**APPLICATIONS**

The extremely flexible DTSC-200 controller is easily configured for a wide range of automatic transfer switch applications including Main-Gen, Gen-Gen or Main-Main systems using circuit breakers or latching contactors. Source transfer can be performed as open, delayed or closed transition with in-phase monitoring (synch check) that can be enabled for all transition types to ensure smooth transfer. The closed transition overlap time can be limited to less than 100 ms for momentary, make-before-break transfers, or extended indefinitely for parallelizing via discrete input. "Custom" features like transfer inhibit, source selection, load shed/restore, elevator pre-signal and engine test programs come standard.

**LogicsManager™** - Programmable Boolean logic functions along with ample, expandable discrete I/O allows for complex transfer schemes without using external relay logic or a separate PLC!

**FlexApp™** - Easily configures the DTSC-200 for:
- Utility-to-Generator
  - Utility is preferred with a generator as the emergency source
- Generator-to-Generator
  - One genset is preferred with a second genset as backup
- Utility-to-Ulility
  - Utility is preferred with second utility as the emergency source

**DynamicsLCD™** - The graphic LCD interface with sealed soft-keys displays source voltage, frequency, phase rotation, current, real/reactive power, I/O status and alarms. Maintenance calls and event history (300 FIFO entries with real time clock and 6 year battery) are easily viewed and are password protected.

A line diagram with four high-intensity LEDs clearly displays source availability and breaker closed status.

The galvanically-isolated CANopen port permits connection of up to (2) Woodward IKD-1 modules, providing as much as 16 additional discrete inputs and outputs.

RS-485 Modbus RTU Slave full-duplex communication allows for remote annunciation and SCADA interface.
**SPECIFICATIONS**

Power supply: .......... 12/24 Vdc (6.5 to 40.0 Vdc; not buffered)
Inrush current: max. 50 A peak, 1 ms
Input capacitance: 2000 μF
Intrinsic consumption: max. 8 W
Ambient temperature (operation): -20 to 60 °C / -4 to 140 °F
Ambient temperature (storage): -30 to 80 °C / -22 to 176 °F
Max. operating altitude: 2000 m (6,500 ft)
Ambient humidity: < 95 %, non-condensing

**Voltage**

100 Vac [1]
- Rated (Vrated): 69/120 Vac
- Max. value (Vmax): 86/150 Vac
- Rated (Vphase-ground): 150 Vac
- Rated surge volt. (V surge): 2.5 kV

400 Vac [4]
- Rated (Vrated): 277/480 Vac
- Max. value (Vmax): 346/600 Vac
- Rated (Vphase-ground): 300 Vac
- Rated surge volt. (V surge): 4.0 kV

**Current**

- Rated (Irated): [1] ../1 A or [5] ../5 A
- Linear measuring range: 0.498 MΩ, 4.2 MΩ
- Max. power consumption per path: < 0.15 W
- Input resistance per path: 0.498 MΩ (1) 0.498 MΩ (4) 2.0 MΩ
- Linear measuring range: Isource = 3.0×Irated
- Burden: < 0.15 VA

**Intrinsic consumption**: max. 8 W

**Load (GP)**: ...

**Discrete outputs** Group A [R 1-4]
- Isolated
- Contact material: AgCdO

**Discrete outputs** Group B [R 6-9]
- Isolated
- Contact material: AgNi 90/10

**RS-485 interface**
- Isolated

**CAN bus interface**
- Isolated

**Housing**
- Back: IP54 (with clamp fastening)
- Front: IP65 (with screw fastening)
- Panel: IP20

**Dimensions**

- Back view: 219 x 171 x 61 mm (8.6 x 6.7 x 2.4 in)
- Front view: 186 x 138 mm (7.3 x 5.4 in)

**Configuration**

- Port: PC Configuration Port

**Connection**

- Screw/plug terminals AWG 14 / 2.5 mm²

**Configuration Software**

- ToolKit

**WARNING**

Before disconnecting the current transformer/CT secondary connections or the connections of the current transformer/CT at the device, ensure that the current transformer/CT is short-circuited.

**NOTE**

Connected inductances (e.g. coils of operating current or undervoltage tripping devices, auxiliary contactors and power contactors) must be wired with an appropriate interference protection.

**Part Numbers and Order Codes**

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated PT secondary</th>
<th>Rated CT secondary</th>
<th>Part Number (P/N)</th>
<th>Description</th>
<th>Configuration Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>69/120 Vac and 277/480 Vac</td>
<td>.5 A</td>
<td>8440-1868</td>
<td>DTSC-200-55B</td>
<td>ToolKit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.1 A</td>
<td>8440-1867</td>
<td>DTSC-200-51B</td>
<td>ToolKit</td>
</tr>
</tbody>
</table>
WIRING DIAGRAM

Service Port (RS-232)
Connect only with Woodward DPC cable

480 Vac
Source 2 voltage L1
120 Vac

480 Vac
Source 2 voltage L2
120 Vac

480 Vac
Source 2 voltage L3
120 Vac

480 Vac
Source 2 voltage N
120 Vac

480 Vac
Source 1 voltage L1
120 Vac

480 Vac
Source 1 voltage L2
120 Vac

480 Vac
Source 1 voltage L3
120 Vac

480 Vac
Source 1 voltage N
120 Vac

Function earth

L1
Load current

L2
Isolated

L3
GND

RS-485-B
RS-485-A
RS-485-B
RS-485-A
CAN-L
CAN-H

0 Vac
Power supply 0 to 40 VDC
12/24 VDC

Relay [R 01] isolated
Ready for operation

Relay [R 02] isolated

Relay [R 03] isolated

Relay [R 04] isolated

Relay [R 05] isolated
Engine start contact

Relay [R 06] isolated
Command: close to source 1 position

Relay [R 07] isolated
Command: close to source 2 position

Relay [R 08] isolated
Command: open from source 1 position to neutral position

Relay [R 09] isolated
Command: open from source 2 position to neutral position

Common (terminals 51 to 62)

Discrete input [DI 01] isolated
Power in總是互鎖; 腦再; 無dea

Discrete input [DI 02] isolated

Discrete input [DI 03] isolated

Discrete input [DI 04] isolated

Discrete input [DI 05] isolated

Discrete input [DI 06] isolated

Discrete input [DI 07] isolated

Discrete input [DI 08] isolated

Discrete input [DI 09] isolated

Discrete input [DI 10] isolated

Discrete input [DI 11] isolated

Discrete input [DI 12] isolated

Subject to technical modifications.

* - configurable via Logic Manager

DTSC-200 Wiring Diagram | Rev. A
### FEATURES OVERVIEW

**Digital Transfer Switch Controller**

<table>
<thead>
<tr>
<th>Feature</th>
<th>DTSC-200</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Measuring</strong></td>
<td></td>
</tr>
<tr>
<td>Source voltage (3phase/4-wire) rated 69/120 Vac</td>
<td>✓</td>
</tr>
<tr>
<td>- True R.M.S. rated 86/150 Vac</td>
<td>✓</td>
</tr>
<tr>
<td>- FlexRange™ max. 346/600 Vac</td>
<td>✓</td>
</tr>
<tr>
<td>Load current #1 (3phase/4-wire, true RMS)</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Breaker Control</strong></td>
<td></td>
</tr>
<tr>
<td>Open transition (break-before-make)</td>
<td>✓</td>
</tr>
<tr>
<td>Delayed transition (break-before-make) + timed neutral position</td>
<td>✓</td>
</tr>
<tr>
<td>Closed transition (make-before-break)</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Application</strong></td>
<td></td>
</tr>
<tr>
<td>Utility to generator</td>
<td>✓</td>
</tr>
<tr>
<td>Utility to utility</td>
<td>✓</td>
</tr>
<tr>
<td>Generator to generator (2 start signals)</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Features</strong></td>
<td></td>
</tr>
<tr>
<td>Programmable elevator pre-signal</td>
<td>✓</td>
</tr>
<tr>
<td>Programmable motor load disconnect signal</td>
<td>✓</td>
</tr>
<tr>
<td>Test modes #2</td>
<td>✓</td>
</tr>
<tr>
<td>Transfer mode selector #2</td>
<td>✓</td>
</tr>
<tr>
<td>Load shed #2</td>
<td>✓</td>
</tr>
<tr>
<td>Shunt trip enable #2</td>
<td>✓</td>
</tr>
<tr>
<td>Extended parallel time #2</td>
<td>✓</td>
</tr>
<tr>
<td>Automated display backlight shutdown selectable</td>
<td>✓</td>
</tr>
<tr>
<td>Daylight saving time</td>
<td>✓</td>
</tr>
<tr>
<td>Source priority selection #2</td>
<td>✓</td>
</tr>
<tr>
<td>Vector group adjustment for in-phase monitoring</td>
<td>✓</td>
</tr>
<tr>
<td>Fully adjustable timers #3</td>
<td>✓</td>
</tr>
<tr>
<td>Status LEDs for source availability and breaker status</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Accessories</strong></td>
<td></td>
</tr>
<tr>
<td>Soft-keys (advanced LC display) DynamicsLCD™</td>
<td>✓</td>
</tr>
<tr>
<td>Configuration via PC #4</td>
<td>✓</td>
</tr>
<tr>
<td>Event recorder with real time clock (battery backup)</td>
<td>300</td>
</tr>
<tr>
<td>Flush-mounting (screw or clamp fastening)</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Monitoring</strong></td>
<td>ANSI#</td>
</tr>
<tr>
<td>Source: voltage 59/27</td>
<td>✓</td>
</tr>
<tr>
<td>Source: frequency 81O/81U</td>
<td>✓</td>
</tr>
<tr>
<td>Source: voltage asymmetry 47</td>
<td>✓</td>
</tr>
<tr>
<td>Source: rotation field</td>
<td>✓</td>
</tr>
<tr>
<td>Load: overload 50/51</td>
<td>✓</td>
</tr>
<tr>
<td>Switch: plausible switch position</td>
<td>✓</td>
</tr>
<tr>
<td>Switch: transition failure</td>
<td>✓</td>
</tr>
<tr>
<td>Battery: voltage</td>
<td>✓</td>
</tr>
<tr>
<td>Synch check (inphase monitoring) 25</td>
<td>✓</td>
</tr>
<tr>
<td>Parallel time monitoring</td>
<td>✓</td>
</tr>
<tr>
<td><strong>I/Os</strong></td>
<td></td>
</tr>
<tr>
<td>Discrete inputs (configurable)</td>
<td>12</td>
</tr>
<tr>
<td>Discrete outputs (configurable) LogicsManager™</td>
<td>9</td>
</tr>
<tr>
<td>Direct configuration interface #4</td>
<td>✓</td>
</tr>
<tr>
<td>CANopen communication bus (isolated)</td>
<td>✓</td>
</tr>
<tr>
<td>RS-485 Modbus RTU Slave full/half-duplex (isolated)</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Listings/Approvals</strong></td>
<td></td>
</tr>
<tr>
<td>UL/cUL Listed</td>
<td>✓</td>
</tr>
<tr>
<td>GOST-R</td>
<td>✓</td>
</tr>
<tr>
<td>CE Marked</td>
<td>✓</td>
</tr>
</tbody>
</table>

---

#1 Selection during order; both .1 A (standard) or both .5 A (alternatively)

#2 via internal conditions or remote command

#3 neutral delay timers (1 to 6500 s), elevator pre-signal timers (1 to 6500 s), motor load disconnect timers (1 to 6500 s), stable timers (1 to 6500 s), outage timers (0.1 to 10.0 s), engine start delay timers (1 to 300 s)

#4 Configuration software 'Toolkit' available free at Woodward.com, connection requires Woodward DPC cable P/N 5417-1251

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Subject to technical modifications.

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