| LEFT SIDE | RIGHT SIDE |
|---|---|
| Rows 1-8 | Rows 9-16 |

## Liquid Application Equipment Overview



16CH Product Node Harness

Electronic Control Unit (ECU)

to 12v Power via Battery Harness [not shown]

ECU Terminator

16CH Product Node

**Distance between Sensors**
[Depending on distance between sections, #20615-00 'node to sensor' extension harnesses may be required.]

Quad-sensor cables
[not to scale]

FLOW To Outlet

FLOW From Pump

Manifold, 8 Outlets

16x Electronic Flowmeters (EFM)
One per outlet
patent pending

Manifold, 8 Outlets
[Rear View]

FLOW From Pump

FLOW To Outlet

## Electronic Flowmeters (EFM), Electronics & Harnesses Parts List

| Quantity | PART# | Description | Extra Information |
|---|---|---|---|
| 1 | 20603-00 | ECU Base Kit | incl. 20' battery harness, terminator, ECU, ECU antenna |
| 1 | 20621-00 | 16CH Node Klt | incl. 16CH Node, 16CH Node Harness, 4x Quad-sensor cable |
| 0 | | Sensor Cap | [Used for single sensor that will not be used] |
| as req'd | 20615-00 | Ext. Harness [NODE to SNR] | 6' Extension Harness [6-pin], NODE to QUAD-SENSOR CABLE |
| as req'd | 20616-00 | Ext. Harness [NODE to NODE] | 12' Extension Harness [8-pin], NODE Harness to NODE Harness |

## Manifold, Plumbing & Auxiliary Parts List

| Quantity | PART# | Description | Extra Information |
|---|---|---|---|
| 4 | 20634-00 | 4 Outlet EFM Manifold Kit | incl. 4-Outlet manifold, 4 EFM assembly kits (incl. jets), 4x Check Valve |
| 0 | 20633-00 | 3 Outlet EFM Manifold Kit | incl. 3-Outlet manifold, 3 EFM assembly kits (incl. jets), 3x Check Valve |
| 2 | 20576-00 | ORS Manifold Strainer | One strainer per Manifold Feed. |
| 4 | 20521-00 | ORS Manifold End-cap | Two used per center-fed manifold. |
| 2 | 20526-00 | ORS TEE w/ 1/4" NPT-F* | *1/4" NPT Port comes sealed; must be drilled out to be used. |
| 2 | 205**XX**-00 | ORS Inlet Fitting | ORS Inlet must be selected from catalog by preference (up to 1"). |
| 16 | 205**XX**-00 | ORS Outlet Fitting | ORS Outlet must be selected from catalog by preference. |
| 16 | 21500-VXX | ORS Metering Orifice | ORS metering orifice size must be selected by required flow rate. |

Each EFM (16 total) has a sensor cable plugged into it. When powered, each EFM sends signal through the Product Node Harness, to Product Node, to ECU.

From ECU, wireless transmits to an Android tablet, and displays flow rate and other information to user.

| Part No. 16 Outlet EFM Plumbing Manifold Assembly Overview | Rev. 1 |
|---|---|
| | Nov 21/19 |

Item Description  Flow Monitoring Manifold System, 16 Total Outlets
ORS Manifold Plumbing, 2 Section Layout (8-8)

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### Manual ON/OFF Check Valve
When 'ON', acts like check valve.
When 'OFF', turns off flow for maintenance/etc.

### Flowmeter Body patent pending
Sensor is inserted into [rear side] housing.
Relays pulse feedback to product node.

### ORS Outlet/Inlet Fittings
A variety of sizes and types of fittings can be used from the O-ring Seal (ORS) outlet family. From Hose Barbs, to threads, to quick-connect tube.

### Flowmeter Jet patent pending
Stabilizes the flow across the flowmeter paddle wheel for more accurate and consistent readings
Color coded to flow range.
(Green/Red/Blue/Black)

### ORS Metering Orifice [Optional*]
If manifold is being used to meter liquid flow, use orifice. If metering orifice exists in system elsewhere, ignore ORS metering orifice.
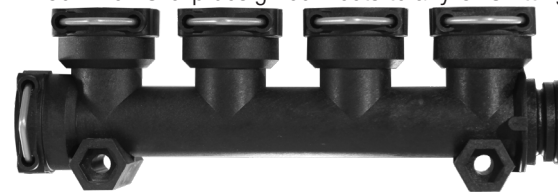
### [Optional] ORS Strainer [not to scale]
50 Mesh ORS Strainer Assembly
Housing + Strainer Cartridge
NEW

### ORS Tee [not to scale]
Center-feeds a plumbing manifold with an ORS Inlet

### ORS Manifolds [not to scale]
O-ring seal manifolds are available in 1-4 outlet varieties. Common U-clip design connects to any ORS fittings.

### ORS End-Cap [not to scale]
An end-cap is used to terminate any manifold end.

Manifold, 8 Outlets

FLOW

FLOW

**[Back View]**
No sensor cable

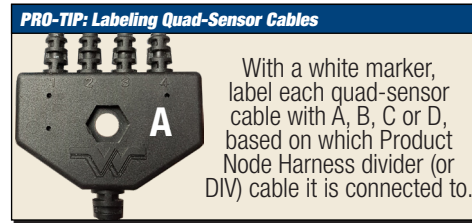| Part No. EFM Plumbing Manifold, 8 Outlet | Rev. 1 |
| --- | --- |
| | Nov 21/19 |
| Item Description Flow Monitoring Manifold System, 16 Total Outlets ORS Manifold Plumbing, 2 Section Layout (8-8) | |

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**Distance between Nodes**
[Depending on distance between sections, #20616-00 'node to node' extension harnesses may be required.]

**Distance between Sensors**
[Depending on distance between sections, #20615-00 'node to sensor' extension harnesses may be required.]
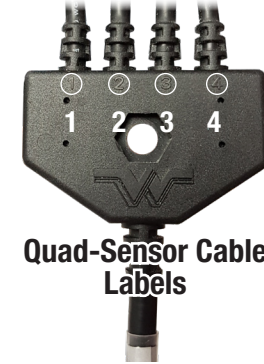
**8-pin Node Connection**
- to terminator -

**ECU Terminator**

**IMPORTANT!**
- A terminator must be connected to the last node in series' 8-pin connection -

*PRO-TIP: Labeling Quad-Sensor Cables*

With a white marker, label each quad-sensor cable with A, B, C or D, based on which Product Node Harness divider (or DIV) cable it is connected to.

**IMPORTANT!**
- Quad-sensor cables have 4 sensors, with the molded label (1/2/3/4) designed by the marking on the base of the cable -

**Quad-Sensor Cable Labels**

**IMPORTANT!**
- Product Nodes are labled by ECU, based on which node is connected first/second/third/etc in series -

**8-pin Node Connection**
- from ECU -

**ECU Antenna (50')**

**Electronic Control Unit (ECU)**

WILGER ELECTRONIC FLOW MONITORING SYSTEM ECU
POWERED BY AGTRON

**12V Power**
**20' Battery Harness (included, not shown)**

**Product Node 1**

**Product Node 1 Harness**

**6-pin Harness Divider ("DIV") connections to Quad-sensor Cable**

**Quad-Sensor Cable w/ EFM Sensors**

| Part No. EFM, Electronics Breakdown | Rev. 1 Nov 21/19 |
|---|---|

Item Description  Flow Monitoring Manifold System, 16 Total Outlets
ORS Manifold Plumbing, 2 Section Layout (8-8)

**Extension Harness are also available [not shown]**
**12' Node to Node Extension Harnesses [8-pin] #20616-00**
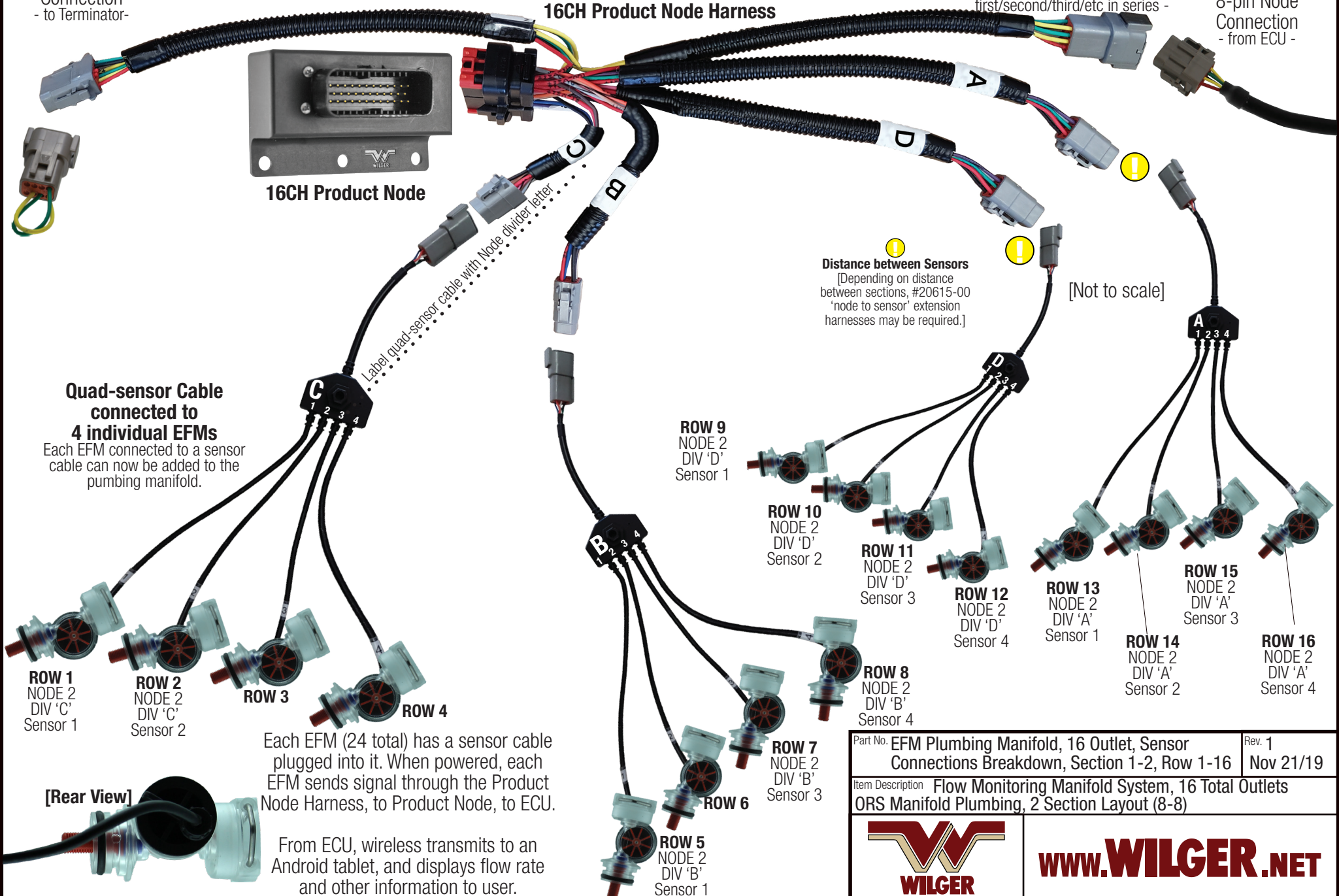**6' Node to Quad-Sensor Cable Extension Harnesses [6-pin] #20615-00**

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Page 4

**Sensor Connections Breakdown - 2x8 Outlet Manifolds; Section 1&2: Rows 1-16**
**Product Node Number(s) Used in this Section: NODE 1**

8-pin Node
Connection
- to Terminator-

**16CH Product Node Harness**

⚠ **IMPORTANT!** ⚠
- Product Nodes are labled by ECU, based on which node is connected first/second/third/etc in series -

8-pin Node
Connection
- from ECU -

**16CH Product Node**

Label quad-sensor cable with Node divider letter

⚠
**Distance between Sensors**
[Depending on distance between sections, #20615-00 'node to sensor' extension harnesses may be required.]

⚠

[Not to scale]

**Quad-sensor Cable connected to 4 individual EFMs**
Each EFM connected to a sensor cable can now be added to the pumbing manifold.

**ROW 9**
NODE 2
DIV 'D'
Sensor 1

**ROW 10**
NODE 2
DIV 'D'
Sensor 2

**ROW 11**
NODE 2
DIV 'D'
Sensor 3

**ROW 12**
NODE 2
DIV 'D'
Sensor 4

**ROW 13**
NODE 2
DIV 'A'
Sensor 1

**ROW 15**
NODE 2
DIV 'A'
Sensor 3

**ROW 14**
NODE 2
DIV 'A'
Sensor 2

**ROW 16**
NODE 2
DIV 'A'
Sensor 4

**ROW 1**
NODE 2
DIV 'C'
Sensor 1

**ROW 2**
NODE 2
DIV 'C'
Sensor 2

**ROW 3**

**ROW 4**

**ROW 8**
NODE 2
DIV 'B'
Sensor 4

**ROW 7**
NODE 2
DIV 'B'
Sensor 3

Each EFM (24 total) has a sensor cable plugged into it. When powered, each EFM sends signal through the Product Node Harness, to Product Node, to ECU.

[Rear View]

**ROW 6**

**ROW 5**
NODE 2
DIV 'B'
Sensor 1

From ECU, wireless transmits to an Android tablet, and displays flow rate and other information to user.

| Part No. EFM Plumbing Manifold, 16 Outlet, Sensor Connections Breakdown, Section 1-2, Row 1-16 | Rev. 1 Nov 21/19 |
| --- | --- |
| Item Description Flow Monitoring Manifold System, 16 Total Outlets ORS Manifold Plumbing, 2 Section Layout (8-8) | |

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NOTE: The following may look different depending on app version being used, but in essence, will be the same. Follow the manual for the most up-to-date reflection of the app.

# How To Label Sensors For Entry Into Android APP - Outlets 1-16 on Single Product Screen [PRODUCT NODE 1]

After completely setting up the ECU Settings Screen 🏠, enter the Sensor Setup Screen 🔧, which allows you to enter each respective product sensor in it's correct position, relative to the ECU.

While sensors do not have to be connected in consecutive order as laid out on your application implement, they do have to be entered accurately within the app to reference properly on the display.

The below example screen is only ONE depiction of how to set a screen up. For convenience, you can customize the layout of the outlets on up to 10 'section' pages.

For simplicity, for a 16 outlet implement, it will be shown on one screen, showing 16 consecutive outlets or rows.

We have to 'label' a sensor, based on its location. The label is derived from its:

**PRODUCT NODE#: NODE 1**
⚠ **IMPORTANT!** ⚠
- Product Nodes are labled by ECU, based on which node is connected first/second/third/etc in series -

**QUAD-SENSOR CABLE DIVIDER [DIV] LABEL: A / B / C / D**
⚠ **IMPORTANT!** ⚠
- Quad-sensor divider labels are labeled on the node harness itself, labeled with either an A, B, C, or D -

**SENSOR CABLE [SNR] LABEL: 1 / 2 / 3 / 4**
⚠ **IMPORTANT!** ⚠
- Sensor cable labels are molded (or labeled) on the actual quad-sensor cable, with either a 1/2/3/4. Ensure you refer the sensor label correctly. -

## Electronic Flow Monitoring Sensor Setup

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Product: | 1 | 2 | 3 | | Liquid Nitrogen | Change |

| Row | NODE | - | DIV | SNR | | Row | NODE | - | DIV | SNR | | | NODE | - | DIV | SNR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | - | C | 1 | | 9 | 1 | - | D | 1 | | | N/A | - | A | 1 |
| 2 | 1 | - | C | 2 | | 10 | 1 | - | D | 2 | | | N/A | - | A | 1 |
| 3 | 1 | - | C | 3 | | 11 | 1 | - | D | 3 | | | N/A | - | A | 1 |
| 4 | 1 | - | C | 4 | | 12 | 1 | - | D | 4 | | | N/A | - | A | 1 |
| 5 | 1 | - | B | 1 | | 13 | 1 | - | A | 1 | | | N/A | - | A | 1 |
| 6 | 1 | - | B | 2 | | 14 | 1 | - | A | 2 | | | N/A | - | A | 1 |
| 7 | 1 | - | B | 3 | | 15 | 1 | - | A | 3 | | | N/A | - | A | 1 |
| 8 | 1 | - | B | 4 | | 16 | 1 | - | A | 4 | | | N/A | - | A | 1 |

### How to Read the Sensor Location (Eg. Location 1A2)
After entering your sensor locations as you'd like your rows laid out, you can read & verify each line of the example as follows:
**Outlet/Row 14** is connected to **SENSOR 2 or [SNR 2]** on the quad-sensor cable, connected to the **Node Harness Cable 'A' or [DIV A]**, which is connected to **Product Node 1 or [NODE 1]**.

### Physical Row Description
This is manually added to depict which row this is on the implement.

For example, if a section begins at row '16', this cell can be entered as "16", etc. In this example, it began at **ROW 1**.

### [NODE] PRODUCT NODE #
If the sensor is connected to the 16CH PRODUCT NODE #1 harness, ensure under NODE, it is listed as '1'.

Ensure a sensor's [NODE] corresponds with its correct NODE #. In this example, sensors 1-16 began at **NODE 2**.

### [DIV] QUAD-SENSOR CABLE HARNESS LABEL
Select A / B / C / D based on the corresponding node harness cable that a quad-sensor cable is attached to.

in our example, the first rows are attached to **DIV C**, as shown in the system overviews.

### [SNR] SENSOR CABLE LABEL
Depending on the sensor cable's number (1/2/3/4) that is molded into the quad-sensor cable housing, enter the sensor number with the corresponding outlet.

Since our first sensor is capped, in our example, **SNR 1** is the first row of product on the implement.

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