

# SingleNet Single Cable Control System



*Economical, Reliable  
and Expandable Two-Wire  
Single Cable System*



USA

DRIP/MICRO IRRIGATION PRODUCTS

# SingleNet Single Cable Control System

**System Manager or Irrigation Controller**  
Controls irrigation programs and all system functions.



**SingleNet Interface Unit**  
Converts information from the System Manager or Irrigation Controller into signals that control the SingleNet RTUs.



**SingleNet Remote Terminal Unit (RTU)**  
Receives commands from the SingleNet Interface Unit to operate field valves and sends digital input signals back to the SingleNet Interface Unit.



**SingleNet Cable**  
Carries communication signals between SingleNet Interface Unit and SingleNet RTUs. Six miles total cable length.



**Interface Lightning Suppression Module**  
Provides protection against voltage surges caused by power spikes and/or lightning.



**Computer (PC)**  
Required for installation and initial programming. Can be used in the future by the end user for diagnostic issues and troubleshooting.

# Why Use a Netafim SingleNet System?

Whether you have 2 or 250 valves in the field, the SingleNet System allows you to run your network further, expand the system when needed and reduce costs. The Netafim SingleNet System replaces expensive multi-wire control systems with an economical two-wire single cable that controls up to 255 field valves and allows feedback to the controller from various sensors throughout the network.

## An Economical Solution - Now and Later

*The Savings Increase as the System Grows*

Compared to a traditional multi-wire system, a SingleNet System will save labor, materials and operating costs and the more the system expands, the more you save. Using this economical solution allows better control and monitoring of your system, greater reliability and most importantly, peace of mind.



- **Saves Labor Costs**

A typical multi-wire system requires a command wire and a separate common wire for each valve. These wires need to be manually inserted into the conduit during installation. More wires equals more labor. The SingleNet System wire is pre-assembled into a flexible protective conduit, ready for installation - saving valuable labor costs.

- **Saves Material Costs**

SingleNet cable uses smaller diameter wire within the conduit greatly reducing material costs. A dedicated control wire is not required for each field valve and/or input which significantly reduces the total number of wires and overall length of wire.

- **Saves Operating Costs**

The recommended optional surge protection and lightning resistance benefits, along with the pre-assembled two-wire single cable/conduit, reduces maintenance and repair issues. Troubleshooting is more efficient and overall operating costs are decreased.

- **Saves as the System Grows**

Expandability couldn't be easier. The SingleNet system can be expanded directly from any point in the existing network reducing additional material and installation costs. The charts on the next page illustrate how the cost savings grow as the number of valves and system area increases.

## Two-Way Communication

*Quick and Efficient Signal Transmission*

The SingleNet System allows two-way high speed communication from the Interface Unit and the Remote Terminal Unit (RTU) to the controller and back to the field quickly and efficiently.

## Simultaneous Control of Multiple Valves

*Open and Close Valves With or Without Delays*

An unlimited number of valves can be opened and closed simultaneously. As your needs change, valves can be controlled in different combinations or configurations as desired.

## Improved System Protection and Reliability

*Excellent Surge Protection and Lightning Resistance*

When properly installed, the combination of Netafim's SingleNet Cable and Netafim's Interface Lightning Suppression Module and/or RTU Lightning Suppression Card increases the system's resistance to damage from voltage surges and lightning.

# If You Have More Than 4 Valves on 40 Acres - You Can't Afford Not to Use a Netafim SingleNet Control System

The more your system grows, the more you'll save. The following examples illustrate the cost savings of a SingleNet System versus a traditional multi-wire system.

**NOTE:** Comparisons are based on location of pump station and field valves as shown. Dollar amounts represent typical estimated grower costs in early 2008 for system components and installation.

## EXAMPLE #1:

New installation costs for a 40 acre SingleNet system or multi-wire system are comparable. But, a SingleNet System includes additional benefits not found in a multi-wire system which include:

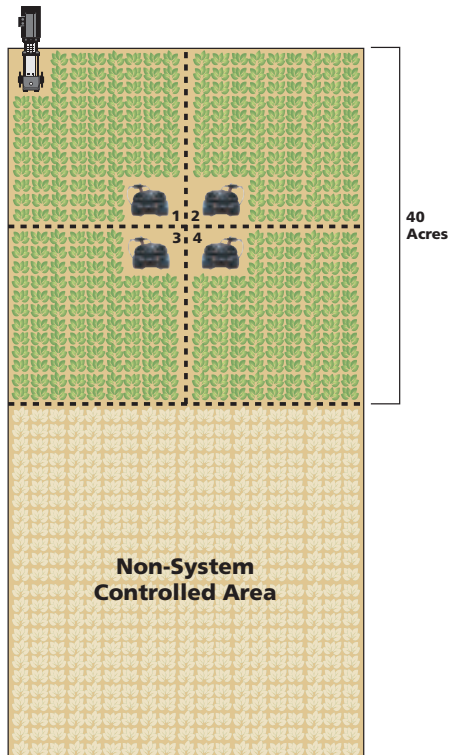
- Multiple Valve Control
- Fast Output Reaction and Communication
- Expandability
- Improved Lightning and Surge Protection

**Total Irrigated Area:** 80 acres

**System Controlled Area:** 40 acres

**Irrigation Valves:** 4 (10 acre stations)

\*Accessories: Electrical equipment excluding the Irrigation Controller



## New Installation - 40 Acres

Elements	Multi-Wire	SingleNet
Accessories*	\$200.00	\$100.00
Wires	\$1,451.00	-
Conduit	\$713.00	-
SingleNet Cable	-	\$1,230.00
Labor: Installation & Trench	\$3,213.00	\$1,984.00
SingleNet Equipment	-	\$2,263.00
<b>Totals</b> →	<b>\$5,577.00</b>	<b>\$5,577.00</b>

**Savings: Comparable**

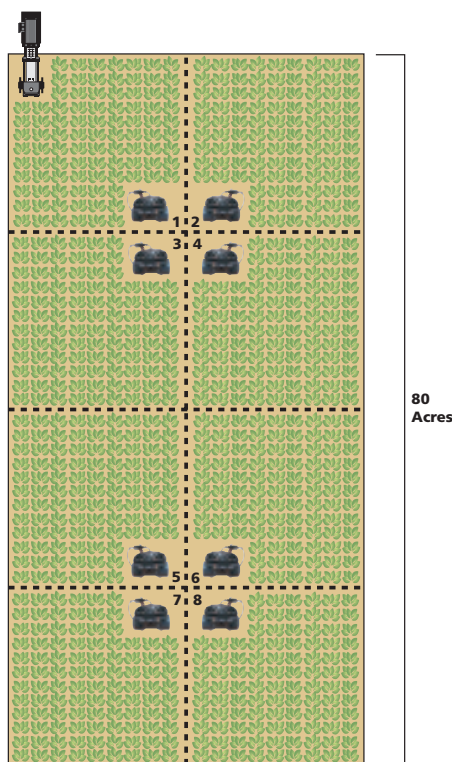


## EXAMPLE #2:

With new installations or expansions, as the system controlled area and number of valves increases, so does your cost savings. A new installation for an 80 acre system saves approximately 22% and expanding an existing system from 40 to 80 acres, results in a cost savings of 59%.

**Total Irrigated Area:** 80 acres  
**System Controlled Area:** 80 acres  
**Irrigation Valves:** 8 (10 acre stations)

\*Accessories: Electrical equipment excluding the Irrigation Controller



### New Installation - 80 Acres

Elements	Multi-Wire	SingleNet
Accessories*	\$400.00	\$200.00
Wires	\$3,952.00	-
Conduit	\$1,531.00	-
SingleNet Cable	-	\$2,640.00
Labor: Installation & Trench	\$6,868.00	\$4,260.00
SingleNet Equipment	-	\$2,814.00
<b>Totals</b> →	<b>\$12,751.00</b>	<b>\$9,914.00</b>

**Savings: 22%**

### Expansion - from 40 to 80 Acres

Elements	Multi-Wire	SingleNet
Accessories	\$200.00	\$100.00
Wires	\$2,038.00	-
Conduit	\$713.00	-
SingleNet Cable	-	\$1,230.00
Labor: Installation & Trench	\$6,668.00	\$1,995.00
SingleNet Equipment	-	\$551.00
<b>Totals</b> →	<b>\$9,619.00</b>	<b>\$3,876.00</b>

**Savings: 59%**

## ...CONTINUE SAVING AS YOU GROW

As the system controlled area increases, you'll continue to realize significant cost savings when you install a SingleNet System versus a multi-wire system.

**New Installation -  
160 acres**

**Savings: 34%**

**Expansion -  
from 80 to 160 acres**

**Savings: 43%**



## Reliable and Easy to Use Features

The SingleNet System's reliability and ease of use addresses many of the concerns most growers have with multi-wire controller systems. It's not complicated to install or operate. The Netafim SingleNet System is ideal for new installations or retrofits of existing systems.

- **Multiple Valve Control**  
With the SingleNet System, there are no limitations on simultaneous multiple valve operations. Only the Netafim system is flexible enough to operate both 12VDC latching solenoids, two or three wire, and relays. Latching solenoids do not require constant power therefore power consumption is minimized.
- **Fast Output Reaction and Communication**  
Fast output reaction is ideal when valves need to operate for short periods enabling high frequency irrigation and cooling applications.
- **Diagnostic Capabilities**  
The PoleNET software, included with each SingleNet Interface Unit, provides monitoring of voltage and currents. PoleNET software can also be used as a diagnostic tool for monitoring and displaying communication issues between the SingleNet Interface Unit and the SingleNet RTUs.
- **Expandability**  
Expansion is quick and easy as units can be added from any point in the existing system. SingleNet RTUs are designed for seamless integration into an existing SingleNet System allowing network growth and expansion at a reduced cost. Labor, materials and operating costs are dramatically reduced.
- **Surge Protection and Lightning Resistance**  
The design of the SingleNet Cable provides excellent durability and surge protection. Lightning resistance is provided by the optional Interface Lightning Suppression Module and the RTU Lightning Suppression Cards which are installed within an individual SingleNet RTU. Both provide improved suppression of high voltages generated by lightning strikes in the vicinity of Interface Units and RTUs.
- **Unique Two-Wire Cable**  
SingleNet Cable is specifically designed to work with the entire SingleNet System. Two 16 AWG wires are inserted in flexible conduit and shipped ready to install. SingleNet Cable can be direct buried reducing susceptibility to mechanical and electrical damage. The twisted pair configuration is shielded to reduce "noise" and protect the system against induced voltages. The wires' low capacitance allows longer cable run lengths - up to 6 miles maximum total cable length.
- **Two Interface Connection Options**  
Interface units and cards allow the SingleNet System to be used with the Netafim NMC Pro System Manager or any existing 12VDC non-latching or 24VAC controller.

## SingleNet System Components

Designed by Netafim, the SingleNet System consists of both hardware and software components. SingleNet PC software, PoleNET, is used to install and configure the SingleNet System. The hardware network consists of a System Manager or Irrigation Controller and SingleNet System components including: Interface Unit, Optional Lightning Suppression Module, Remote Terminal Unit (RTU), Optional RTU Lightning Suppression Cards and Cable.

- **System Manager or Irrigation Controller**

For control of irrigation programs and all system functions, Netafim's NMC Pro System Manager or any 12VDC non-latching or 24VAC controller can be used with the SingleNet System. A three-wire cable and communication card connect the NMC Pro System Manager to the SingleNet Interface Unit. See illustrations under *SingleNet Interface Unit Connection* for specific requirements.



**NMC Pro  
System Manager**

- **SingleNet Interface Unit**

The SingleNet Interface Unit takes information from the system manager or irrigation controller and converts it to a signal that controls the SingleNet RTUs. The SingleNet Interface Unit is programmed through a PC with PoleNET software. It can communicate and control up to 255 valves (latching outputs) in a single network. There are two SingleNet Interface Unit options - choose the appropriate one based on the system manager or irrigation controller being used.



**SingleNet  
Interface Unit**

- **Interface Lightning Suppression Module**

Interface Lightning Suppression Module provides protection from voltage surges caused by power spikes and/or lightning. The Interface Lightning Suppression Module is a stand-alone unit installed close to the SingleNet Interface Unit.



**Interface Lightning  
Suppression Module**

- **SingleNet Remote Terminal Unit (RTU)**

Each SingleNet RTU is individually addressed at installation to receive commands from the Interface Unit to operate field valves. The RTU can send digital signals from inputs like water meters back to the system manager or irrigation controller through the SingleNet Interface Unit. SingleNet RTUs are available with two or four digital outputs and inputs which connect to either two or three-wire DC latching solenoids. An LED indicator on the RTU visually identifies successful communication back to the system manager or irrigation controller.



**SingleNet RTU**

# SingleNet System Components

- **RTU Lightning Suppression Card**

Provides the same type of voltage surge protection as the Interface Lightning Suppression Module but is installed inside a SingleNet RTU enclosure. The quantity and placement of RTU Lightning Suppression Cards, in the SingleNet RTU units within a network, is determined by the specific area's susceptibility to lightning strikes.

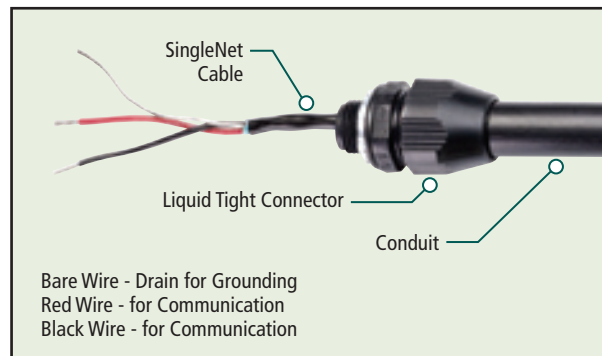


**RTU Lightning Suppression Card**

- **SingleNet Cable**

Two low capacitance wires and a drain wire, 16 AWG, are pre-packaged as a single cable inside a polyethylene sheath (1/2" conduit). The drain wire provides grounding. The twisted pair configuration provides better flexibility, is shielded to reduce "noise", lowers electrical resistance and protects against induced voltages. Tinned leads reduce corrosion and are solder friendly. The cable is waterproof, UV and chemical resistant. Maximum cable run length is 6 miles. Available in 1,000' or 2,500' length reels.

*Only Netafim SingleNet Cable is recommended for use with and can ensure maximum performance of the SingleNet System.*



**SingleNet Cable Inside Conduit**






# SingleNet Interface Unit Connection

NMC Pro System Manager or Irrigation Controller

## Option #1

**Three-Wire Connection**  
(RS232 or RS485)

NMC Pro System Manager (shown)



Communication Card (required - installed inside the NMC Pro)

(three-wire cable)


**System Manager or Irrigation Controller**  
(Option #1 or #2)



## Option #2

**Multi-Wire (Parallel) Connection**

NMC Junior System Manager (shown)



Any 12VDC Non-latching or 24VAC Irrigation Controller

(wire required for each output)

# SingleNet RTU Output and Inputs

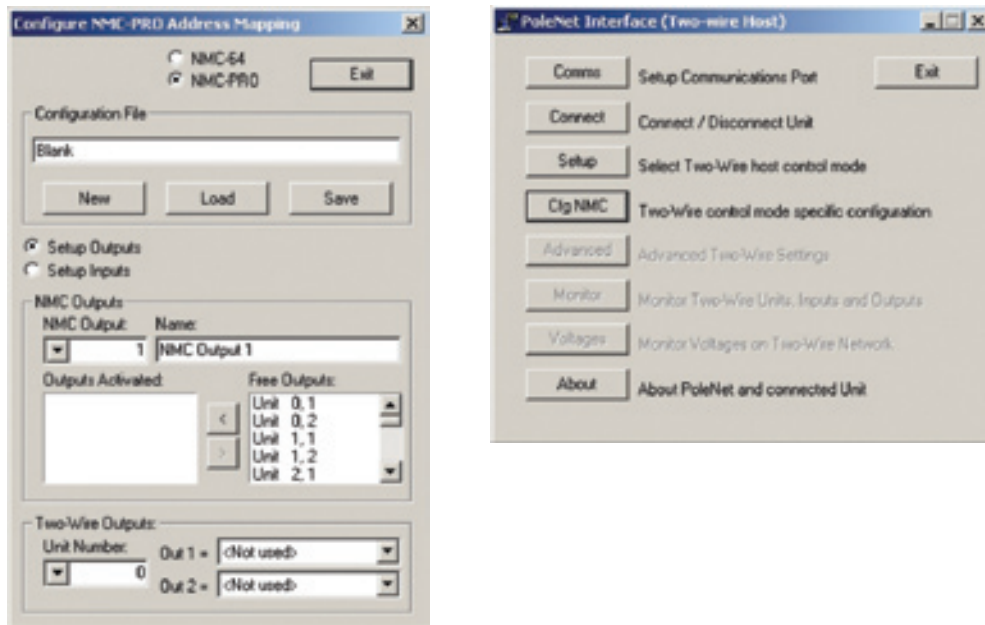


Latching Outputs	Digital Inputs
Field Valves	Water Meters
-	Digital Pressure Switch
-	Digital Flow Switch

## PoleNET Software

PoleNET software, included with a SingleNet System, is used by the installer to program the operation of the SingleNet Interface Unit and SingleNet RTUs. It's user-friendly with step-by-step instructions and easy to follow screens. The SingleNet Interface Units are programmed to turn on or off a specific output (field valve) whenever the system manager or irrigation controller operates that corresponding output. Once initial programming is complete, no further programming is required. PoleNET software is optional for use as a diagnostic tool for monitoring and displaying communication issues between the SingleNet Interface Unit and the SingleNet RTUs.

### PoleNET Software Sample Screen Shots



## SingleNet System Warranty

Netafim USA warrants the SingleNet System to be free of manufacturing defects in materials or workmanship for two (2) years from date of purchase by the end user.

If the SingleNet Cable is not purchased with the SingleNet System and the system is installed using another wire product, the warranty for manufacturing defects or workmanship on all Netafim system components will be thirty (30) days from date of purchase by the end user.

If a defect in manufacturing is discovered during the applicable warranty period, Netafim will repair or replace, at its option, the product or the defective part.

This is a parts only warranty. No labor or service calls are covered or will be paid. Warranty parts will be shipped prepaid by standard ground freight; express shipping is available for an extra charge. This warranty does not extend to repairs, adjustments or replacement of a SingleNet part that results from misuse, negligence, alteration, lightning, voltage surge, improper installation, or improper maintenance. This warranty only extends to the original end user (purchaser) of the SingleNet System. There are no other warranties, expressed or implied, including warranties of merchantability and fitness for a particular purpose. Netafim will not be liable to any party in any manner for damages caused or claimed to be caused as a result of any design or defect in Netafim products, or for any special, incidental or consequential damages of any nature.

# SingleNet System Ordering Information

## SingleNet Interface Unit

Item Number	Model Number	Description
00035-001750	31SCSC	SingleNet Interface Unit for NMC Pro System Manager
74340-009200	31NMC64CC	Communication Card for NMC Pro System Manager*
74340-009530	31NMCPROLICENSEKEY	NMC Pro System Manager License Key for 128 Remote Outputs*
74340-009560	31NMCPROLICENSE256	NMC Pro System Manager License Key for 256 Remote Outputs*
00035-008600	31SCPC	SingleNet Interface Unit for 12VDC Non-Latching or 24VAC Controller

\*Purchase required when using an NMC Pro System Manager - choose only one License Key option.



**SingleNet Interface Unit**

## SingleNet Interface Lightning Suppression Module

Item Number	Model Number	Description
00035-008300	31SCLPM	Interface Lightning Suppression Module



**Interface Lightning Suppression Module**

## SingleNet RTU

Item Number	Model Number	Description
74340-014900	31SCRTU2	SingleNet RTU, 2 Digital Outputs and 2 Digital Inputs
74340-015400	31SCRTU2PL	SingleNet RTU, 2 Digital Outputs and 2 Digital Inputs w/Lightning Suppression Card
74340-015000	31SCRTU4	SingleNet RTU, 4 Digital Outputs and 4 Digital Inputs
74340-015500	31SCRTU4PL	SingleNet RTU, 4 Digital Outputs and 4 Digital Inputs w/Lightning Suppression Card



**SingleNet RTU**

## SingleNet RTU Lightning Suppression Card

Item Number	Model Number	Description
00035-008200	31SCRTULP	SingleNet RTU Lightning Suppression Card



**RTU Lightning Suppression Card**

## SingleNet Cable

Item Number	Model Number	Description
00107-007980	31SC0016C-1000	SingleNet Cable, 1,000' coil
00107-007990	31SC0016C-2500	SingleNet Cable, 2,500' coil
00107-007960	31SC0016CLTC	Liquid Tight Connector for Conduit



**SingleNet Cable**



Contact Your Netafim USA Dealer



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