NETAFIM LANDSCAPE CONTROLLER COMPONENTS

DECODERS

SINGLE LINE DECODER FOR NLC-100D, NLC-100S HYBRID, NLC3D6 AND NLC3D24

Used to energize a single valve in the field. It's easily programmed by the user with a specific station ID, then it's connected anywhere along the 2-wire path. Activating that specific station turns on the valve.

The decoder can energize almost any 24VAC solenoid and can be programmed with different IDs when desired.

Tucor wire, designed to ensure a secure, water-tight electrical pathway, is the preferred method of connecting the field decoder to the controller.

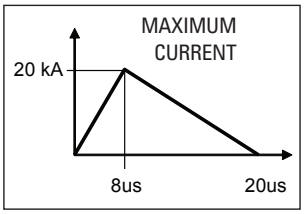
DIMENSIONS: 1.5" x 1.4" x 2.3"
LEAD LENGTH: 11"
MODEL NUMBERS: NLCDECODER (Blue: NLC-100D)
NLC3DLD050 (Orange: NLC-100S Hybrid, NLC3D6 and NLC3D24)

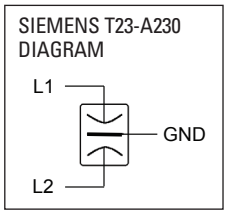
SURGE PROTECTOR

The NLCSP100 provides protection along the 2-wire path from electrical surges due to lightning or other static charges. High voltage spikes traveling down the 2-wire path are effectively shunted to the ground through the NLCSP100 minimizing the risk to decoders and other devices. As an integral part of your 2-wire system, you'll get added peace of mind during bad weather.

NORMAL SPARK OVER: 230V
MAX. SPARK OVER: 450V
COLOR: Yellow
MODEL NUMBER: NLCSP100

An NLCSP100 must be installed and grounded every 500' and at the end of a wire run. Resistance of the ground wires must be 50Ω or less.





SENSOR DECODER FOR NLC3D6, NLC3D24 AND NLC-100S HYBRID

Fully programmable decoders that provide an interface between the NLC-3D and field sensors. This means that any type of sensor, such as flow, temperature or moisture, can be added to a new or existing system.

The sensor decoder is installed on the same 2-wire path as the line decoder so the sensor can be a considerable distance from the controller.

Two models of flow sensor decoders based on the type of pulsed output register on the flow meter.

OPERATION
When used with an appropriate flow meter, output is registered and recorded as flow rates. Various controller responses may be defined based on sensor input. The controller polls the sensors for data either once or twice per minute, depending on the number of sensors installed.

INSTALLATION
The sensor is wired directly to the 2-wire path. Inputs are color-coded for proper polarization. Sensor calibration is defined by the controller's PC software and is then transferred to the controller via the RS232 connection. Includes built-in surge protection, Model NLCSP100.

ELECTRICAL INPUT: 4-20mA or pulses per time interfaces
Sensor resolution is 200 steps
Accuracy better than 1% of max. value
Factory programmed ID
COLOR: Green
MODEL NUMBERS: NLC3DSD100 - use with reed switch
NLC3DSD100M - use with Photo Diode
NLC3D-FMVM - flow and master valve Combo Decoder. For use with NLC-3D and Hydrometer.

NLC COMPONENTS

SOIL MOISTURE MONITORING

Soil moisture monitoring uses sensors and probes embedded in the soil root zone. Netafim Landscape Controllers are able to continuously monitor the soil for the proper amount of moisture, specific to the location and plant's needs. Installed along with any of our ET devices, the Cycle Management Software will ensure the soil both starts and remains at the proper moisture content, even as the ET feedback adjusts the irrigation around that optimal level.

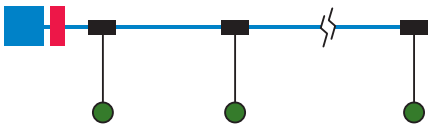
Soil moisture monitoring ensures that the Netafim Landscape Controller will economically deliver just the water the plant needs to stay healthy and green.

NLCSMS100 SOIL MOISTURE SENSOR

The NLCSMS100 is a single sensor design, buried within the root zone. It will continuously monitor the moisture content and provide feedback to the controller. Compensation factors are included for a range of soil types.

CABLE LENGTH:	13' Extendable to 2,000'
OPERATING TEMPERATURE:	23º F - 122º F
DIMENSIONS:	7" x 0.6" x 2.75"
MODEL NUMBERS:	NLCSMS100 (Single Sensor)
	NLCSMI232 (Soil Moisture Interface)

SMS-100 SENSOR



SPECIFICATIONS

- Each sensor can be assigned to interrupt one or more programs.
- Up to 150 sensors can be monitored.
- One NLCSMI232 Interface Board is required for each controller.
- Up to 10 sensors may be connected to the controller.
- Soil Moisture Sensors require a separate wire path independent of the two-wire path.
- All sensors must be connected to a single extension cable. The maximum distance from the controller is 2,000'. The maximum distance of the sensor from the extension cable is 13'.
- The extension cable must be approved Tucor Cable.
- A RealNet communication subscription is required to enable data monitoring. All other features may be programmed at the controller.

SYMBOL	NAME
	Netafim Landscape Controller
	Soil Moisture Sensor or probe with 13' Cable
	Waterproof Connection
	TW-18/4MS Extension Cable
	NLCSMI232 Interface

NLCSMP-12-A SOIL MOISTURE PROBE

The NLCSMP-12-A incorporates multiple sensors within one housing for a range of measurements in a depth of soil.

LENGTH:	12"
CABLE LENGTH:	13'
SENSORS:	6
SENSOR SPACING:	2"
MODEL NUMBER:	NLCSMP-12-A

SMP-12-A PROBE

NLC COMPONENTS

WIRELESS WEATHER STATION

The NLCET300W is an affordable wireless weather station that allows the Netafim Landscape Controllers (NLC-100S, NLC-100S Hybrid and NLC-100D) to use local ET data. This ET information is used to provide precise watering of the soil, based on the specific environmental factors. The controller can be programmed with a range of parameters, using the ET data to its maximum effectiveness, using neither too much nor too little water in the irrigation programs. Since the weather station monitors local weather conditions, you're assured that the information closely reflects what's happening near the controller, not many miles away.

The weather station communicates to the controller wirelessly, up to 1,000' line-of-sight, and is powered by solar cells. Controller connection to the weather station is through a wireless receiver, which sends wired ET and rain pulses to the controller. The weather station can share its data with other Netafim Landscape Controllers either over the internet* or by using a separate wireless receiver at each controller. Merely adding a tipping rain bucket to each controller ensures accurate weather data that is specific to each controller.

SPECIFICATIONS

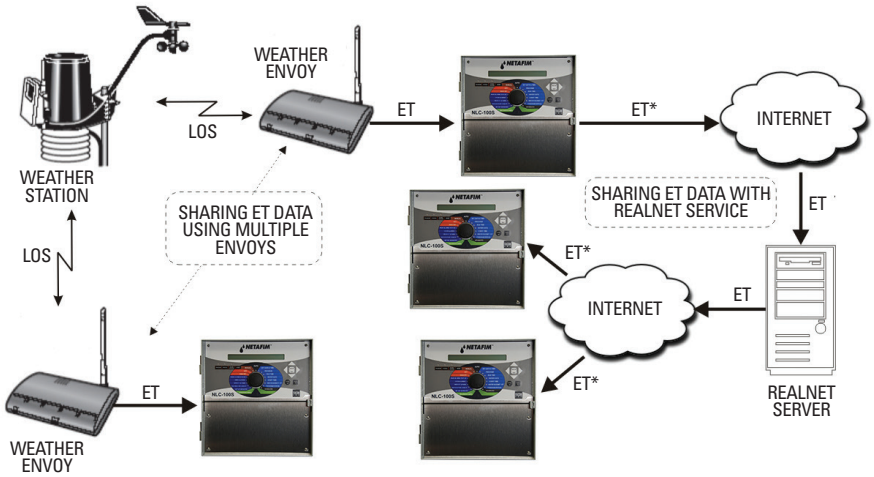
TRANSMISSION FREQUENCY:	902-928 MHz FHSS
TEMPERATURE RANGE:	-40º F to 150º F
LICENSE:	No license required less than 8mW
PRIMARY POWER:	Solar power
BACKUP POWER:	CR-123A 3-volt lithium battery (8 months without sunlight, greater than 2 years depending on solar charging)
WIRELESS RECEIVER:	Powered by a 120VAC-5 VDC, 200 ma transformer. Wiring to controller supplied by user, 4-cond. 26AWG Comm.link up to 1,000' LOS, 200'-400' through walls.
SOFTWARE:	Includes WeatherLink Windows Software

MODEL NUMBERS:

NLCET 300W	(Weather Station without Enclosure)
NLCET300WX	(Weather Station with Enclosure)
NLCETWLR	(Wireless Receiver)
NLCETWLRIP	(Wireless Receiver, Internet Link)
NLCETWLRX	(Wireless Receiver with Enclosure)
NLCETWLRXIP	(Wireless Receiver, Internet Link with Enclosure)

PARAMETERS MEASURED

WIND - speed and direction
RAINFALL - total accumulated and rate
TEMPERATURE - indoor and outdoor
HUMIDITY - indoor and outdoor
SOLAR RADIATION
BAROMETRIC PRESSURE



* For redirection from one weather station to multiple controllers requires a RealNet subscription.

NLC COMPONENTS

2-WIRE CABLE BY TUCOR

Tucor control cable is a tough, reliable wire designed to operate valve decoders and sensor decoders. It consists of tin-coated bar copper conductors insulated with PVDC and high-density polyethylene, direct burial jacket. Operating two valves simultaneously, the cable can extend to 10,200 feet on 16 gauge and 16,300 on 14 gauge. *Additional gauges are available by special order.

In most applications, 16 gauge is the wire of choice since it is easier and more durable than 14 gauge. Wires are color-coded red and black for troubleshooting ease. Jackets are available in multiple colors for easy wire identification and tracing.

SPECIFICATIONS

INSULATION:	Polyvinylchloride
JACKET:	Polyethylene
WIRE:	Copper, Tin Coated
SIZES:	12 to 18 AWG
COLORS*:	Red, Green, Yellow, Orange, Purple, Blue
SPOOL LENGTH*:	500', 1,000', 2,500'

*Certain wire colors and spool sizes are special order.

WORKING RANGE

The length of the cable required for reliable operation of the valves is dependent on the size of the wires and the number of valves that need to be operated simultaneously. If the line is supplied with power from one end only (not looped), the ranges can be read off the table below. The table is based on standard valves (24VAC, 2 W, 28 Ω) using default Netafim switch code settings. Looping the wire greatly extends the range.

Utilizing a different valve power, changing the specified wiring type, length, valve distribution or connectors may result in less capability of active stations.

NUMBER OF SIMULTANEOUS PROGRAMS	VALVES EVENLY DISTRIBUTED ALONG 2-WIRE (FT.)		
	AWG 18	AWG 16	AWG 14
1	7,000	11,000	17,800
2	6,400	10,200	16,300
3	5,500	8,800	14,100
4	4,900	7,800	12,500
5	4,400	7,000	11,200
6	4,000	6,300	10,100
7	3,600	5,800	9,200
8	3,300	5,300	8,500
9	3,100	4,900	7,800
10	2,800	4,600	7,300
10 + 1 MANUAL	2,700	4,300	6,800
10 + 2 MANUAL	2,500	4,000	6,400

Wire run lengths in this chart are specific to the NLC-100D Decoder System.

TIPPING RAIN BUCKET

The tipping rain bucket is used along with the ET data from a remote weather station to generate accurate local rain data. While the weather station's ET data may be used by controllers which are some distance away from each other, the rain data may vary considerably over the area. The tipping rain bucket ensures the rain pulses being sent to the controller will reflect actual rainfall amounts around the controller's location.

There are two models available:

MODEL NUMBER:	**NLCTRB100**
RESOLUTION:	0.01" rain per tip
SENSOR:	Magnetic reed switch
OUTPUT:	Contact closure
CABLE TYPE:	4 Cond., 26 AWG
CABLE LENGTH:	40' included
MAX. CABLE LENGTH:	900'
DIMENSIONS:	8.75" D x 9.5" H
WEIGHT:	2.3 LBS.

MODEL NUMBER:	**NLCTRB200**
RESOLUTION:	0.04" rain per tip
SENSOR:	Magnetic reed switch
OUTPUT:	Contact closure
CABLE TYPE:	2 Cond., 22 AWG
CABLE LENGTH:	30' included
MAX. CABLE LENGTH:	60'
DIMENSIONS:	4" L x 2" W x 4"H
WEIGHT:	.4 LBS.

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