Top level p/n: 85-800
Top level dwg #: 104050

85-800 CONTROLLER / POWER SUPPLY

Description of use:
For use with dual door Delayed Egress
with Latch Retraction devices (EExER)
Input requirements 120v @ 2 amps
For International orders:
Input requirements 240v @ .8 amps
DETEX Model 85-800
Connection Diagram and Instructions

WARNING! DEVICE MAY CYCLE WHEN FIRST POWERED UP.
KEEP HANDS AND FINGERS CLEAR OF MOTOR AND CAM.

MAIN POWER PANEL

The 85-800 is a controller / power supply. The power supply boards are configured for 24VDC.

Refer to the appropriate drawing for connections and adjustments. All connections and adjustment must be made with the power supply de-energized AND main power switch (item 3) in the OFF position.

1: MAIN POWER CONNECTION.
Observe correct terminal connections. Color code requires connections made per NFPA72. Leave circuit de-energized while installing and servicing unit.
2A & 2B: FIRE LOOP CONTROL.
Connect the two wires from the building fire system relay to these terminals on power board "A". The power supply will operate normally as long as the connection between the (-) and (C) is maintained. When the building fire alarm system opens the circuit, the power supply de-energizes the output voltage. The fire loop uses 24 volt sense voltage. Power board "A" must have connection to the building fire safety system. Connection for power board "B" is optional. Fire alarm relay is required for power board "B" on fire rated openings. **NOTE: Each power supply should have an Independent fire alarm relay.**

3: MAIN ON-OFF SWITCH.
This switch can be used to de-energize the power supply for service and adjustments. High voltage is still present inside the enclosure as long as the main power feed is energized, so caution should still be used when service is performed using this switch.
I = ON,  O = OFF
Yellow LED = SYSTEM OK
Green LED = NO DC OUTPUT
No LED = No AC input

4: 1.5 AMP TIME DELAY FUSE (5 x 20mm).
This is intended to protect the device against high current loads and is part of the AC input circuit. Both power boards use this fuse.
Detex p/n is 104267-2.
Bussman p/n is GMD-1.5A
Littlefuse p/n is 023901.6HXP

5: OUTPUT VOLTAGE.
Both boards are factory set for 24volts.

6: OUTPUT TERMINALS are pre-wired at factory (6A / 6B).

**DOOR CONTROLLER PWA**

7: POWER GOOD INDICATOR.
This LED will glow green if 24 volts is supplied to the controller board.
8: ACCESS CONTROL INPUTS.
These require a normally open dry contact. The door latch will
activate and hold once the circuit between the terminals of
inputs 1, 2 or 3 is made.

9: DOOR HOLD DELAY ADJUST.
This potentiometer adjusts the length of time the latch is held retracted once the input switch is
released. Turn clockwise to increase the latch hold time up to a maximum of about 30 seconds.
TROUBLESHOOTING INFO: When adjusted to minimum, latch retraction may not function
properly.

10: AUXILIARY OUTPUT INDICATOR.
D1 glows red when the auxiliary output is active.

11: DOOR 1 OUTPUT ACTIVITY INDICATOR.
D2 glows red when the output voltage to the latch retraction device is energized.

12: DOOR 2 OUTPUT ACTIVITY INDICATOR.
The LED glows green when the output voltage to the latch retraction device is energized.

13: DELAY EGRESS TO LATCH RETRACTION DIFFERENTIAL ADJUST.
R5 is used to adjust the delay between the delay egress release and ER latch retraction.
The delay is factory adjusted and should work correctly for most applications. The delay is
adjustable from .25 to 1 second by R5. This is factory set and should not require
adjustment. If a longer delay is needed, turn R5 clockwise.

14: DELAY BETWEEN EACH DOOR RETRACTING.
Potentiometer R21 adjusts the delay time between the latches being retracted on door 1 &
door 2. It is set at the factory and should not require adjustment. Should a longer delay
time be required, turn R21 clockwise to increase. Note: Additional relay is needed for door
operator.

Door 1 to Door 2 Delay
Time is adjustable from
0.5 to 3 seconds
15b: DOOR SIGNAL MODULE. STANDARD (KIT P/N 104048)
A door signal to control a door operator.
(Not evaluated by UL)

15a: OPTIONAL 12 VOLT POWER MODULE, M12 KIT (P/N M12)
An optional 12 volt power supply module is available where a 12 volt DC source is needed in addition to 24 volts. See the kit instructions for more information. 300 mA max current draw.
(Not evaluated by UL)

Optional Module
Optional 12 volt supply module plugs onto P1 and JP1. Plug is keyed for alignment, do not force. Order DETEX catalog number: M12

WARNING! DEVICE MAY CYCLE WHEN FIRST POWERED UP
KEEP HANDS AND FINGERS CLEAR OF MOTOR AND CAM

DELAYED EGRESS CONNECTION BLOCK

16: BYPASS RELAY OUTPUT: (7, 8, and 9)
The BYPASS relay output is energized when the unit is disarmed by the KEY or REMOTE BYPASS to indicate to a remote indicator that the door is not armed.

17: ALARM RELAY OUTPUT: (10, 11 and 12)
The ALARM relay output is energized when the unit is sounding its alarm to indicate to a remote indicator an unauthorized exit has been attempted.

18: MASTER SWITCH.
This switch is intended for service and setup use. When it is set to "ON" the LED tip will glow red. This indicates the delayed egress and exit alarm are set to normal control and function. When set to "OFF", the delayed egress and alarm functions are bypassed and the LED tip will glow green.

19. DELAYED EGRESS CIRCUIT BOARD.
There is an arming delay of 15 seconds (other times are factory optional) between the unit being placed in the armed state and the delay egress becoming active.

NOTE:
18 AWG wire is recommended for power circuits.
22 AWG wire is recommended for signalling circuits.
REMOTE INTERFACE
INSTALLATION INSTRUCTIONS

1. Mark Box Location:
   (surface installation shown)

   Mark (4) holes

2. Pick best knockout location for routing wires.

3. Route wires through knockout.

4. Mount box

   Recommended drill size
   for anchors: 1/4 diameter

   Press-in
   wall anchors

BACK BOX MUST BE GROUNDED PER NFPA 70

#6-32x1-1/2"
Machine screw
P/N: 102866-14

Cover
P/N: 105430-1 (Gray), 105430-2 (Black)

#4-20x1-1/4" Plastite screw (qty 3)
P/N: PP-5374-48

Cylinder nut
P/N: 100783

RUI circuit board kit
P/N: 105083

Cam assembly kit
P/N: 102660-1

Ground Strap
P/N: 104448

Tamper bracket
P/N: 102701

#8-32 Truss HD screw
P/N: 102627-15

#4-20x1-1/4" Plastite screw (qty 1)
P/N: PP-5374-48

NOTE: Switch and cam assembly not used with dummy cylinder.

Figure 1. Parts breakdown depiction
6 KEY STOP INSTALLATION (if required) - Optional
(Key stop set screw included in hardware kit)

Hardware Kit
P/N: 103824 Includes Keystop parts
P/Ns: 105770-1 (KS), 105770-2 (KS2), & screw P/N 101976-1

Front View
KEY STOP POSITIONS
"ON" position
(Key can be removed)

KS shown
KS used with standard Yale style cam

KS2 shown
KS2 used with Adams Rite small style cam

"OFF" position
(Key cannot be removed)

Key shown in "OFF" position

Back View
Cam orientation for Key Stop option

Install key stop
Rotate key to this position before reinstalling cam assembly

Install mortise or dummy cylinder with cylinder nut provided (standard Yale cam)

Unfasten (3) screws

Re-install cam assembly

Terminal Block and key cylinder switch

See next page for color code and proper connection
7 SELECT S2 POSITION
(if required)

Slide S2 to "ON" for use with key cylinder, "OFF" for use with dummy cylinder

RUI circuit board kit
p/n 105083

8 CONNECT WIRES FROM CABLE TO TERMINAL BLOCK

6 Conductor cable from power supply to Remote Interface terminal strip p/n 103843

Back box MUST be grounded by conduit or other means

Grounding strap: supplied with device

Grounding wire required. Minimum 10 ga stranded wire NOT SUPPLIED

If only 1 panic device is installed, install jumper across blue & green terminals in un-used terminal block

6 Pin Plug to Power Supply

Pigtail provided for pre-wired installations

Power Supply Cable
Default 1 ft, p/n 103844
Optional for 20 ft, p/n 103844-2

<table>
<thead>
<tr>
<th>Terminal Block</th>
<th>Functions</th>
<th>Wire Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Green LED Control</td>
<td>Green</td>
</tr>
<tr>
<td>2</td>
<td>N/U</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>N/U</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Red LED Control</td>
<td>Red</td>
</tr>
<tr>
<td>5</td>
<td>N/U</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Key Cylinder Input</td>
<td>White</td>
</tr>
<tr>
<td>7</td>
<td>Horn (-)</td>
<td>Blue</td>
</tr>
<tr>
<td>8</td>
<td>Horn (+)</td>
<td>Brown</td>
</tr>
<tr>
<td>9</td>
<td>N/U</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>N/U</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>N/U</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Ground</td>
<td>Black</td>
</tr>
</tbody>
</table>

Terminal Block Connections
9 Verify Ground Strap Connection

10 Install device with (4) #8-32 machine screws

6-32 Screws from Hardware Kit
(Tamper Screw kit P/N: SSK4)

Detex supplied or use
Red Dot box
Part no: Red 2IH3-1

Detex supplied
or use a standard
4" x 4" x 2-1/2"
double gang outlet
box

NOTE: The Electric Latch Retraction (ER) function is operated by an external entry/exit control device (such as card reader) that is connected to the power supply. Install per Manufacturers instructions.
DELAYED EGRESS OPERATIONS

ARMING AND AUTHORIZED EXIT
With the door closed, insert key in the cylinder of the remote interface, turn CCW, then back to home key position and remove. Two red LED flashes occur, then green LED glows. Authorized personnel can exit the door during this rearming cycle. After a 15-second arming period, alarm issues three quick beeps and LED goes off, indicating the unit is armed (see table 3 for status options).

If a key cylinder is not used, the device is set to an armed state by default and only the three system control inputs on the ER control board (uses a normally open dry contact, closed to activate) can be used to bypass the alarm.

DISARMING
Insert key, turn CW to a stop. Green LED will blink twice to indicate the unit is disarmed, (see table 3). Device will operate as a normal exit device. If the key cylinder is not used, closing the contacts of one of the three system control inputs will activate the latch retraction mechanism and bypass the alarm.

Upon release of the input contact, the latch will release, and the 15 second arming delay timer will start. The unit will issue three beeps, indicating the unit is now armed.

EXITING UNDER ALARM
To exit, push and maintain pressure on the pushpad. After a one second delay, (nuisance delay), LED flashes RED and alarm pulses on and off for 15/30 (not field programmable). After 15/30 seconds, alarm issues short and long pulses to indicate that one can exit by depressing the pushpad. Alarm sounds continuously and LED is steady red. Turn key CW to stop alarm or initiate authorized access. In case of fire, the fire alarm over-rides the 15/30 second delay and the door opens without delay when pushpad is pushed. The alarm will not sound since the power to the system is turned off in response to the fire alarm.

RESETTING THE ALARM
Turn key CW to reset the alarm. See the arming procedure above to rearm the device. If the key cylinder is not used the alarm must be reset by using one of the three system control inputs on the ER control board. The latch will retract and the alarm will turn off. Upon release of the system control input contact & retract time, the unit will start the 15 second arming delay timers, and will automatically rearm at the end of that time. In case of fire, the fire alarm overrides the 15 or 30 second exit delay and the door opens when the pushpad is pressed. The alarm will not sound since the power to the system is turned off in response to the fire alarm.

NUISANCE DELAY
When pushpad is depressed for less than 1 second, alarm will emit a single pulse but will not start delay function.

NORMAL OPERATION

<table>
<thead>
<tr>
<th>LED COLOR</th>
<th>SIREN SOUNDS</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>RED</td>
<td>GREEN</td>
<td>THREE CHIRPS</td>
</tr>
<tr>
<td>OFF</td>
<td>ON</td>
<td>SLOW PULSE</td>
</tr>
<tr>
<td>SLOW BLINKING</td>
<td>OFF</td>
<td>FAST PULSE</td>
</tr>
<tr>
<td>FAST BLINKING</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>ON</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>SHORT BUNK (3 SEC)</td>
<td>OFF</td>
<td>OFF</td>
</tr>
</tbody>
</table>

TABLE 3

103167 Page 10
**RISER DIAGRAMS AND POWER TRANSFER OPTIONS**

- DETEX 85-800 FILTERED AND REGULATED POWER SUPPLY WITH FIRE ALARM SYSTEM LOOP
- DETEX REQUIRES THE POWER SUPPLY BE LOCATED WITHIN 15 FEET OF THE DEVICE
- PROVIDE WIRING CONDUIT, CONNECTOR, ETC BETWEEN DETEX 85-800 POWER SUPPLY AND FIRE ALARM CONTROL PANEL AS REQUIRED TO ALLOW THE FIRE ALARM SYSTEM TO OVERRIDE THE DETEX DELAYED EGRESS FEATURE DURING A FIRE ALARM
- THE LOSS OF POWER OR OPEN FIRE ALARM CIRCUIT ELIMINATES DELAYED EGRESS
- REFER TO WIRING & FIRE ALARM DIAGRAMS FOR WIRING INSTRUCTIONS
- GROUNDING WIRE REQUIRED MINIMUM 10 GA STRANDED WIRE
- DETEX SUPPLIED CABLES RECOMMENDATION FOR OTHERS: MIN. 22 GA WIRE FOR SIGNALING MIN. 18 GA WIRE FOR POWER
- REMOTE INTERFACE MAY BE SURFACE MOUNTED OR RECESSED
  - IF CYLINDER IS USED, MOUNT APPROPRIATELY.
  - IF CYLINDER NOT USED, MOUNT 8' TO 10' HIGH
- NOTE: Access control not shown

**TROUBLE SHOOTING**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Probable cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>No exit delay, alarm does not pulse.</td>
<td>No power to/from power supply; no fire loop connection.</td>
</tr>
<tr>
<td>No green light when key is turned CCW.</td>
<td>Check connections on cables.</td>
</tr>
<tr>
<td>No exit delay, alarm pulses.</td>
<td>Magnet wires not connected to circuit board.</td>
</tr>
<tr>
<td>Latch fails to retract</td>
<td>Increase door hold release R13 (item 9)</td>
</tr>
</tbody>
</table>
| Device motor fails to complete cycle | 1. Increase door hold release R13 (item 9).
  2. Check eye bolt adjustment.  (See delay device instructions) |
| Delay egress does not arm        | On RIU device, if using a dummy cylinder, S2 must be set to "OFF"             |

For further assistance, contact Detex Technical Support at 1-800-729-3839