Introducing the Integrated ATS

Munir Kaderbhai

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Agenda

- Integrated RA series Transfer Switch
  - Features
  - Application
- Load Management Kit for Cummins Air-cooled Generators
- Remote Monitoring
New Sub-Panel Product – Integrated 100A Automatic Transfer Switch

- A051C991 - RA112L1
Integrated RA series Transfer Switch

- **Features**
  - Mechanically interlocked contactor
    - Long-life, high pressure, silver alloy contact resists burning and pitting
    - A powerful and economical solenoid drives the mechanism
  - Neutral and ground bar
    - Fully rated
    - Silver plated copper ground and neutral bus
  - Ease of installation
    - Solderless screw type terminals for external power connections
    - Mount flush between wall studs or on wall surface
  - Integrated branch circuit breaker panel
    - 20 spaces, allows 24 circuits with 4 tandem breakers
    - Square D, QO series breaker compatible
Integrated ATS - Key Functional Features

- Feature – Integrated ATS and Load Center
  - Reduced wiring and installation time (2 hour savings)
  - No need to contact utility company to remove their meter
  - Reduced wall space (two devices in one)

- Feature – 100A, 24 Circuit UL listed device
  - Large enough for the full output of a 24KW generator
  - Uses readily available & affordable SquareD, QO series breakers
  - Capable of handling all circuits in many homes
  - Eliminates need for load shedding since connected loads can be matched to generator capacity.
Integrated ATS - Key Functional Features

- Feature – Easy Installation Enclosure
  - Flush or surface mountable - Fits between 16” stud spacing for clean, finished look
  - Multiple knockouts. Easy to wire from all sides
  - Mounting weight - 40 lbs. vs competition’s 64 lbs.
## Enclosures

Wire bend space complies with 2017 NEC.

Dimensions - transfer switch in UL type 1 enclosure

<table>
<thead>
<tr>
<th>Model and Amp rating</th>
<th>Height (in)</th>
<th>Width (mm)</th>
<th>Depth (in)</th>
<th>Weight (lb)</th>
<th>Weight (kg)</th>
<th>Outline drawing</th>
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</thead>
<tbody>
<tr>
<td>100 A</td>
<td>38.0</td>
<td>965</td>
<td>14.25</td>
<td>102</td>
<td>40</td>
<td>18.1</td>
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</table>

## Transfer switch lug capacities

<table>
<thead>
<tr>
<th>Model and Amp rating</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>100A</td>
<td>#6 AWG to 2/0 CU/AL</td>
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</table>
## Cummins Generator Model Compatibility

<table>
<thead>
<tr>
<th>Model</th>
<th>Compatibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS20A/C20N6*</td>
<td>RX30/C30N6H</td>
</tr>
<tr>
<td>RS17A/C17N6H*</td>
<td>C35D6</td>
</tr>
<tr>
<td>RS13A/C13N6H*</td>
<td>RS36/C36N6</td>
</tr>
<tr>
<td>C10D6</td>
<td>RX36/C36N6H</td>
</tr>
<tr>
<td>C15D6</td>
<td>C40D6</td>
</tr>
<tr>
<td>C20D6</td>
<td>RS40/C40N6</td>
</tr>
<tr>
<td>C20N6</td>
<td>RX40/C40N6H</td>
</tr>
<tr>
<td>RS22/C22N6</td>
<td>RX45/C45N6H</td>
</tr>
<tr>
<td>C25D6</td>
<td>RX50/C50N6H</td>
</tr>
<tr>
<td>RS25/C25N6</td>
<td>RX60/C60N6H</td>
</tr>
<tr>
<td>C30D6</td>
<td>RX40/C40N6H</td>
</tr>
<tr>
<td>RS30/C30N6</td>
<td></td>
</tr>
</tbody>
</table>

*Requires TB4 Jumper*
Deciding on a Home Electrical Service

New Construction

Existing Home

Extensive remodels requiring electrical upgrades
Basic Home Electrical Service

Current distribution panels have the main disconnect incorporated into the Distribution Panel.
Standby Generator Installation Types

- Two types of generator set installations:
  - Whole house panel back up, e.g. using RA100/200
  - Sub-panel backup fed from Main Panel
Adding a Standby Generator with Whole House Backup

Current distribution panels have the main disconnect incorporated into the Distribution Panel.

- **Overhead Utility Conduit**
- **Service Entrance Rated Transfer Switch**
- **Main Disconnect**
- **Distribution Panel**
- **Load Shed Control Module**
- **Wiring to electrical devices, fixtures and appliances**
- **2” EMT Conduit, less than 24” long**

**Cummins Power Systems**

**Meter**

**Underground Utility Conduit**
Whole House Panel Backup (SE ATS)

- **Pros**
  - All loads are backed up
  - Can be used in new construction or remodel

- **Cons**
  - 9 hours to install
    - ATS, 7 hour install
    - Load Shed, 2 hour install
  - Must remove the meter
Adding a Standby Generator with Sub-Panel Backup

Current distribution panels have the main disconnect incorporated into the Distribution Panel.

Wiring to electrical devices, fixtures and appliances NOT powered by generator.

Wiring to electrical devices, fixtures and appliances powered by generator.

Load Shed Control Module

2” EMT Conduit, less than 24” long.
Adding a Standby Generator with Integrated ATS

- Overhead Utility Conduit
- Main Disconnect
- Distribution Panel
- Integrated Transfer Switch
- Generator

Wiring to electrical devices, fixtures and appliances powered by generator

Wiring to electrical devices, fixtures and appliances NOT powered by generator

Current distribution panels have the main disconnect incorporated into the Distribution Panel
Sub Panel Backup (non SE ATS + sub panel or iATS)

- **Pros**
  - No need to remove the meter
  - No need to change the electric service
  - ATS and Sub-Pane Load center, 5 hour install
  - **Integrated ATS/Load center, 3 hour install**
  - All-in-one solution reduces number of components to buy, install, and wire. Smaller footprint, faster to install

- **Cons**
  - Only specific circuits are backed up
  - Homeowner must choose which circuits to back up
  - Limited number circuits, 20-24
Spec Sheet Location – Channel One Portal
https://channelone.cummins.com
Integrated RA series Transfer Switch

The integrated version of the RA series includes 70 spaces for breakers and a transfer switch in one enclosure. These products are listed to UL67 and CSA C22.2 No.26, and are UL1008 compliant. The switch assembly and generator set combination are specifically designed for a complete, quiet operation.

This UL/CSA switch is suitable for stand-by power systems in residential and light commercial applications. This product adheres to National Electrical Code (NEC) and National Fire Protection Association (NFPA) requirements.

This switch monitors utility power 24 hours a day and 7 days a week. When utility power becomes unavailable or fails, the generator set is started, then automatically restarts the load. When stable utility voltage returns, the transfer switch will automatically switch electrical load from the generator to the utility. No action is required by the house owner.

Features
- Mechanically interlocked contactor
- Long life, high precision, silver alloy make and break contacts
- Fully rated
- Robust design and a suitable degree of protection
- Zero size
- Integrated branch circuit breaker panel
- Compact, allows 24 circuits with 6 breaker
- Square D, QO series breaker connected

Specifications
- Voltage rating: Transfer switches up to 240 VAC, 50 Hz or 60 Hz.
- Ampere rating: 100A continuous amperes.
- Arc interruption: Multiple test arc chutes cool and quench the arc. Barriers prevent interphase flashover.
- Neutral bar: A full current rated neutral bar is standard.
- Auxiliary contacts: Two contacts rated at 5A continuous at 100 VAC or 2.5A continuous at 200 VAC (one for each source is provided for customer use).
- Operating temperature: 30°C (±4°F) to 60°C (140°F).
- Storage temperature: 30°C (±22°F) to 70°C (158°F).
- Humidity: 5-95% non-condensing.
- Altitude: Up to 2,000 m (6,600 ft) without derating.
- Total transfer time: Will not exceed 100 ms with normal voltage applied to the actuator.
- Manual operation handling: Transfer switches are equipped with a removable operating handle which allows operation during servicing in order to facilitate troubleshooting with sources of power disconnected.

Certifications
- UL, Listed and UL, 1008 compliant
- Isolated neutral and IEC 309-6 Ac terminals.
- All switches comply with NFPA 70.

UL/CSA wired and closing ratings
- Transfer switch capacity: 100A, 1500 VAC.

Enclosures
- Wire based enclosure compliant with 2017 NEC.
- Dimensions - transfer switch is 1 & 1/8" enclosure.

Transfer switch lug capacities
- Model and Wire rating: Size
- 105A: AWG to 30 Cu NMW

Subassembly details
<table>
<thead>
<tr>
<th>Description</th>
<th>Part #</th>
<th>Rating</th>
<th>Voltage</th>
<th>Insulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1013321</td>
<td>105A</td>
<td>120VDC</td>
<td>250VAC</td>
<td>Type 1</td>
</tr>
</tbody>
</table>

18 Cummins Confidential
Competition

- Generac has the Essential Circuit switches
  - Pre-wired ATS with built-in load center
  - Split bus type
  - Both switches combine the ATS and the load center in one box. Eliminating the stand alone transfer switch.

- Kohler offers a transfer switch with load center
  - 100A model has 24 circuit capacity
  - 200A has both 24 breaker and 42 breaker capacity
Pre-installed Subpanel Type

- Come with breakers installed and with set sizes
- The 30’ whip also has the control wires for the transfer switch
- These wires are terminated in plug connector for use with the generator
- Because of the connector the 30’ whip cannot be easily shortened or extended.
Pre-wired ATS with Built-in Load Center
Load Management Kit for Air Cooled RS13A and RS20A
Load Management Kit for Air Cooled RS13A, RS17A and RS20A | pn. A051C329

- Control up to two 50A loads
- Compatible with Cummins Power Generation RS13A/AC, RS17A and RS20A/AC
- Closed contactors which means no sound from the box
-Disconnected loads will be reconnected when generator set capacity is available
Features & Specifications

- UL Listed
- Number of Relays per modules – 2x2 pole (normally closed)
- Load amps – 50A Load voltage – 120VAC or 240VAC
- Coil voltage – 12VDC
- Mechanical lugs, #14 #4 AWG copper or aluminum range
- Box - Steel, painted ANSI light gray Rated – NEMA 1 (indoor use)
- Mounting – Surface or flush
Remote Monitoring

Cummins Connect Cloud™
Customer Mobile App

- Available on Apple & Android
  - “Cummins Connect Cloud”
- Connect via Ethernet RJ45 wire from generator set control to router

![Diagram of Ethernet port on generator control](image)
Customer Mobile App

- Registering

  Step 1: Terms of Service
  legal stuff

  Step 2: Create Account
  email address & password

  Step 3: Setup Generator
Customer Mobile App

- Setup Generator
Customer Mobile App

- Dashboard view
  - What Generator is being viewed
  - Which is connected to home
  - Status of Generator
  - Notifications
  - Exercise information
  - Control status
  - Maintenance link
Customer Mobile App

- Notification View
Customer Mobile App

- **Exercise Information**
  - **Exercise**
    - Last Completed Exercise
    - Mon, 02/20/2017 at 3:23 PM
  - **Update Exercise Schedule**
    - Overrides the current Exercise Schedule
    - Wednesday
    - 15:30
    - This exercise will repeat:
    - Bi-Monthly (recommended)

- **Control Status**
  - **My Cummins Control**
    - Standby Status
      - My generator STANDBY mode is currently ON.
      - My generator WILL start automatically in the event of a power outage.
    - Remote Start
      - ON
      - My generator REMOTE START mode is currently ON. My generator CAN receive a remote start command.
      - To disable remote start, use the display located on your generator.

- **Maintenance**
  - **Maintenance**
    - Last Service Date
      - NA
    - Engine Run Time
      - 13.7 hours
    - Cummins recommends servicing your generator after the first 25 hours and 100 hours of run time. Routine service is then recommended after each additional 200 hours of run time.
    - See your owner's manual for more information or contact your local dealer.
Customer Mobile App

- Menu Options
  - My Home
  - Generator Data
  - Settings
  - Contact Cummins
Customer Mobile App

- Generator Data

- Setting

- Contact

Customer Mobile App

- Generator Data

- Setting

- Contact
Dealer Account Management

Monitor all generators
Dealer Account Management

Get more information on an individual generator
<table>
<thead>
<tr>
<th><strong>ON-THE-GO ACCESS</strong></th>
<th><strong>PROFITABILITY</strong></th>
<th><strong>PRODUCTIVITY</strong></th>
<th><strong>MANAGE MULTIPLE CUSTOMER ACCOUNTS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>ANYTIME ANYWHERE access from unlimited devices</td>
<td>Additional stream of REVENUE</td>
<td>Solve service issues FASTER</td>
<td>FILTER genset status by criticality</td>
</tr>
<tr>
<td>Marketing opportunity to generate LEADS</td>
<td></td>
<td>DELIGHTFUL customer experience</td>
<td>Access warning/fault signs in SINGLE VIEW</td>
</tr>
</tbody>
</table>
Summary

- **The Integrated ATS**
  - Fewer number of components required and simplified installation of a standby generator system
  - Allows customers to select a generator size and ATS which meets their budget due to flexibility to decide which loads they want energized during an outage

- **The Load Management Kit**
  - Offers customers additional piece of mind by preventing generator overload
  - Optimize generator set size and transfer switch based on budget and needs

- **Cummins Connect Cloud**
  - Customers Advantage - Allows customers to keep track of their system at all times and easily find help if and when required
  - Dealer Advantage - Increased leads, profitability and productivity
QUESTIONS?