

TORK[®]

INSTRUCTION MANUAL

EWZ1 01C EWZ2 01C

DIGITAL TIME SWITCH

CLOCK OPERATED SWITCH



FOR TECHNICAL SUPPORT:
888.500.4598 • techsupport@nsiindustries.com
Programming videos at nsiindustries.com

MLI-225 (A)

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TORK MODEL EWZ SERIES 7 DAY TIME SWITCH

CAPABILITIES:

- 7 Day scheduling.
- 32 set points.
- EWZ101C may be wired as SPST or SPDT.
- EWZ201C field convertible for 2 channel, 1 channel DPST or Momentary.
- 20 Block Holidays.
- Astronomic Option. For automatic ON at sunset, OFF at sunrise for outdoor lighting.

FEATURES:

Daylight Saving - Automatic (user selectable).

Leap Year - Automatic compensation.

Power Outage - Permanent schedule retention. Supercapacitor provides 4 days of real time backup.

Manual Override - Until the next scheduled event.

Multi-Voltage Input - 120 – 277 Volts

Planning Your Program

EWZ201C two channel mode allows you to set-up different control logic for each channel. A channel could be sunset to sunrise while the other channel is sunset to time OFF.

EWZ201C one channel mode allows you to set-up the two relays as DPST. Both relays turn ON and Off at the same time. This is useful for switching 208 or 240 volts.

Momentary output mode is used for switching latching contactors. The installation section describes how to remove a jumper on the back to set timer for this mode.

Two SCH events must be used to complete a schedule for each channel. An event must be entered for ON and an event for OFF. The event screen will indicate the number of each event from 01 to 32.

Here are examples for the most common uses. For other ideas call the toll free Tork Tech Help Line 888-500-4598.

1. Sunset ON and Sunrise OFF 7 days a week: After setting CLK (clock), DATE, and DST (daylight saving time), go to the ASTRO mode section 7.0 to enter latitude and enter sunset and sunrise days.

2. Sunset ON and 10:00pm OFF 7 days a week: After setting CLK (clock), DATE, and DST (daylight saving time), go to SCH (schedule) mode section 6.0 to enter the 10:00pm OFF time. Then go to the ASTRO mode section 7.0 to enter latitude and enter sunset days.

3. Time ON and Time OFF: After setting CLK (clock), DATE, and DST (daylight saving time), go to SCH mode section 6.0 for two entries. One for ON and the other for OFF at the times you choose.

Planning Your Holiday Schedule

Select up to 20 holiday blocks that have a start date and an end date. Holiday blocks can be anywhere from 1 day in length (the same start and end dates) or up to 364 consecutive days. Holiday blocks must not cross over December 31st. If a holiday block must run from December 18th through January 5th, two blocks must be entered. One block from 12/18 to 12/31, and then another from 01/01 to 01/05.

On these dates, the timer will execute the same special schedule. Enter the holiday schedule in section 5. If no schedule is entered with a holiday day group in section 5, On/Off operations will be omitted for the holiday dates. Astronomic schedule is not affected by holiday dates. The timer will always execute the sunset/sunrise schedule if chosen in section 7.

**READ INSTRUCTIONS CAREFULLY BEFORE
ATTEMPTING TO INSTALL TIME SWITCH.**

SEE WARNING ON FRONT PANEL – Failure to comply with instructions could result in personal injury and/or property damage.

INSTALLATION:

UNIT IS TO BE INSTALLED BY A LICENSED ELECTRICIAN

1. To remove unit from enclosure: Push the tab on right outward and lift up on the mechanism on the right side. Left side is held in place as the mechanism swings out to the left then remove.
2. Mount the enclosure at eye level using screws or other suitable fastening device. Bring supply and load wires in through or side knockouts. DO NOT USE TOP.
3. EWZ201C can also be field converted to be used as momentary unit. Jumper in place equals maintained contacts. Jumper removed equals momentary operation. To make this conversion, remove a small black jumper from the back of the mechanism. It is located on the upper right next to R35 marking. After power is restored press the reset button to set momentary operation. Reset the unit by inserting a small pin or paper clip into the small hole next to the EVENT key. Press and release.
4. Reinstall unit by reversing step #2 above and connecting wires to units as per suggested wiring diagrams at back of manual.
5. Apply power to unit. Unit should only be programmed with AC power. Do not program under super capacitor backup power.
6. AT POWER UP; When powering up the unit for the first time, allow 1-2 minutes for super cap to charge. Press reset button after 2 minutes if screen is blank.

PROGRAMMING YOUR EWZ101C STARTS WITH STEP 2.0

PROGRAMMING YOUR EWZ201C STARTS WITH STEP 1.0

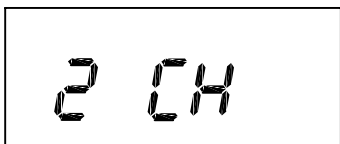
NOTE: AFTER MAKING ANY CHANGES TO THE PROGRAM, PRESS **MODE** TO GO TO RUN MODE AND THEN PRESS **EVENT** TO UPDATE THE LOAD STATUS.

1.0 TWO CHANNEL / ONE CHANNEL SELECTION.

The first time unit is powered up, display will show a flashing 2CH.

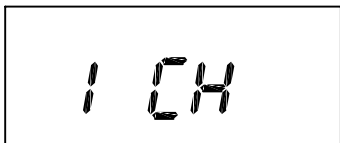
1.1 For 2 CHANNEL Operation.

Press **ENTER** then go to section 2.0.CLK (clock) mode.



1.2 For 1 CHANNEL DPST operation.

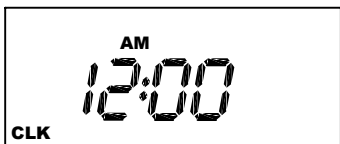
Press **DEL** and display will show a flashing 1CH.



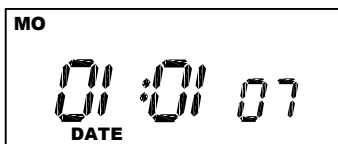
Press **ENTER** to save change and go to section 2.0.CLK (clock) mode.

2.0 TO SET CLOCK.

The display will show:



Press **HOUR** and **MIN** to advance to today's time. Check AM/PM, and press **ENTER**.



3.0 TO SET DATE.

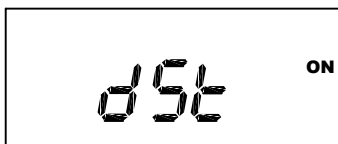
If you are setting for the first time, display will show a default date:

Press **MONTH**, **DATE**, and **YEAR** key to advance to today's date then press **ENTER**.

NOTE: The day of the week will be automatically set once the date is entered.

4.0 DAYLIGHT SAVING TIME.

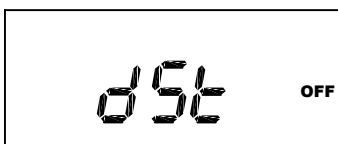
The display will show dSt ON.



For standard USA daylight saving time (dSt), press **MODE** then go to section 5.0.

4.1 NO DAYLIGHT SAVING TIME.

If daylight saving time (dSt) is NOT required, press **DEL** display will show:



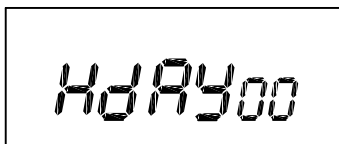
Press **ENTER** then go to section 5.0.

4.2 TO MODIFY STANDARD USA DAYLIGHT SAVINGS DATES.

For dates other than standard USA dates, consult factory.
Techsupport@nsiindustries.com

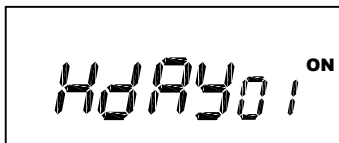
5.0 HOLIDAY MODE.

Holiday screen will show HdAY00 if no holidays are entered.



5.1 TO SET HOLIDAY START DATE.

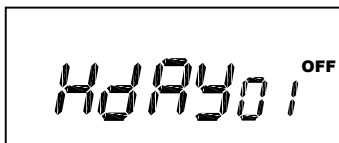
Press the **ENTER**. The screen shows:



Press the **MONTH**, and **DATE** keys to set the desired start date (ON). Press the **ENTER** key.

5.2 TO SET HOLIDAY END DATE.

The screen shows:



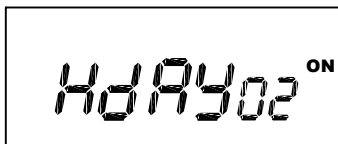
The first Holiday block end date (OFF) can now be entered.
Choose (a) or (b) below.

a) FOR SINGLE HOLIDAY. Press the **ENTER** key.

b) FOR BLOCK HOLIDAY DATES

Set the ending date (OFF). Press the **MONTH**, and **DATE** keys to set the date to the desired end date. Press the **ENTER** key.

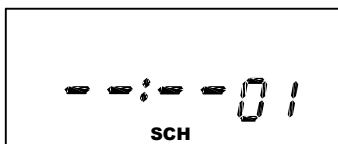
5.3 ADDITIONAL HOLIDAY ENTRIES.



Repeat steps **5.1** and **5.2** for all holidays. Press **MODE** when holidays are complete.

6.0 SCHEDULE SET MODE.

Press **MODE** until display shows:



EWZ201C in optional 1 channel or momentary mode or EWZ101C allows only 1 channel for programming. For EWZ201C in 2 channel mode, press CH1/CH2 to select channel 1 or 2 for programming.

6.1 SETTING HOURS, MINUTES AND DAYS.

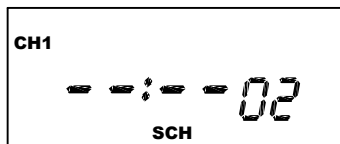
- Press **HOURL** and **MIN** to set desired time.
- Press **EVENT** to set desired event (ON or OFF).
- Press **DAY** to change the selected day groups from all days MO to SU.

A schedule with day group 12 (all days flashing) will be executed on the Holiday block dates selected in section 5.



NOTE: The holiday indication with all days flashing will only show if a holiday date has been entered in section 5.0

Press **ENTER**. The display will show:



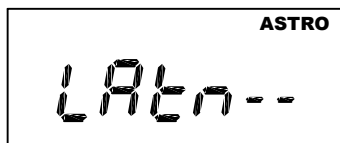
At the next blank screen press **CH1/CH2** EWZ201C to select desired channel and proceed with the steps above to set more schedule entries.

Each ON and OFF setting must be entered separately. A complete ON/OFF pair will include two schedules.

Always press **ENTER** to save a new entry. Continue to press **ENTER** to review all 32 schedule positions. Press **MODE** when schedule is complete.

7.0 ASTRONOMIC MODE (SUNSET/SUNRISE).

Display shows:



To skip, press the **MODE** key.

7.1 SELECTING CHANNEL AND LATITUDE.

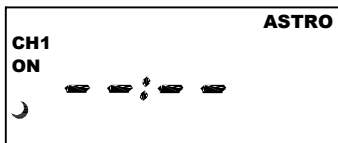
Press **CH1/CH2** to select channel 1 or 2 for EWZ201C. Press **LATITUDE** key to advance to the desired degree of latitude, from 10° to 60° north or 10° to 60° south.

NOTE: A map is in the back of these instructions.

Press **ENTER**.

7.2 SELECTING ASTRO DAYS ON.

The display will show:



Press **DAY** to show the Sunset time for today. All days are filled in on the screen. To change the day groups to MO – FR, as an example, continue to press the **DAY** button.

NOTE: Sunset Time is based on Date and Latitude entered.

Press **ENTER**.

7.3 SELECTING OFFSET TIME FOR ON.

The display will show:



Offset lets you turn the timer on earlier or later than the calculated Sunset time for your latitude.

If an offset to sunset time is required, press **HOUR** and **MIN**. Offset can be set to 4 hour max.

Press **EVENT** to select + or –.

NOTE: A + sign will turn load ON that many hours and/or minutes after sunset. A - sign will turn load ON that many hours and/or minutes before sunset.

Press **ENTER**.

7.4 SELECTING ASTRO DAYS OFF.

The display will show:



Press **DAY** to show the Sunrise time for today. All days are filled in on the screen. No changes can be made to the day selection. This way the timer always turns off the load at sunrise for energy savings. Even if you created a fixed time off in the SCH section, it a good idea to add the Sunrise OFF.

Press **ENTER**.

7.5 SELECTING OFFSET TIME FOR ON.

The display will show:



Offset lets you turn the timer on earlier or later than the calculated Sunrise time for your latitude.

If an offset to sunrise time is required, press **HOUR** and **MIN**. Offset can be set to 4 hour max. Press **EVENT** to select + or - and then press **ENTER**.

NOTE: A + sign will turn load **OFF** that many hours and/or minutes after sunrise. A - sign will turn load **OFF** that many hours and/or minutes before sunrise.

Press **MODE** to return to the **AUTO** mode.

8.0 REVIEW, MODIFY AND DELETE.

Press **MODE** to advance to any of the following MODES:

1. CLOCK MODE: Press **HOUR** and **MIN** to modify existing settings. Press **ENTER**.
2. DATE MODE: Press **MONTH**, **DATE** and **YEAR** to modify existing settings. Press **ENTER**. DAY is automatically adjusted.
3. DST Daylight Saving Time: To review press **ENTER**. To modify press **MONTH**, **DAY** and **DATE** to change existing setting. Press **ENTER**.
4. HOLIDAY MODE: Press **ENTER** to modify dates. Press the **MONTH**, and **DATE** keys to set the date to the desired start date (HdAY01 ON).

Press the **ENTER** key For a single day holiday skip the OFF screen and press the **ENTER** key

For a block of dates set the OFF date for the end of the holiday block.

Press the **MONTH**, and **DATE** keys to set the date to the desired end date (HdAY01 OFF)
Press the **ENTER** key.

5. SCHEDULE MODE: Press **ENTER** to advance to desired event. Press **HOUR**, **MIN** and **EVENT** to modify setting. Press **DAY** to modify days, **DEL** to delete. Press **ENTER** after each modification.
6. ASTRO MODE: Press **CH1/CH2** to select desired channel. Press **LAT** to change latitude. Press **ENTER**. Press **DAY** to add or delete days in the sunset mode. Press **ENTER**. Press **HOUR** and/or **MIN** to change offset time for sunset. Press **EVENT** to change offset from + to -. Press **ENTER** and follow the same procedure above to modify or review sunrise settings.
7. RUN MODE: The time, day, seconds, the status of both channels and **AUTO** is displayed.

9.0 OVERRIDE.

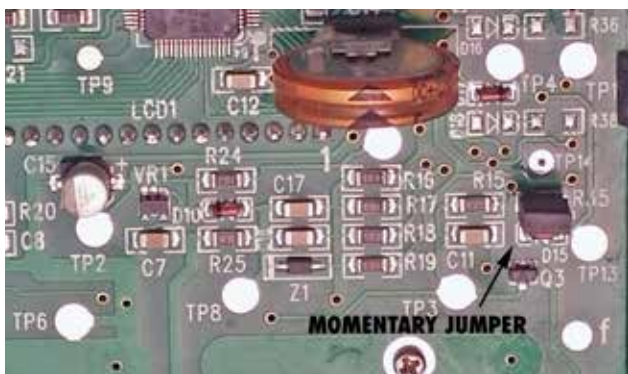
OVR (Override) is effective in the **AUTO** mode and the **MAN** (manual) mode. **OVR** in the **AUTO** mode is effective until the next event. **OVR** on the manual mode is effective indefinitely.

10.0 EVENT.

The **EVENT** button in the **RUN** mode is used to update the load status. It will execute the last scheduled event for CH1 and CH2. The display will only show the last scheduled event for CH1. To view the last schedule event for CH2, simply press the **EVENT** key again. If there is no schedule programmed for CH1 or CH2, the display will show —:—

11.0 USE EWZ201C AS MOMENTARY UNIT.

This unit can also be field converted to be used as momentary unit. To make this conversion, first remove all power from the timer. Remove the mechanism from the enclosure to expose the back of the unit. See caution and steps in the installation section. Remove small black jumper in back of the mechanism at the upper right next to R35 marking. Replace mechanism in the enclosure and restore power. Reset the unit by inserting a small pin or paper clip into the small hole next to the **EVENT** key and re-setting the clock and date.



1. Upon removing the jumper and pressing the **RESET** key, the unit will be configured as a 1 channel momentary ON and OFF. ONLY CH1 will need to be programmed. CH2 can still be viewed and programmed but will not take effect.

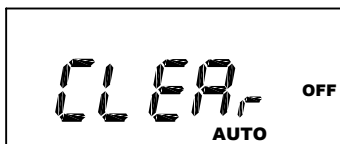
2. A 2 second closure between terminals 3 and 4 at ON event and 2 second closure between terminals 5 and 6 at OFF event.

12.0 NOTES:

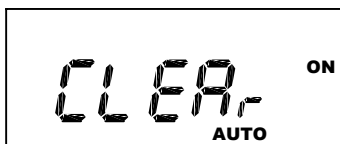
1. MAN mode: Under this mode the unit disregards the settings in the schedule mode and remains in its manually set status ON or OFF. To resume regular schedule execution press the mode key to return to AUTO mode.

2. Unit will go to RUN MODE automatically (except on the MAN mode) if no key is pressed for 5 minutes.

3. Clear all memory. All memory can be cleared using the following procedure: While in the RUN mode, press **ENTER**, display will show Clear OFF:



Use **EVENT** key to display Clear ON:



Now press **ENTER** briefly and everything in the timer memory will be erased, including real time and date.

NOTE: Unit has permanent memory and will not be erased unless done through procedure above.

4. Upon powering up your EWZ201 the display will show at what frequency the unit is operating, 50 will determine 50Hz or 60 for 60Hz.

5. While in the AUTO mode, if AC power is absent, the display will show a PF (power failure) instead of the seconds scrolling up.

6. A "Lo" on the display indicates that the super cap has run low and the unit needs to be powered with AC. A minimum of 8 hours is required to fully charge the super cap.

7. A "PF" on the display indicates power failure. Timer will not operate in this mode. If power has been restored to the unit and "PF" still shows, try to reset the unit by inserting a small pin or paper clip into the small hole next to the EVENT key and re-setting the clock and date.

[illegible]

[illegible]

ASTRONOMIC SCHEDULE

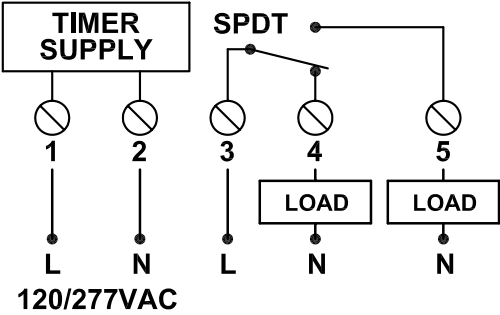
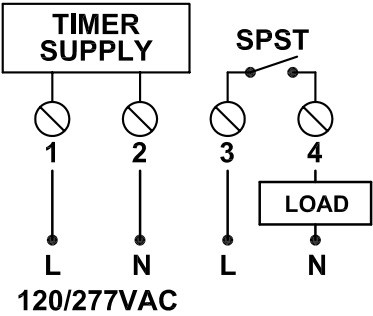
Latitude _____									Sunset	Sunrise
Sch. #	MO	TU	WE	TH	FR	SA	SU	H	Offset	Offset

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ASTRONOMIC LATITUDE ZONES



WIRING DIAGRAMS FOR EWZ101C



WIRING DIAGRAMS FOR EWZ201C

