute of Medicine (IOM) report, Preventing Medication Errors, estimated 450,000 preventable adverse drug events (ADEs) that occur in U.S. hospitals each year[1]

A hospitalized patient can expect, on average, to be subjected to more than one medication error each day[1]

One study found that each preventable ADE that took place in a hospital added about $8,750 (2006 dollars) to the cost of the hospital stay[1]

A recent study found 47% of adverse events involved medications, and wrong dosages were among the most common errors[2]

(1) Preventing Medication Errors, IOM, 2006.
(2) Rothschild J.M., Keohane, C.A., Cook, E.F., et al. A controlled trial of smart infusion pumps to improved medication safety in critically ill patients. Critical Care Medicine, (2005) 33(3), 533-540, 679.

Individual Patient Care

A versatile, multi-therapy infusion system to support all your pain management medication delivery needs. The compact, lightweight design promotes patient mobility, associated with improved clinical outcomes, reduced length-of-stay, and reduced treatment costs.

A highly versatile, multi-therapy pain management infusion system

- IV PCA, subcutaneous, epidurals, nerve blocks, surgical site infusion therapies
- Post-op, labor and delivery, trauma, pediatrics

Medication delivery focused on the point of care

- Strikingly clear screen displays therapy, drug, medication delivery settings and status
- Color indicators of protocol, pump operating status and alarms/alerts

Immediate patient assessment with on-screen color graphs and trending data

- Helps support the clinician at bedside in monitoring patient response
- Promotes CQI processes

Human factors testing used in design for more intuitive ease-of-use

- Easy to use controls and high contrast displays
- Helps minimize the risk of user error

Versatile medication delivery options

- Exclusive CADD™ medication cassette reservoirs to promote patient mobility
- Wide variety of CADD® administration sets

Scalable Connectivity

The scalable platform is ideal to grow with your evolving clinical and technology connectivity roadmap.

Flexible design supports future point of care expansion needs

- Unique architecture provides flexibility to sustain your vision of future IT infrastructure needs
- Supports best practices and enables continuous quality improvements

CADD®-Solis Ambulatory Infusion System

Designed to help you connect

CADD®-Solis Pump Features

Status bar
color coded for immediate visual indication of pump operating status

Protocol title bar
displays at all times while running - tall/ short man style

Infusion settings
display at all times while running, values are color-indicated

On-screen graphs and trend reports
promote immediate patient care management

Soft key interface
makes navigation intuitive

Scroll keys
help prevent double key press errors

CADD™ medication cassette reservoirs
keep medications safe and secure

Pump alarms
differentiated by color and sound:
red – high priority
amber – medium priority
blue – low priority

Keypad lock status
for added patient safety

Drug concentration and/or units of measure
helps eliminate drug errors

Clinical task menu structure
designed for ease of use

Cassette latch
permits easy attachment of the CADD™ cassette

PCA dose key
enables convenient PCA while ambulatory

Remote PCA dose cord
ergonomically designed to promote ease of use

Compact, lightweight design helps promote patient mobility and improved outcomes

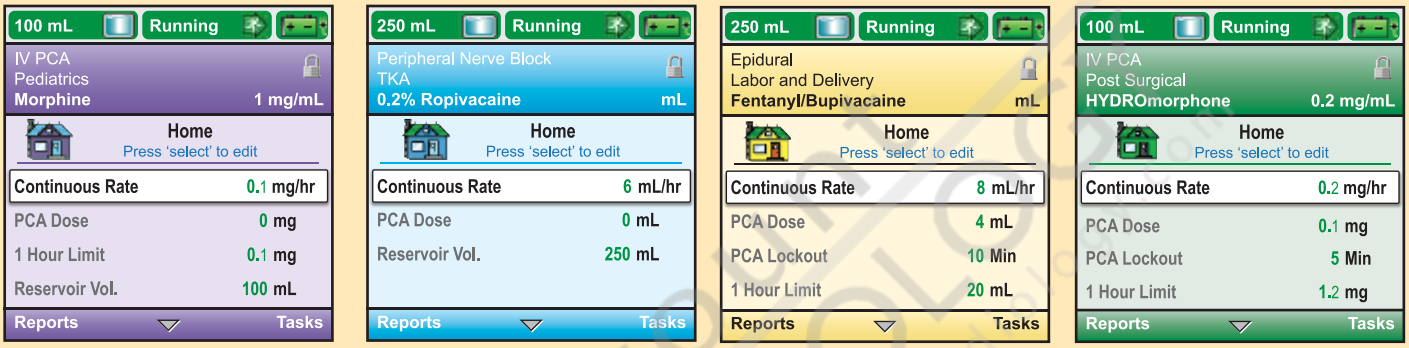
*ACTUAL SIZE PUMP AND REMOTE DOSE CORD

Patient-Centered Programming

for Clinical Care Areas

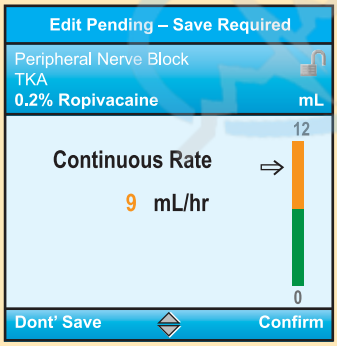
Color screens differentiate facility-defined custom protocols

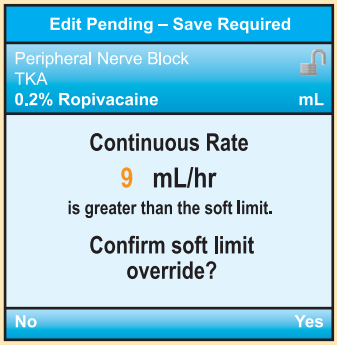
- IV PCA – Subcutaneous – Epidurals – Nerve Block – Surgical Site
- Post-op – Labor & Delivery – Trauma – Pediatrics



Hard and soft limits with visual alerts

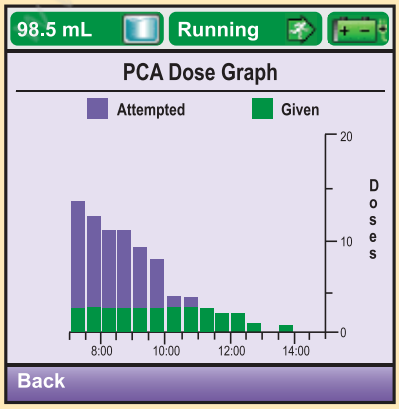
Personalized therapy within safe limits

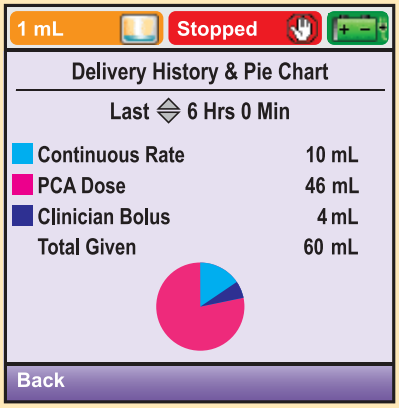




On-screen graphs, trend reports and user audit trail

Promote patient-centered care and CQI processes





- Given and PCA dose counters
- Delivery history and pie chart
- PCA dose graph
- Delivery log
- Event log
- Protocol library summary
- Device information

CADD®-Solis Medication Safety Software

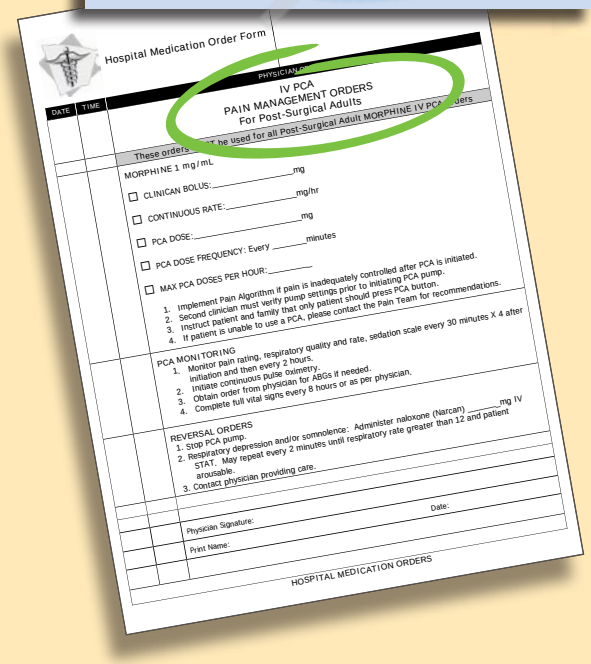
Designed to help reduce the risk of adverse drug events (ADEs) and help promote best practices

Therapy-Based Protocol Library

Our unique protocol library using therapy, qualifier and drug programming sequences is designed to reflect treatment-based clinical pathways for clinical care areas.

1 Physician's Order

IV PCA PAIN MANAGEMENT ORDERS
For Post Surgical Adults


Hospital Medication Order Form

IV PCA
PAIN MANAGEMENT ORDERS
For Post-Surgical Adult

MORPHINE 1 mg/mL

- CLINICAN BOLUS: _____ mg
- CONTINUOUS RATE: _____ mg/hr
- PCA DOSE: _____ mg
- PCA DOSE FREQUENCY: Every _____ minutes
- MAX PCA DOSES PER HOUR: _____

1. Implement Pain Algorithm if pain is inadequately controlled after PCA is initiated.
2. Second clinician must verify pump settings prior to initiating PCA pump.
3. Instruct patient and family that only patient should press PCA button.
4. If patient is unable to use a PCA, please contact the Pain Team for recommendations.

PCA MONITORING
1. Monitor Pain rating, respiratory quality and rate, sedation scale every 30 minutes X 4 after initiation and then every 2 hours.
2. Initiate continuous pulse oximetry.
3. Obtain order from physician for ABGs if needed.
4. Complete full vital signs every 8 hours or as per physician.

REVERSAL ORDERS
1. Stop PCA pump.
2. Respiratory depression and/or somnolence: Administer naloxone (Narcan) _____mg IV STAT. May repeat every 2 minutes until respiratory rate greater than 12 and patient arousable.
3. Contact physician providing care.

Physician Signature: _____ Date: _____
Print Name: _____

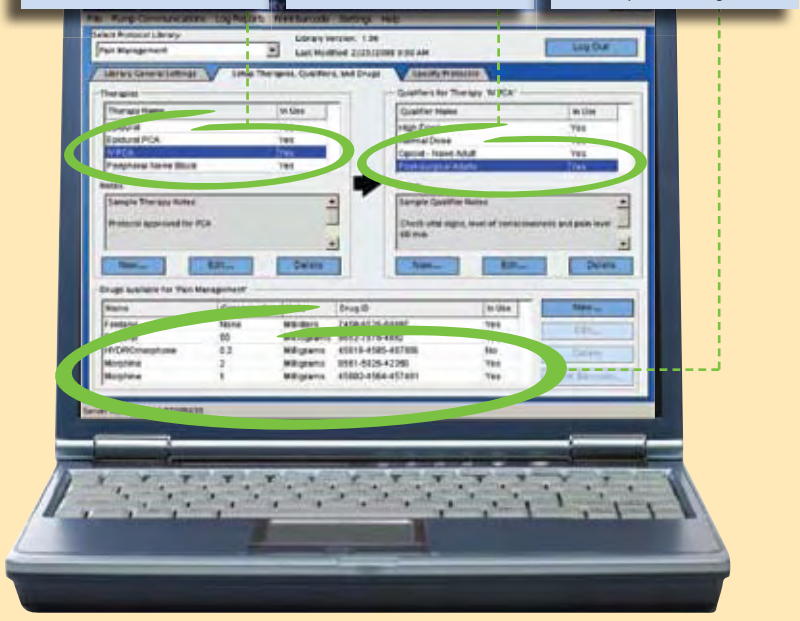
HOSPITAL MEDICATION ORDERS

2 Administrator Software

THERAPY
IV PCA

QUALIFIER
Post-Surgical Adults

DRUG
Morphine 1mg/mL

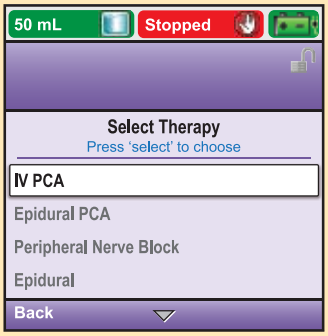


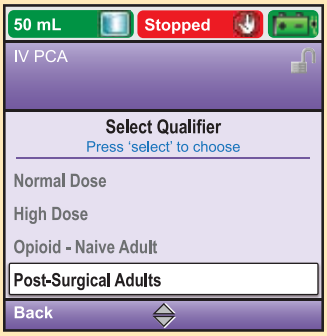
Create and manage customizable therapy-based protocol libraries with patient-specific programming limits

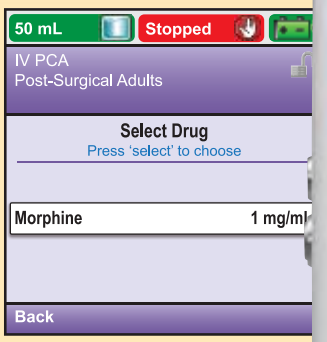
- Manage multiple libraries with the ability to designate and name each protocol library within a particular area of care
- Dose error reduction system provides standardized protocol library with dosing limits
- Administrator manages hard and soft limits
- Advanced connectivity capability with the hospital network, designed to help improve communication, documentation, efficiency and patient safety
- Continuous Quality Indicators (CQI) log reports for healthcare providers to monitor and document trends and compliance with dosing and clinical policies
- Print pharmacy-generated bar codes

3 Programming the Pump

CLINICIAN SELECTS THERAPY, QUALIFIER AND DRUG FROM PUMP SCREENS







"…medication errors can be made by (1) selecting the wrong units for a medication; (2) selecting the wrong value for concentration; or (3) selecting the wrong values for rates. The CADD®-Solis ambulatory infusion system programming sequence is designed to help eliminate all three possible programming errors…"

Patient-Centered Care

The Clinical Advantage

The new CADD®-Solis ambulatory infusion system is designed to help healthcare providers administer medications accurately, monitor patient's response to therapy, stimulate early clinical assessment and facilitate patient recovery.

The customizable protocol library is designed to reflect treatment-based clinical pathways for individual patient populations.

Nursing

- Distinctive on-screen graphs designed to help make trending intuitive, support critical thinking, and when needed, stimulate clinical assessment
- Personalize therapy specifications within safe limits
- Learn one pain management medication delivery system

Pharmacy

- Promotes safety and standardization for all pain management therapies
- Therapy-based safety software designed to help segment drug and concentration for patient care areas
- Wide variety of medication delivery sets, including exclusive CADD™ medication cassette reservoirs

Anesthesia

- Intuitive, task-oriented user interface promotes simplicity and patient safety
- Compact, lightweight design enables patient mobility and facilitates recovery
- Deploy user best practice protocols in the pump

"…In pain management, a drug protocol is only part of the treatment. For example, a morphine protocol for acute post-op pain is not the same as a morphine protocol for cancer pain, because the patient's needs are not the same. However, a therapy-based protocol library allows the healthcare provider to manage the individual needs of specific patient populations…"

CADD®-Solis System

Medication Delivery Options

Medication delivery options offer the flexibility to effectively meet the needs of your patients. These delivery options are available compounded or empty and sterile, ready to be filled by your pharmacy.

- CADD™ medication cassette reservoirs
- CADD® administration sets
- Medication IV bags
- Medication syringes

Superior Customer Support

Evaluation program

- Product evaluation and training plans help ensure competent, self-sufficient clinicians
- Human and simulated use programs available

Implementation services

- Comprehensive onsite in-service training and coordination during the implementation process and "go live" transition
- Helps stay on schedule, hit expected milestones and produce desired results

Clinical and technical 24/7 phone support

- Smiths Medical's clinical and technical service specialists are ready to assist

Clinical education and product support materials

- Wide variety of product support and clinical education materials
- Online, interactive and printed formats

CADD®-Solis medication safety software maintenance program

- Protect your technology investment and reduce total cost of ownership
- Future software updates available at substantial savings

Hardware warranty protection

- 2-year warranty with each new pump
- Industry-leading pump hardware protection

Hardware warranty extension program

- Virtually eliminate non-budgeted hardware service expenses
- Ensure only manufacturer-certified parts are used

CADD®-Solis Ambulatory Infusion System

Designed to help you connect

Specifications

CADD®-Solis Ambulatory Infusion Pump

Indications	Intravenous, intra-arterial, subcutaneous, intraperitoneal, in close proximity to nerves, into an intraoperative site (soft tissue, body cavity/surgical wound site), epidural space, or subarachnoid space infusion. This pump is intended for therapies that require a continuous rate of infusion, patient-controlled demand doses, or both (such as patient-controlled analgesia)
Pump Size	1.6 in. x 4 in. x 5 in. excluding cassette or other accessories
Screen Size	2.12 in. x 2.12 in. (320 pixels x 320 pixels)
Weight	21 oz. including 4 AA alkaline batteries, excluding other accessories
On-board Protocol Library	Stores up to 500 protocols
Security	Cassette/keypad lock and three customizable security access levels: keypad code; clinician code; administrator code
Accuracy	+/- 6% (nominal)
Delivery Methods	Continuous rate; PCA dose; Clinician bolus
Reservoir Volume	0 to 9999 mL; programmable in 1 mL increments, displayed in 0.1 mL increments
Units	Milliliters (mL), milligrams (mg), micrograms (mcg)
Concentration	mg/mL: 0.1 to 0.5 mg/mL in increments of 0.1 mg/mL 0.5 to 1 mg/mL in increments of 0.5 mg/mL 1 to 15 mg/mL in increments of 1 mg/mL 15 to 100 mg/mL in increments of 5 mg/mL mcg/mL: 1 to 15 mcg/mL in increments of 1 mcg/mL 15 to 100 mcg/mL in increments of 5 mcg/mL 100 to 500 mcg/mL in increments of 100 mcg/mL
Continuous Rate	0 to 30 mL/hr (or the mg or mcg equivalent)
PCA Dose	0 to 20 mL (or mg or mcg equivalent) Delivery rate (continuous rate + PCA dose): programmable from 40 to 175 mL/hr
PCA Dose Lockout	1 minute to 24 hours in the following increments: 1 minute for values between 1 and 20 minutes 5 minutes for values between 20 minutes and 24 hours
Max Doses Per Hour	1 to 60
Delivery Limit Amount	0.1 to 1000 mL (or the mg or mcg equivalent) in increments of: 0.01 mL from 0.01 to 0.5 mL 0.5 mL from 0.5 to 100 mL 1.0 mL from 100 to 1000 mL
Given	0 to 99,999.99 in 0.01 unit increments
Clinician Bolus	0 to 20 mL (or mg or mcg equivalent) Delivery rate (continuous rate + clinician bolus): programmable from 40 to 175 mL/hr
Delivery Limit Method	Delivery limit, max doses per hour or not in use
Delivery Limit Period	1 to 12 hours in increments of 1 hour
Power Sources	4 AA (IEC LR6) alkaline batteries; AC adapter; rechargeable battery pack
Battery Life (Alkaline)	Approximately 120 hours at 10 mL/hr
Moisture Protection	Splashproof (IPX4) per IEC 60529
Event Log	5000 events
Alarms and Messages	Multiple alarms, all color coded, many with option to "acknowledge" or "silence". Alarms include high priority; medium priority; low priority; informational messages and system fault alarms
Alarm Volume	High, medium, low
Alarm Sound Theme	Standard, intense, distinctive
High Pressure Alarm	18 +/- 9 psi
Graphs	PCA dose graph; Delivery history and pie chart
Reports	Given and PCA dose counters; delivery log; event log; protocol library summary; device information
Other	Scroll keys; task-based soft key user interface; cassette latch; cassette/keypad lock; indicator lights; continuous backlight display with AC power; data interface port; remote dose cord; upstream and downstream occlusion sensors; polemount adapter plate; CADD™ medication cassette reservoir; compatible with CADD®-Solis medication safety software

System Functionality and Requirements
CADD®-Solis Medication Safety Software

CADD®-Solis Medication Safety Software – Administrator

The software allows users to create a set of standard pump protocols to be used with the CADD®-Solis ambulatory infusion pump. Features include:

- Create a protocol library database on a server or on a PC
- Create multiple libraries within the program. Each library can be designated and named for a particular care setting in the facility
- Create multiple pump protocols within each library
- Designate authorized users for each library

The software allows users to send a protocol library to, and get history from, a CADD®-Solis ambulatory infusion pump

The software can be used in various system configurations, including:

- The protocol library database can be located on a server with one or more administrator PCs on the network throughout the facility
- The protocol library database can be located on the administrator PC

The administrator software can also print bar codes, print prescription forms and view reports

Three main administrator software functions:

- Library general settings – determine main settings and securities for a library
- Set up therapies, qualifiers and drugs – create specific protocols unique to each library
- Specify protocols – create and view protocols

System Requirements

- Microsoft Windows® 2000 server or Windows® 2003 server (when hosting the database on a server)
- A PC running Windows® 2000 (with SP4) or XP Professional (with SP2)
- CD-ROM drive
- Minimum 70 MB available hard disk space (application)
- Minimum 350 MB available hard disk space (database)
- Minimum 256 MB RAM
- Mouse or other pointing device
- USB port for connection to CADD®-Solis pump
- 16-bit color capable graphics card
- Display device with minimum screen resolution of 1024 x 768
- Optional: barcode reader (configurable as a human interface device [HID]) – code 128 compatible (minimum)
- Optional: Zebra brand barcode printer (compatible with ZPL or ZPLII programming language – three inch wide by one inch high label stock on continuous feed roll)
- Optional: USB ports for connection to a barcode reader and printer

CADD®-Solis Ambulatory Infusion System

Product Order Numbers

Description	Item Number
CADD®-Solis Ambulatory Infusion Pump	
CADD®-Solis Ambulatory Infusion Pump, Model 2100 *Includes pump, remote dose cord, 4 AA batteries, 2-year limited warranty*	21-2101-51
CADD®-Solis Medication Safety Software	
License, CADD®-Solis Medication Safety Software – Administrator	21-2199-01
Maintenance Program, CADD®-Solis Medication Safety Software	21-2198-01
Accessories	
Remote Dose Cord	21-2186-51
Polemount Adapter *For use with Lockable Polemount Bracket, item #21-6120-51*	21-2187-51
Lockable Polemount Bracket	21-6120-51
AC Adapter *For use with power cord, item #21-2145-01*	21-2140-51
Power Cord *For use with AC Adapter, item #21-2140-51*	21-2145-01
Battery Pack, Rechargeable, Standard-Life	21-2160-51
Pump Key *For use with all CADD® pumps*	21-2185-51

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Patient Centered

Smart

Pain Management Infusion Solution

in a truly **ambulatory** pump

Breakthrough advancements help

- enhance patient safety
- promote individual patient care
- provide scalable connectivity

www.cadd-solis.com

Designed to help you connect

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