

Somfy Digital Network Introduction

Designed and developed by Somfy, SDN is a simple approach to the design and management of automated solar shading for the Bioclimatic Façade.

SIMPLE TO DESIGN: The SDN is a bus line based network of intelligent addressable motors and smart controls which are software configured for the management of day lighting and glare to improve the comfort of building occupants and reduce HVAC energy demands.

SIMPLE TO CONFIGURE: Each component on the SDN is assigned a unique address on the RS-485 bus. This scheme allows specific tasks, up – stop – down – intermediate positions – locking – scheduling, etc. for every Somfy smart switch and Somfy intelligent motor to be configured over the network at the software level. Configuration and re-configuration is easy as these functional assignments are made without the need to access the end product or physically re-wire SDN hardware.

SIMPLE TO INSTALL: Category 5 cable, commonly known as Cat 5 or "Cable and Telephone", is a twisted pair cable type designed for high signal integrity. This type of cable is often used in structured wiring for computer networks such as Ethernet. By using this world-wide wiring structure standard for the SDN Somfy has insured that bus line installation is cost effective and integrator friendly.

SIMPLE TO SCALE: SDN insures the scalability of the control system. Residential or commercial systems, whether designed for 10 motors or 1000 motors, no longer carry the first cost impact of providing a centralize building controller and remotely located hardware modules.

SIMPLE TO PARTNER: SDN plays nicely with others. With the standardization of the bus line approach on a RS-485 physical layer the SDN easily integrates with lighting, HVAC, and third party home automation systems.

SIMPLE TO PERSONALIZE: With the incorporation of the SDN web based Internet Protocol Interface, virtual switches can be remotely deployed on the existing buildings Local Area Network (LAN). This Graphical User Interface allows for each individual users PC on the LAN to have permission based control of their shading system. This personal control access is managed in the IP Interface. Virtual switches can be designed so that the user is only able to override the system when the energy performance of the shading system will not be compromised.

Somfy Digital Network

*SIMPLY A SMARTER CONCEPT FOR THE MANAGEMENT
OF THE DYNAMIC FAÇADE AND FOR PROMOTING
THE BIOCLIMATIC ARCHITECTURE INITIATIVE.*

HEALTH / WELL-BEING

ENERGY SAVINGS

GREEN ARCHITECTURE



SDN Introduction

Project:		Date:	
Drawing #	SDN-1	Scale: Not to Scale	

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Somfy Digital Network Overview

SDN: The Somfy Digital Network (SDN) is the latest generation of bus-line enabled Intelligent Tubular Motors and Smart Switch Controls. The SDN components are integrated into a cost effective system designed to operate a wide range of end products such as solar screens, projection screens and Venetian blinds over a standard RS-485 network. Precise control of end product movement is accomplished by the advances offered with the latest range of Somfy ILT2 intelligent motors. Each intelligent ILT2 motor is supplied with a unique hard coded address at the point of manufacturing. This unique addressing scheme makes it possible to identify and control every motorized window treatment on the SDN system either individually or in preprogrammed groups. Control of the product on the SDN system is accomplished by using one or more Somfy Smart Switches and with the newly introduced IP interface. The IP / Web Server interface allows the deployment of a virtual smart switch. This virtual switch is a GUI control device accessed by any PC that is connected to the LAN, placing local control of an individual's solar protection a mouse click away. By eliminating the need for wall mounted switches for local control of individual areas the flexibility of the system is greatly enhanced while at the same time reducing installation costs. Now, a change in the building layout or the repurposing of the interior space no longer requires costly rewiring. It is now just a simple matter of adding or deleting the motors in one group and reassigning them to the new configuration design via software.

The Somfy Digital Network is capable of controlling thousands of motors on a single RS-485 network. Each segment of the SDN system architecture supports 256 unique devices. These unique devices are a combination of Somfy Smart Switches, ILT Motor Interface Devices (TAPS) and Smart Sensor Control Interfaces. System scalability is one of the major benefits of the SDN system design approach. With the SDN, network design remains a constant and allows system designs incorporating 50 motors to follow the same wiring architecture as a system with 1000 motors. This scalability is accomplished by simply adding RS-485 segment bridges for every 256 bus-line devices.

The SDN system is a standard half duplex, bi-directional RS-485 network. Bi-directional communications makes it possible to receive feedback from each motor on the network. This allows the system to view the position and status of any motor on the network, in real time. Since the SDN network runs over standard network architecture, it is possible to establish a remote connection to the system from anywhere internet access is available. This defines a new level of commissioning and support services that can be offered for today's energy efficient Intelligent Building.



<h2>SDN Overview</h2>			
Project:		Date:	
Drawing #:	SDN-2	Scale: Not to Scale	
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Somfy Digital Network Overview

INTELLIGENT MOTOR INTRODUCTION:

The SOMFY ILT2 is an intelligent motor designed to control a variety of motorized applications without the use and installation of secondary motor controllers. The ILT2 features an on board microprocessor and a digital encoder, which allows the ILT2's wide array of features to be easily programmed and controlled over the network with the precise positioning required in day lighting and sun tracking applications.

Whether your personal shading preference is solar screens, roman shades or horizontal blinds, addressing lifestyle design preferences is simple with the ILT2's 16 programmable intermediate positions. By programming the SDN to automatically adjust the position of the window treatments for predetermined events, the ILT2 adds a great deal of flexibility to any motorized application.

Motor positioning is accomplished by sending standard command sets over the RS-485 network from Somfy Smart Switches or third party building automation systems. Sixteen programmable preset positions are available to manage end product position throughout the system. Encoder based positions of the motor allow the precise alignment of the end product for a uniform appearance inside or outside the building.

Programming of the ILT2 intelligent motor is done through ILT2 Motor Configuration Software. The Motor Configuration Software is detailed in section 9.

SMART SWITCH INTRODUCTION:

The addressable Smart Switch is an SDN accessory which provides digital control of the assigned motors on the SDN. The Decora™ style Smart Switch is available in 3-button and 6-button versions and can be located anywhere on the Somfy Digital Network. The Smart Switch allows the end product on the SDN network to function as a stand alone natural lighting control system and can be fully customized through the SDN Smart Switch Configuration Software. This configuration software allows the individual buttons on the Smart Switch to provide standard up, down and stop control for the assigned end product. Or, for one example, in a presentation room application the Smart Switch can be prioritized to enable a single button to provide a lock command to the blackout screens in the conference room. This ensures that external system wide commands for day lighting or sun tracking do not interfere with this one section of window treatments in the system.

Programming of the SDN Smart Switch is done through the switch Configuration Software. The Configuration Software is detailed in section 9.

IP INTERFACE INTRODUCTION:

The IP Interface is a serial device containing an embedded web server used to connect the Somfy Digital Network of intelligent motors and control devices to a managed LAN network. The web server can be accessed via any standard web browser and is compatible with both PC and Mac platforms.

The IP Interface allows an almost unlimited number of personalized GUI's to be created, configured and then remotely deployed to the PC's on the LAN. GUI button text and button functions can be personalized to match the preprogrammed operations, individual user styles and user preferences. All buttons created generate an associated URL command for interfacing with compatible 3rd party IP control systems.



SDN Overview 2

Project:	Date:
Drawing # SDN-3	Scale: Not to Scale
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Somfy Digital Network Overview

ILT2 TAP INTRODUCTION:

The Somfy ILT2 Tap is a network device which converts the RS-485 communication protocol to TTL which is required by the ILT2 motor. By implementing the RS-485 protocol as the standard ILT2 communicating method, network wiring can reach distances of up to 4000 feet.

The ILT2 Tap serves three primary functions. First, it provides a method of converting the ILT2 command set on the RS-485 physical layer to TTL which allows direct control of the ILT2 motor. Second, it enables network wiring to be easily daisy chained from each motor location to the next. And third, the ILT TAP provides the ability to add ILT motors and Smart Switches at any point and at any time on the bus line. This last point is another significant advantage of an SDN type system. Since the time frame from design, specification and space layout are done two or three years ahead of installation many things can change. New motorized end products and switch locations may be added as the client makes interior space and floor plan changes and therefore, with the ability to simply add a new TAP for a switch or motor on a bus line, many of these changes can be accommodated and remain cost transparent to the project.

An added advantage of the ILT2 Tap is that it also features a low voltage input for dry contact switches, IR sensors and RTS receivers to provide a cost effective local control option for motors on that particular branch. Unlike the Smart Switch, control devices added to the motor side of the TAP are only meant to provide non programmable local control and these control devices do not communicate with the bus line devices.

RS-485 SEGMENT BRIDGE:

The RS-485 Segment Bridge simply jumps the RS-485 signal from one segment to the next, allowing multiple segments of a Somfy Digital Network to be connected.

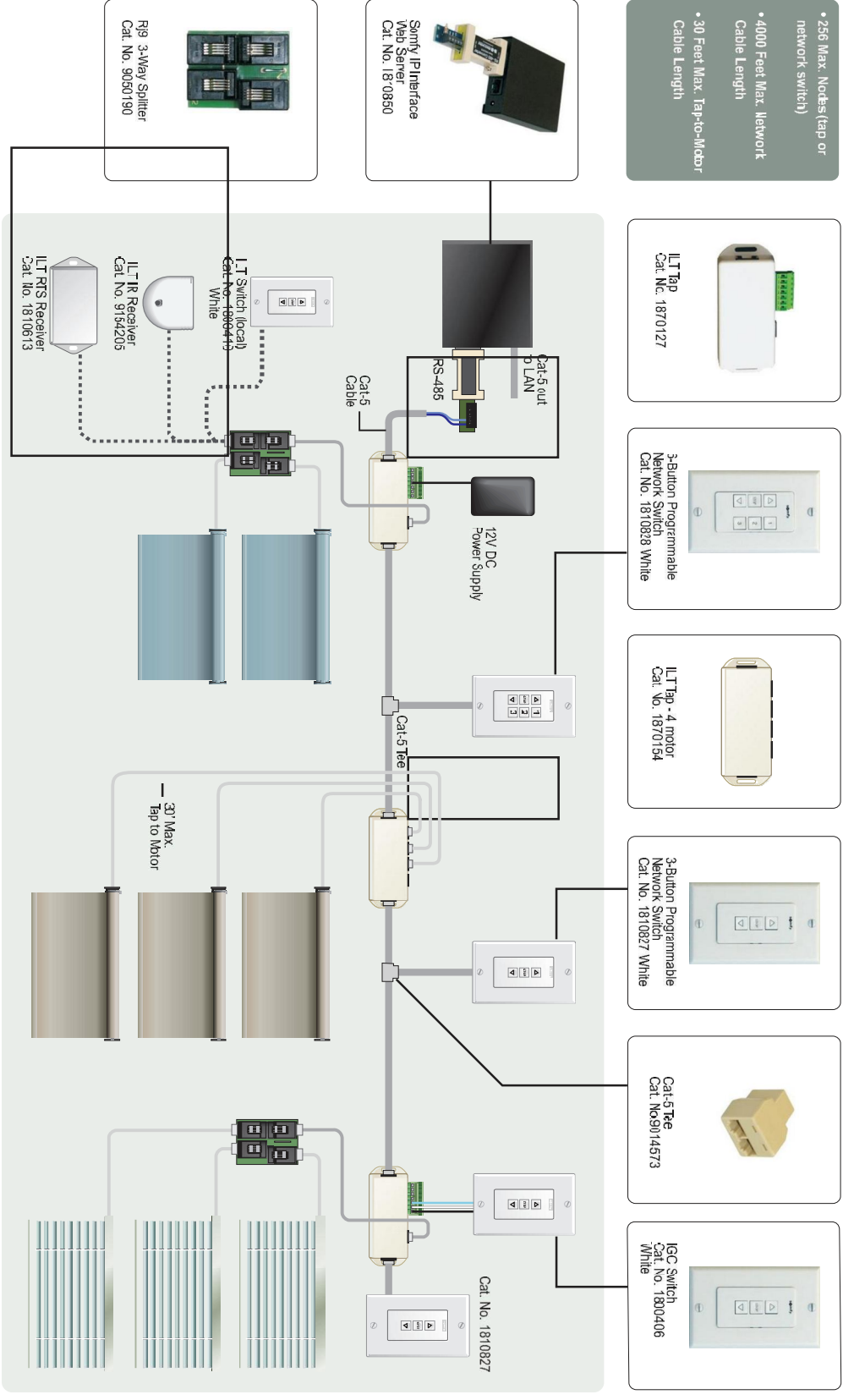


SDN Overview 3

Project:		Date:	
Drawing # SDN-4		Scale: Not to Scale	
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Somfy Digital Network Diagram

- 256 Max. Nodes (tap or network switch)
- 4000 Feet Max. Network Cable Length
- 30 Feet Max. Tap-to-Motor Cable Length



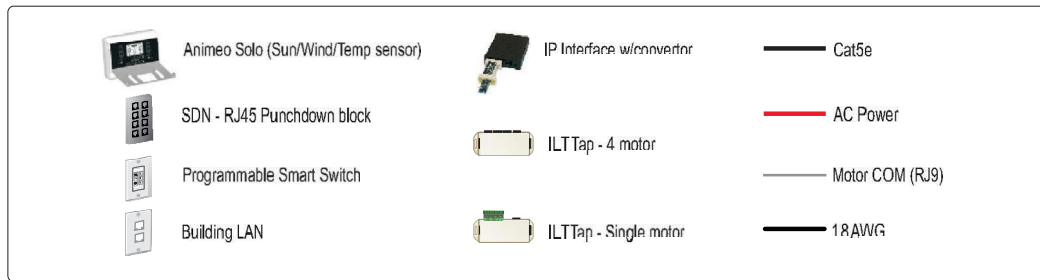
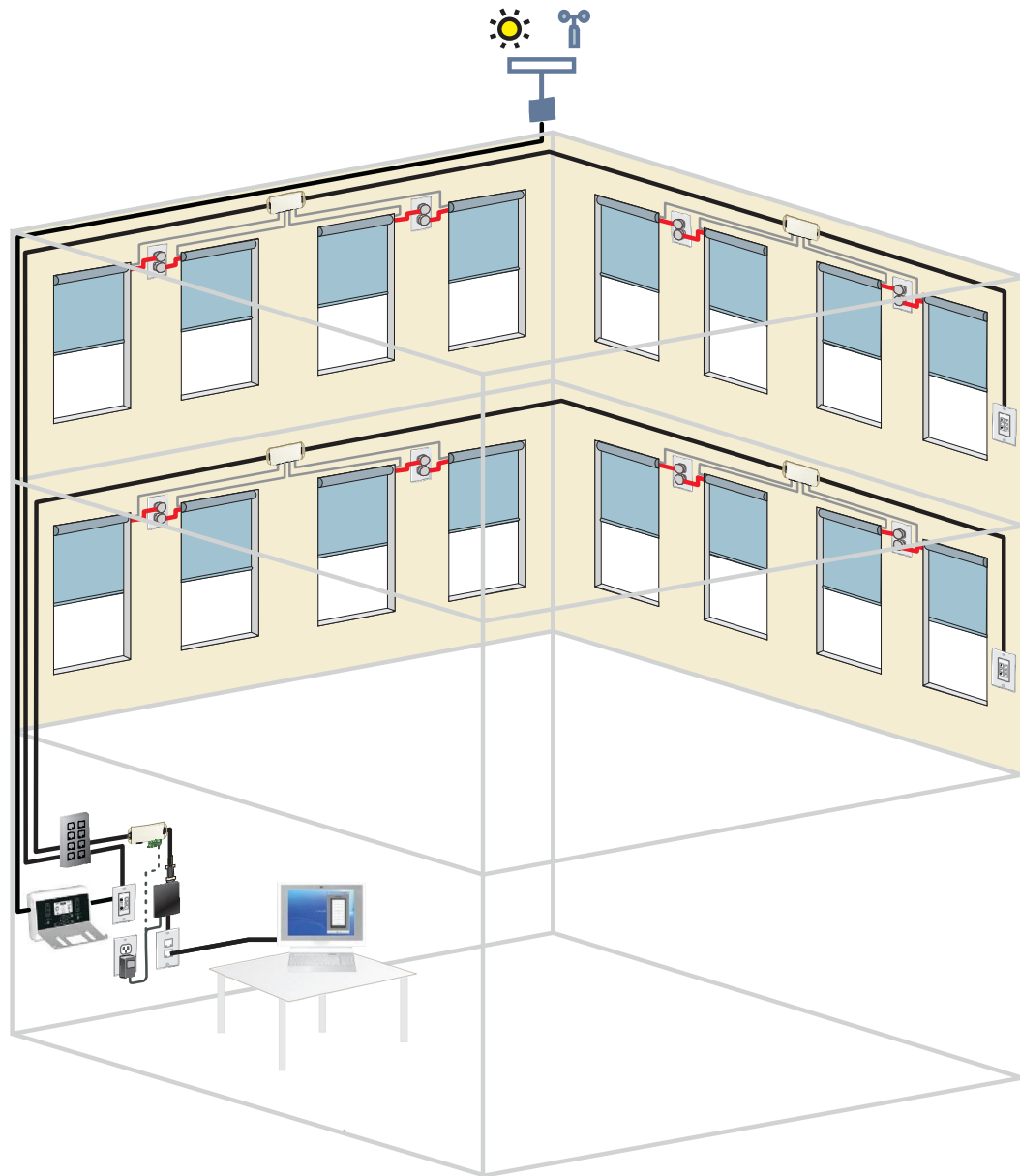
SDN Diagram

Project:	Date:
Drawing # SDN-5	Scale: Not to Scale

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SDN Wiring Infrastructure



SDN Wiring

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SDN Product Specifications



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609-395-1300
609-395-1776

IP INTERFACE

Revision No.
Date March 1, 2008
Part No. 1810815

The Somfy Digital Network (SDN) IP Interface is a serial device server used to connect the Somfy RS485 SDN BUS consisting of ILT2 motors and control devices to a managed LAN network. The firmware of the IP Interface is remotely upgradeable over the Internet. The SDN IP Interface contains an internal web server with configuration software that is accessed via any standard web browser. The Somfy IP Interface is compatible with both the PC and the Mac platforms.



Main software features:

An almost unlimited number of personalized GUI's can be configured and created, remotely deployed and then accessed from a link on the individual users desktop allowing personal solar shading control. The Graphical User Interface actions have associated URL commands for interfacing with 3rd party IP control systems. Remote access to the IP Interface for configuration and remote diagnostics is available through HTTP port 80, un-proxied. Completely automated shade movements can be programmed via internal time scheduling and solar angle utility.

LAN:

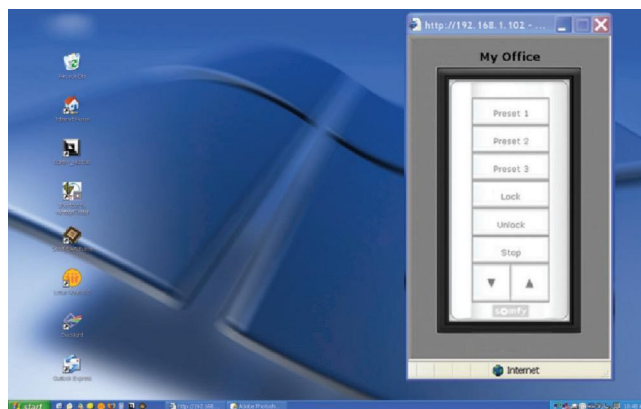
Ethernet: 10/100 Mbps, RJ45
Protection: Built-in 1.5 KV magnetic isolation

Serial Interface:

Interface: RS-232 (Half duplex RS-485 w/ adapter)
No. of Ports: 1
Port Type: DB9 (Male)
Transmission Speed: 1.2 - 115 Kbps
Signals: Tx, Rx, RTS, CTS, DTR, DSR, DCD, GND
Serial Line Protection: 15 KV ESD for all signals

Serial Communication Parameters:

Parity: None, Even, Odd, Space, Mark
Data Bits: 5, 6, 7, 8



Software Features:

Protocols: ICMP, IP, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP, HTTP, SMTP
Configuration: Web console, Telnet console

SDN IP Interface

Project:

Date:

Drawing #

SDN-7

Scale: Not to Scale



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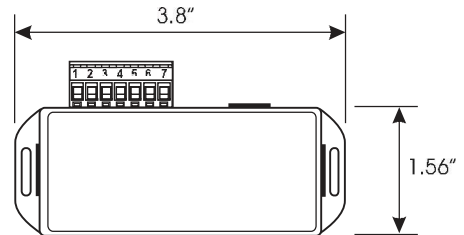
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SDN Product Specifications

	SOMFY SYSTEMS, INC 609-395-1300 609-395-1776	ILT TAP	Revision No.
			Date March 1, 2008
			Part No. 1870127

ILT Tap - Single Motor

Description: The Somfy ILT Tap (Catalog # 1870127) is a device that resides on the Somfy Digital Network which converts the RS-485 communication protocol to TTL which is required by the ILT2 motor. Two RJ45 ports and a removable terminal block allow for easy network connections and simplified wiring with the use of cat5 patch cables. By using the RJ9 splitter, three ILT2 motors can be connected to one Tap.



Specification:

- Two female RJ45 connectors for network communication and power
- One 7 pin terminal block for an optional local switch and network connections
- One female RJ9 connector for connecting the ILT2 motors or RJ9 splitter
- Size: 3.8" L 2" W 0.8"H
- Warranty: 5 years

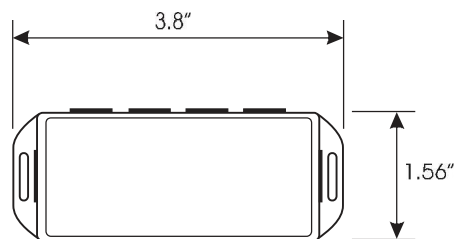
Terminal Block

- 1: +9VDC
- 2: GROUND
- 3: RS485 B
- 4: RS485 A
- 5: DOWN
- 6: UP
- 7: COM

	SOMFY SYSTEMS, INC 609-395-1300 609-395-1776	ILT TAP	Revision No.
			Date December 1, 2008
			Part No. 1870154

ILT Tap - Four Motor

Description: The Somfy ILT Tap (Catalog # 1870154) is a device that resides on the Somfy Digital Network which converts the RS-485 communication protocol to TTL which is required by the ILT2 motor. Two RJ45 ports allow for easy network connections and simplified wiring with the use of cat5 patch cables. Four ILT2 motors can be directly connected to one Tap.



Specification:

- Two female RJ45 connectors for network communication and power
- Four female RJ9 connectors
- Size: 3.8" L 2" W 0.8"H
- Warranty: 5 years



<h2>SDN Taps</h2>			
Project:		Date:	
Drawing # SDN-8		Scale: Not to Scale	
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SDN Product Specifications

	SOMFY SYSTEMS, INC 609-395-1300 609-395-1776	CAT-5 TEE	Revision No.
			Date March 1, 2008
			Part No. 9014573

Description: The Cat-5 Tee is a three way cat-5 splitter which provides a junction point for communication devices on the Somfy Digital Network.

Specification:

- Communication: Three female RJ45 connectors for network communication
- Size: 1.3" L 1.2" W 0.93"H
- Warranty: 5 years

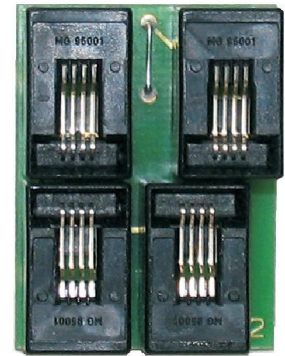


	SOMFY SYSTEMS, INC 609-395-1300 609-395-1776	RJ9 SPLITTER	Revision No.
			Date March 1, 2008
			Part No. 9050190

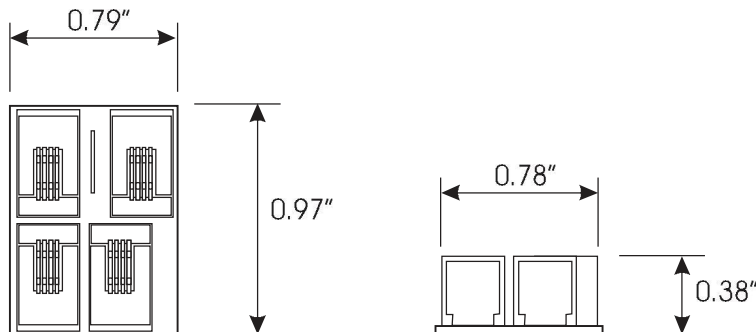
Description: The RJ9 Splitter provides a junction point for multiple connections of ILT motors and SDN control accessories to the ILT Tap. The splitter also allows the installation of a dry contact RTS Receiver, IR Sensor or standard ILT switch to also control the ILT motors at the local level.

Specification:

- (4) parallel female RJ9 connectors
- Size: 0.97" L 0.79" W 0.38"H
- Warranty: 5 years



Note: The RJ9 Splitter is furnished with a PVC jacket for installation in metal boxes. Do not dispose of cover packaging prior to installation.



SDN Tee & Splitter

Project:		Date:
Drawing #	SDN-9	Scale: Not to Scale



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SDN Product Specifications



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SMART SWITCH

Revision No.
Date March 1, 2008
Part No. 1810827 & 1810828

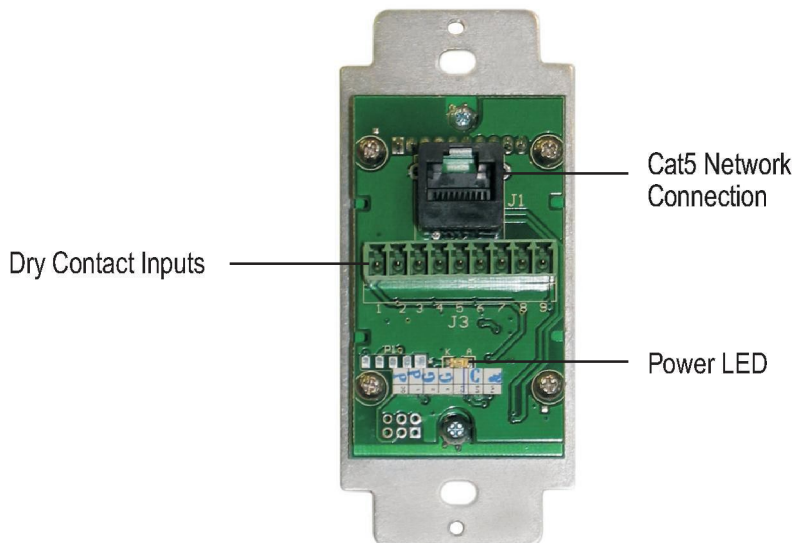
Description: The Smart Switch is a control device which outputs the SDN protocol over RS-485, providing digital control of the Somfy Digital Network. The Smart Switch allows the SDN to function as a stand alone natural lighting control system and can be fully customized through the SDN Smart Switch Configuration Software. The Smart Switch is available in 3-button and 6-button versions which can be located anywhere on the Somfy Digital Network. Each dry contact is mapped to it's corresponding button. Contacts not associated to any button will output the programmed command onto the network.



Specification:

- Three button Smart Switch - Catalog # 1810827
- Six button Smart Switch - Catalog # 1810828
- Buttons are fully programmable
- Standard Decora style
- Mounts in a single gang box
- 8 dry contact inputs for system integration
- IR compatible
- Warranty: 5 years

Back of Switch



SDN Smart Switch

Project:

Date:

Drawing #

SDN-10

Scale: Not to Scale

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SDN Product Specifications



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609-395-1776

ILT SWITCH

Revision No.
Date March 1, 2008
Part No. 6300053(white) & 6300054(ivory)

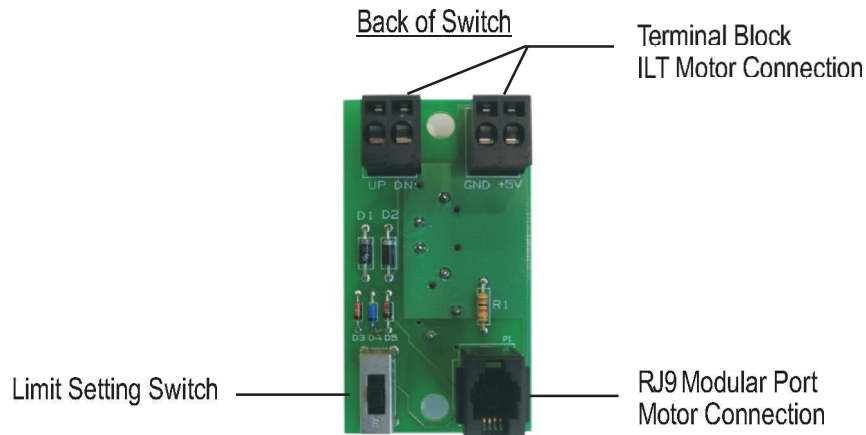
Description: The ILT switch is designed to control and set the electronic limits of a single ILT motor,
Catalog # 6300053(White) 6300054 (Ivory)



Specification:

- One female RJ9 connector
- One slide switch – used for limit setting
- Standard Decora style
- Mounts in a single gang box
- Warranty: 5 years

Note: The ILT switch can not be located on the SDN.



SDN ILT Switch

Project:

Date:

Drawing #
SDN-11

Scale: Not to Scale

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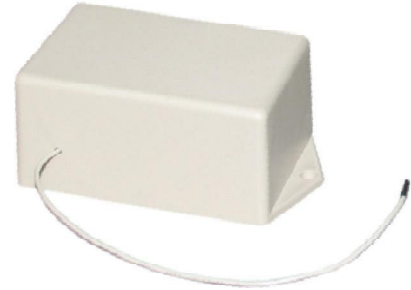


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SDN Product Specifications

	SOMFY SYSTEMS, INC 609-395-1300 609-395-1776	ILT RTS RECEIVER	Revision No.
			Date March 1, 2008
			Part No. 1810613

Description: The ILT RTS Receiver (Catalog # 1810613) is a radio frequency device designed to connect directly to the ILT motor and is fully compatible with all RTS transmitters and interfaces. The ILT RTS Receiver obtains its power directly from the ILT motor - therefore no external power supply is needed.



Specification:

- Communications: One female RJ9 connector for connecting the ILT motor
- Power: Obtained from ILT motor, red LED indicator
- Memory: Non-volatile flash memory stores up to 12 RTS channels even when power is not present
- Radio Frequency: 433.42 MHz
- Size: 3.85" L 2.1" W 1.5"H
- Warranty: 5 years

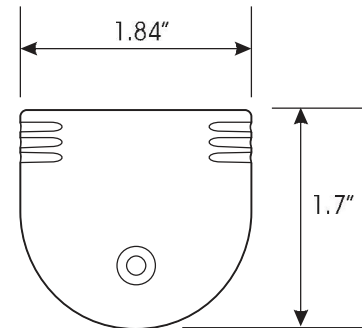
	SOMFY SYSTEMS, INC 609-395-1300 609-395-1776	ILT IR RECEIVER	Revision No.
			Date
			Part No. 9154205

Description: The ILT IR Receiver is a local device which must be connected to the motor and Tap using the RJ9 splitter and will only control those motors connected to the Tap in which it is connected to. Power for the receiver is obtained from the ILT motor.



Specification:

- Size: 1.84" L 1.35" W 1.7"H
- Warranty: 5 years



<h2>SDN Receivers</h2>		
Project:		Date:
Drawing # SDN-12		Scale: Not to Scale
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SDN Product Specifications



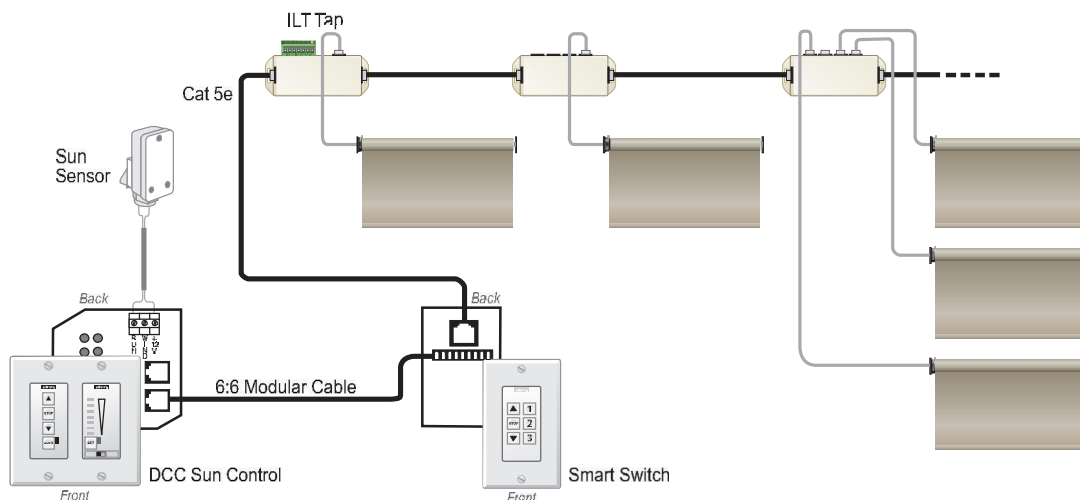
SOMFY SYSTEMS, INC
609-395-1300
609-395-1776

DCC SUN SENSOR

Revision No.
Date
Part No. 9154205

Description: The Decorator Comfort Control enables any motor, or group of motors on the SDN to provide shading from the sun automatically and conveniently. The DCC sun sensor continually monitors sun intensity, triggering the Smart Switch send the window treatment to any programmed position . The summer/winter switch allows for maximum shading in the summer and maximum sunlight in the winter.

Connectivity: The DCC connects to a dry contact input on the back of a Smart Switch by means of a modular cable. When the sun intensity exceeds the level set on the DCC the smart switch will send the command associated with that contact.



SOMFY SYSTEMS, INC
609 395 1300
609-395-1776

RTS REPEATER

Revision No.
Date
Part No. 9154205

Description: The RTS Repeater can be used in RTS installations to extend the range of the Radio Technology Somfy signal. It is capable of receiving command from any transmitter or interface and then retransmits the signal to the RTS motor or receiver.

NOTE: A repeater will not repeat a signal from another repeater.

Size: 4"L x 2 1/4"H x 1 3/8"H
Frequency: 433.42 MHZ
Range: 65 ft.



SDN Sun Sensor & Repeater

Project:

Date:

Drawing #

SDN-13

Scale: Not to Scale



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SDN Product Specifications



SOMFY SYSTEMS, INC
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609-395-1776

RJ9 Modular Cable

Revision No.

Date

Part No. 9154205

Description: The modular cable can be used to connect the RJ9 splitter, to the ILT Tap, ILT Switch, ILT IR Receiver or ILT RTS Receiver.

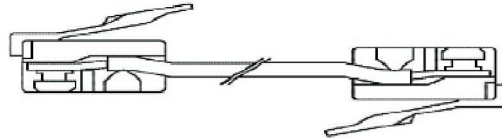
The following cable lengths are available:

1 ft: Cat. No. 9013349

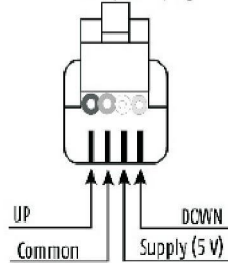
5 ft: Cat. No. 9209061

25 ft: Cat. No. 9012343

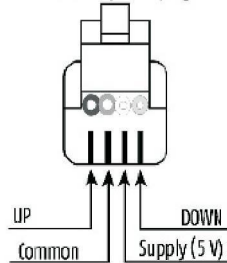
50 ft: Cat. No. 9012344



Actuator phone plug



Control phone plug



SDN Cable

Project:

Date:

Drawing #

SDN-14

Scale: Not to Scale



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SDN Product Specifications



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609-395-1776

RS-485 Converter

Revision No.
Date December 1, 2008
Part No.

Description: The USB powered RS-485 converter enables the programmer to easily connect a PC to the SDN. After installing the required drivers the device will show up as an additional COM port in the Device Manager.

B&B part model number: 485USBTB-2W



SDN Converter

Project:

Date:

Drawing #

SDN-15

Scale: Not to Scale



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