

**Application Note 3018:  
Wire Length Limitations**

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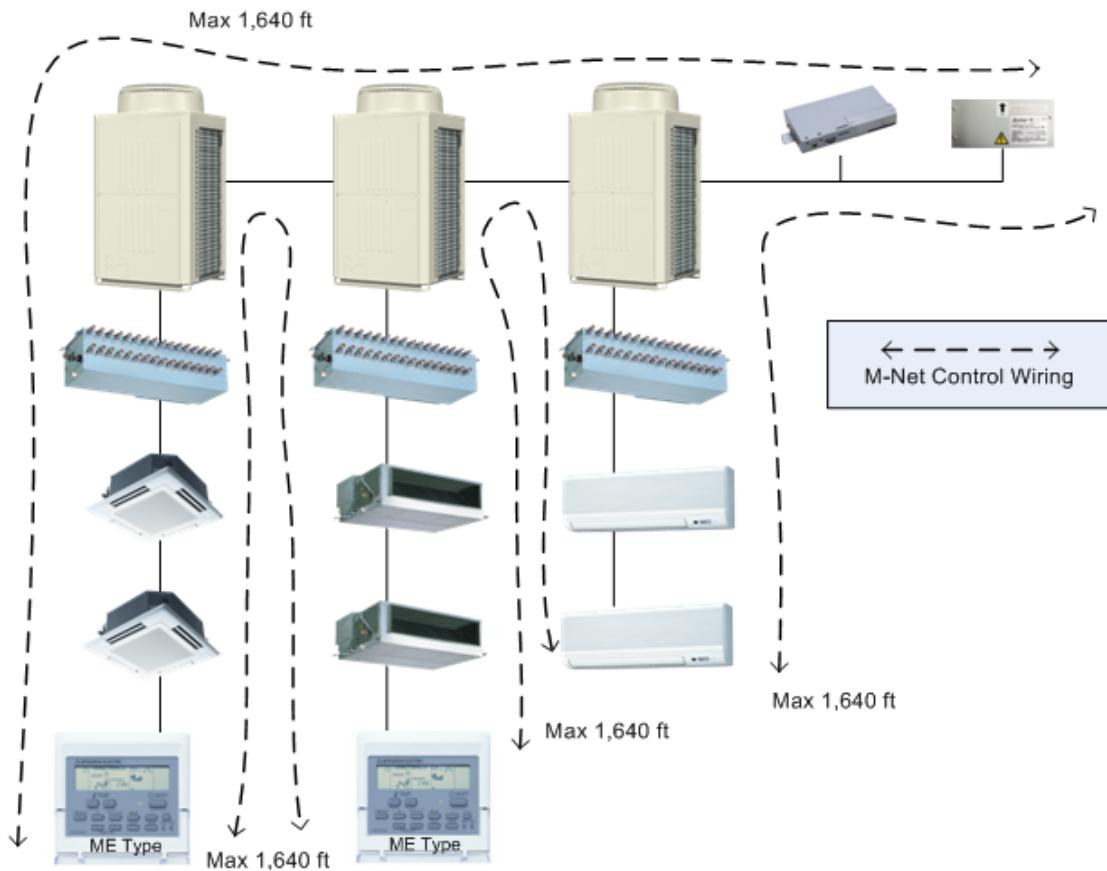
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## Introduction

This Application Note provides an overview of allowable lengths of controls wiring

## Max Wire Length via Outdoor Unit Communication

The maximum distance for communication via the outdoor unit central communication bus (TB7) is 1640 ft (500 m) is illustrated in Figure 1.



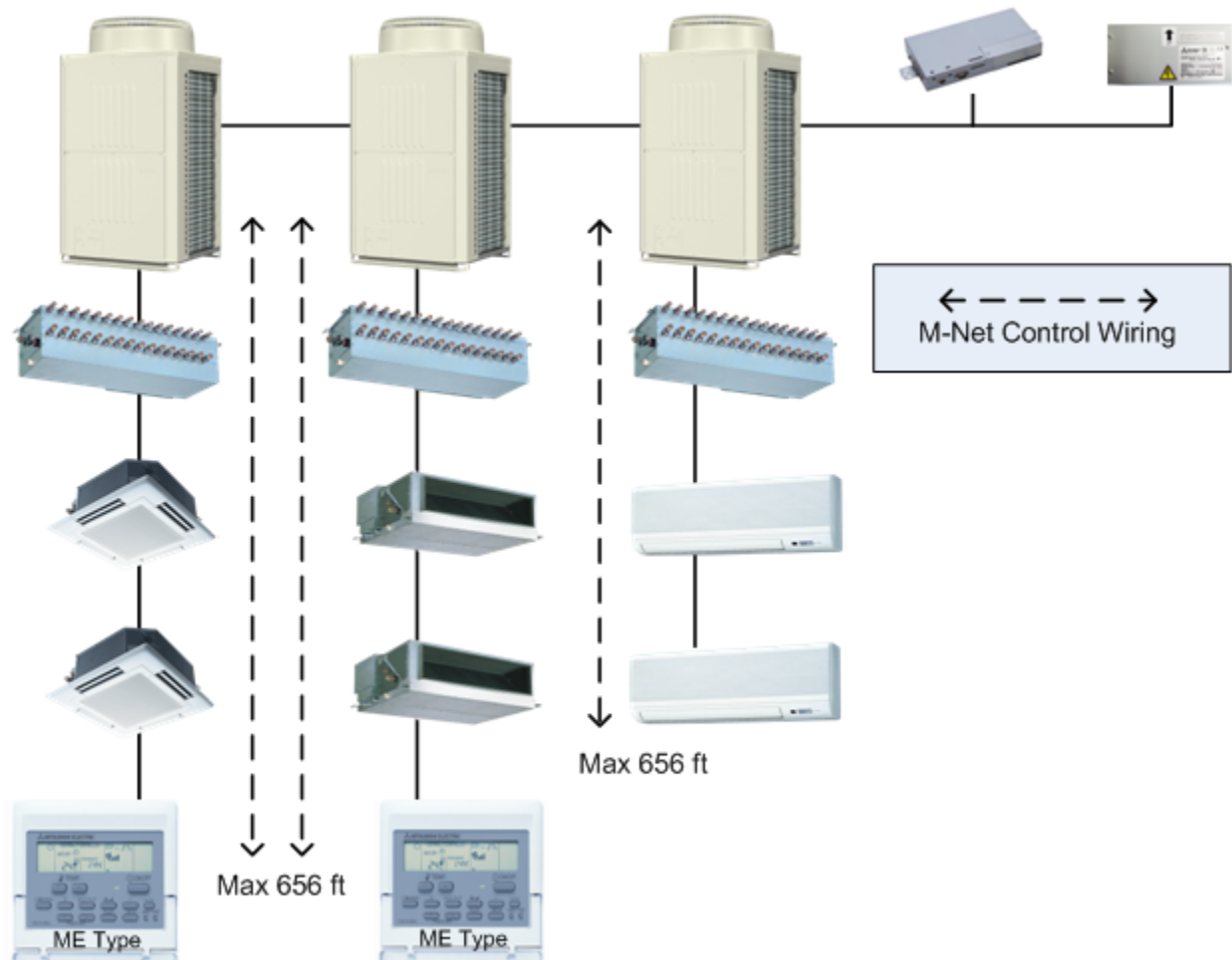
**Figure 1:** Maximum wire length for communication from outdoor unit

## Max Total Wire Length

The maximum total wire length (sum of all M-NET wire) is 6560 ft (2 km).

## Max Wire Length from Outdoor Unit to Farthest Indoor Unit

As shown in Figure 2, the maximum distance for communication from the outdoor unit (TB3) to the farthest indoor unit or ME remote controller is 656 ft (200 m).



**Figure 2:** Maximum wire length from outdoor unit to indoor unit

## Transmission Booster

The transmission booster raises the signal voltage for applications that have a high number of devices powered by the M-NET. The outdoor unit TB3 power supply can power 32 units. Table 1 below details the M-NET power consumption of M-NET devices.

**Table 1.** M-Net power consumption

Device	Power (units)
Indoor Unit (P06-P54)	1
Indoor Unit (P72-P96)	2
BC Controller (CMB)	2
ME R/C (PAR-F27MEA)	0.5
SmartME R/C (PAR-U01MEDU-J)	0.5
DIDO Board (PAC-YG66DCA)	0.25
AI Board (PAC-YG63MCA)	0.25

When M-NET power consumption exceeds 32 units the transmission booster can be added to provide an additional 25 units of M-NET power. The transmission booster should be located in the middle of the TB3 communication bus to balance the power consumption as shown in Figure 3.

The transmission booster is supported by Design Tool. We recommend using the Design Tool to assist with applying the transmission booster.



**Figure 3:** Unit configuration using Transmission Booster

The transmission booster will not allow the M-NET to be extended beyond the maximum wire length limitation.