

# Flotation Level Transmitter (FLT) Datasheet

"Flolevel acoustic transducers are not affected by color, density, dielectric or by the type of mineral they are working with.

They are self-cleaning and self-checking"



## Principle of Operation

The Flotation Level Transmitter (FLT) has been specifically purpose designed for Flotation Cell service to offer a simple, low maintenance replacement for level technologies that have been adapted for use in this very difficult environment. The FLT will increase operation efficiency of the Flotation Cell over other level technologies like Displacement Floats, Pressure Transmitters, Conductivity Probes, because the Acoustic technology is not affected by, Density, Buildup, Scaling, Hydraulic Affects, conductivity or Sticky Froth conditions. The FLT FloLevel™ Array will provide a reliable and repeatable Pulp/Slurry level (Froth Depth) with constant high resolution because the Acoustic technology is not affected by the ore slurry (guange) characteristic changes that affect all other level technologies in the Flotation Cell.

Hydraulic imbalance feed of the Pulp/Slurry to the Flotation Cell Banks and individual machines can affect displacement floats by increasing the movement (modulation) of the float, reducing the accuracy and repeatability of the technology. Buildup of Scale on the Float will gradually change its displacement position and therefore its accuracy of measurement. Increased wear and buildup on the float and shaft guides will increase maintenance requirements. Floats have been known to stick in place and allow the Pulp/Slurry to overflow the launders, increasing the recovery costs.



## Features

- Economy Level Transmitter Version for Flotation Cells
- Hi Powered Ultrasonic Self-Cleaning
- Tracks Pulp/Slurry to Froth Interface
- Tracks Froth Height above the Launder
- Outputs (1) Pulp/Slurry Height (2) Froth Height
- Not Affected by Conductivity Change or Dielectric change.
- Analog Outputs 4-20Ma plus Communication Options, ModBus, ProfiBus, etc
- Colour HMI Display shows trends, graphics, diagnostics
- Simple Installation and Calibration
- Remote Technical Support module available

## Primary Application Uses

The FLT FloLevel™ Array is suitable for the mineral recovery of, **Copper, Potash, Gold, Nickel, Molybdenum, Silver, Coal, Oil Sands, Zinc, Gypsum, Iron Ore, etc.**

Pressure transmitters (bubblers) whilst simple to calibrate and understand, are generally used in Column Cells, but accuracy and repeatability are affected by density change of the Pulp/Slurry as well as buildup issues. If the specification for controlling the Slurry height, requires an accuracy and repeatability of around  $\pm 25\text{mm}$  (1-00") then the Pressure transmitter is "not" the correct technology to use in the Column Flotation Cell.

Level Probes used in Flotation Cells, generally are based on the conductivity technology. They generally use a segmented construction of a small conductive section followed by an insulator. They use a feedback principle to compensate for buildup issues, but like any conductivity technology, dielectric change in the ore slurry and scaling over the probe, by sticky froth will eventually cause the Level Probe to fail.

All the above technologies, Displacement Float, Pressure Transmitter (bubbler) and Level Probe are **Passive Technologies** and do not self-clean.

**Because the FLT has been purpose designed for Flotation Cell service, "SELF-CLEANING" was the first requirement of design.**

## Specifications

**Operating Supply Voltage:**  
90 265Vac 50/60Hz

**Current Consumption:**  
<10 amps with multiple transducers operating

**Outputs:**  
3 x 4-20Ma isolated analog outputs 500 ohms max. Load @ 24Vdc

**Communication Protocols:**  
ModBus, ProfiBus, Foundation FieldBus, DeviceNet, Ethernet

**Maximum Control Range:**  
6400mm (250")

**Resolution Options:**  
15mm (0.5") and 25mm (1-00")

**Accuracy:**  
+ - 0.5% of range

**Operating Temperature:**  
-20 deg C to 80 deg C (-4 deg F to 176 deg F)

**Separation distance:**  
500 metres (1640 Feet) Consult factory for greater distances)

**Controller Display:**  
3.5" HMI Colour Display

**Controller Enclosure:**  
316 Stainless Steel IP65 (Nema 4X)

**Controller Operating Temp:**  
-20 deg C TO 70 deg C (-4 deg F to 158 deg F)

**Conduit Entries:**  
6 x 20mm (6 x 0.75")

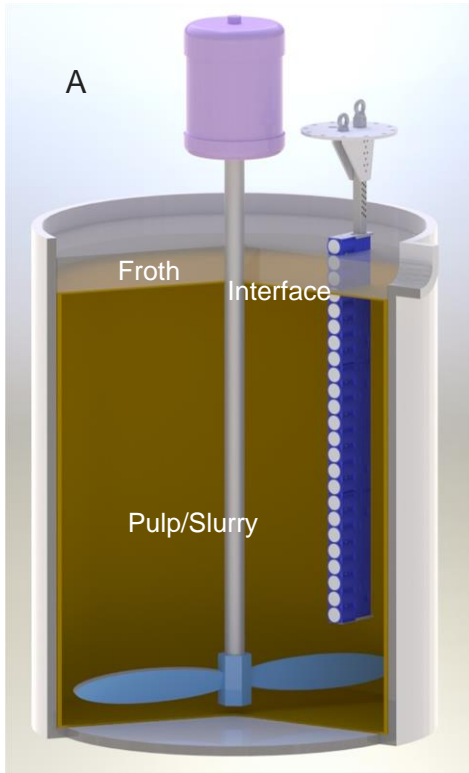
**Bracket Material:**  
316 Stainless Steel (Other materials available)

**Array Housing Material:**  
ABS. Polypropylene, Rubber Wear Plate Material

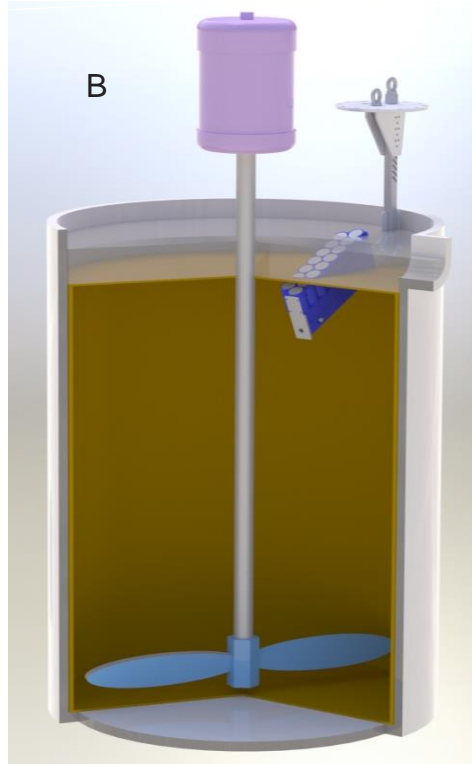
**Transducer Diaphragms:**  
316 Stainless Steel, Titanium.

# FLT Acoustic Level Interface Transmitter (Self-cleaning Transducers)

**Drawing A:** Shows an extended Array transducer assembly, utilizing multiple Arrays.



**Drawing B:** Shows a smaller Array positioned to control an interface over a shorter range.

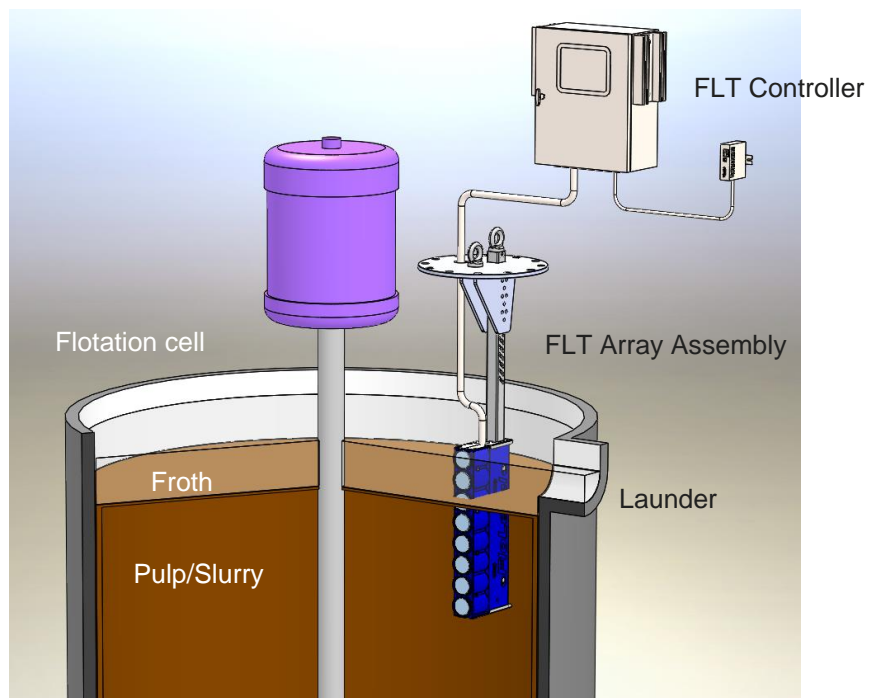


Note: By utilising multiple arrays we can extend the control range to 6000mm (236"). Resolution accuracy can be 25mm or using the Hi-resolution array down to 15mm.

Multiple outputs available include

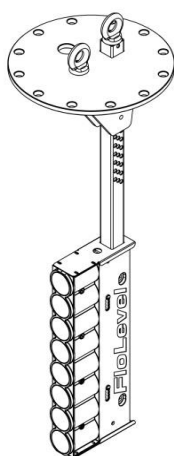
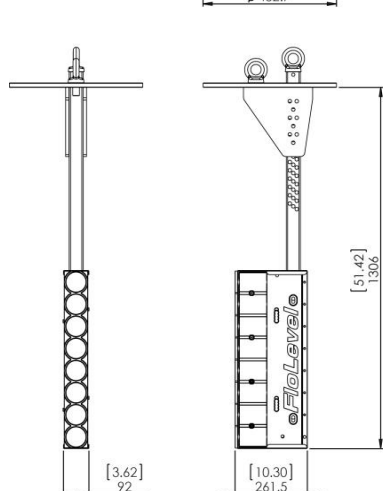
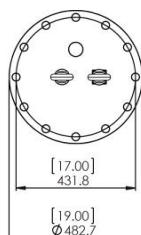
1. Pulp/Slurry height
2. Froth height

Note: By using the array angle bracket it is possible to improve the resolution over control ranges from 0-100mm (4.00") down to 1 mm resolution. This can be an option for applications with a short froth depth and high resolution requirement.

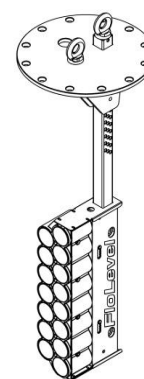
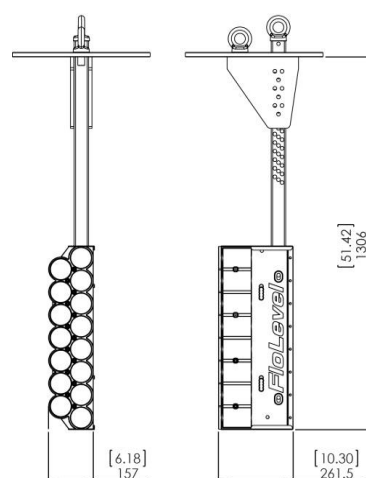
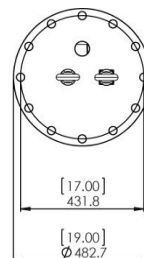


## Flotation Level Transmitter (FLT) Drawings

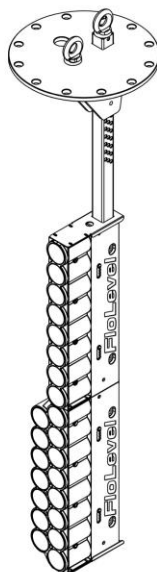
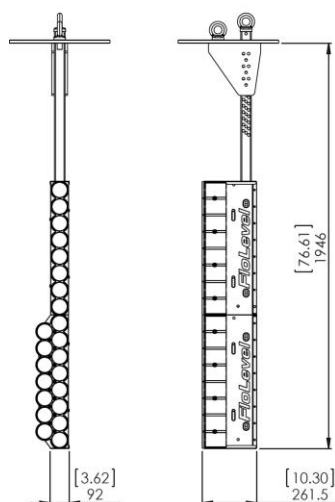
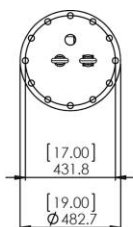
Single Array Standard Resolution  
Control range 0-650mm (0-25")



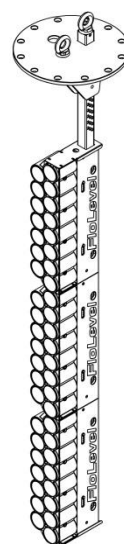
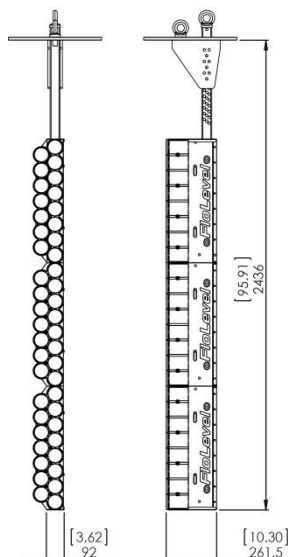
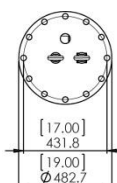
Single Array High Resolution  
Control range 0-650mm (0-25")



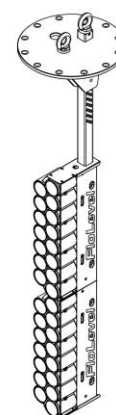
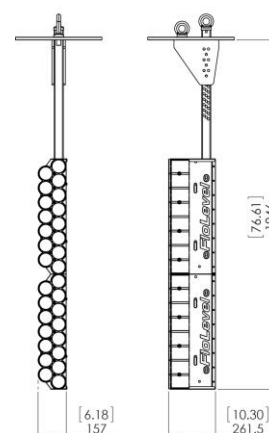
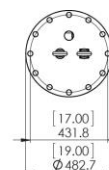
Single Standard Resolution and High Resolution Array  
Control range 0-1300mm (0-50")



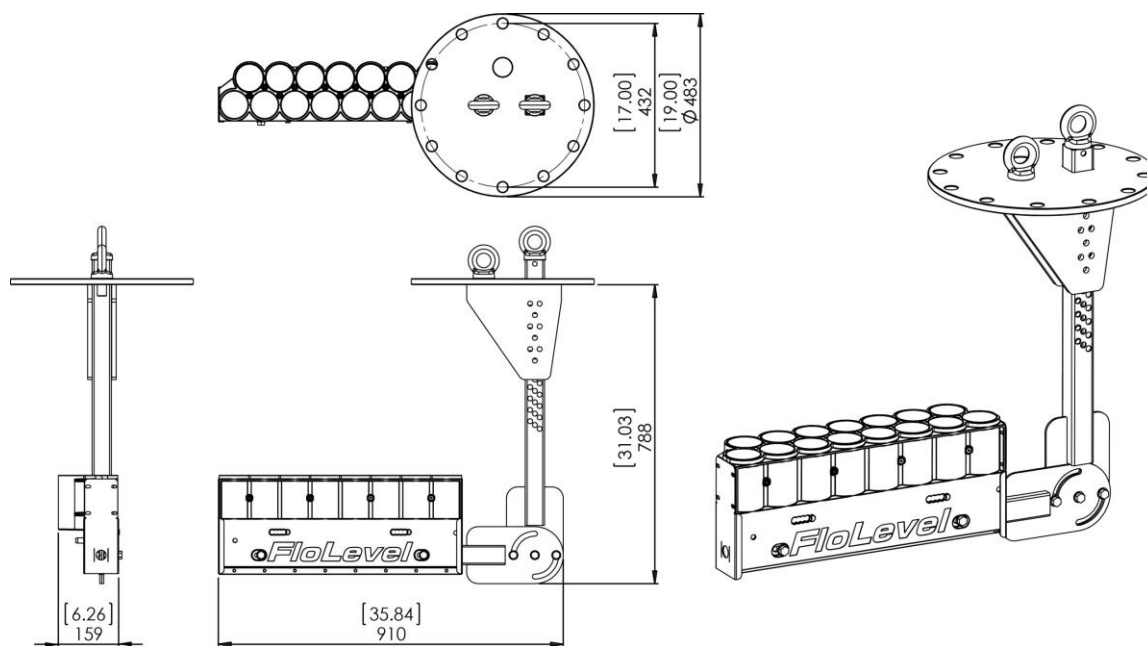
3 x High Resolution Array Control range 0-1950mm (0-75")



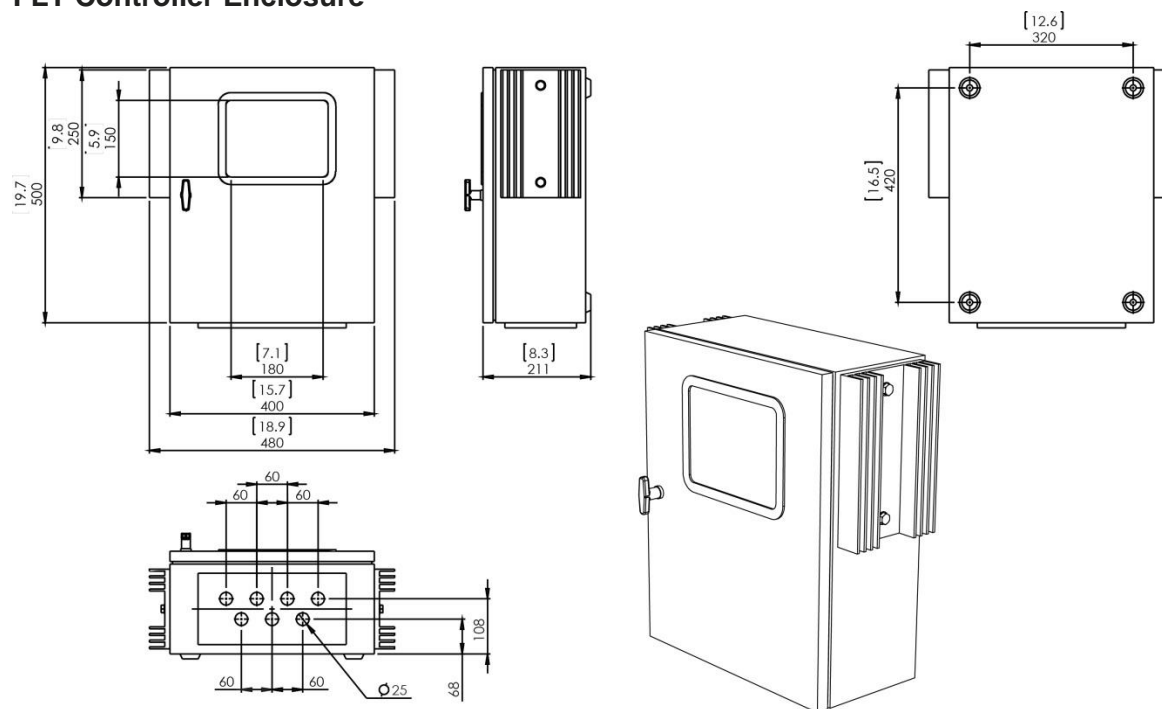
Dual High Resolution Arrays  
Control range 0-1300mm (0-50")



## Single Array High Resolution (1-2mm) control range 0-100 (0-4")

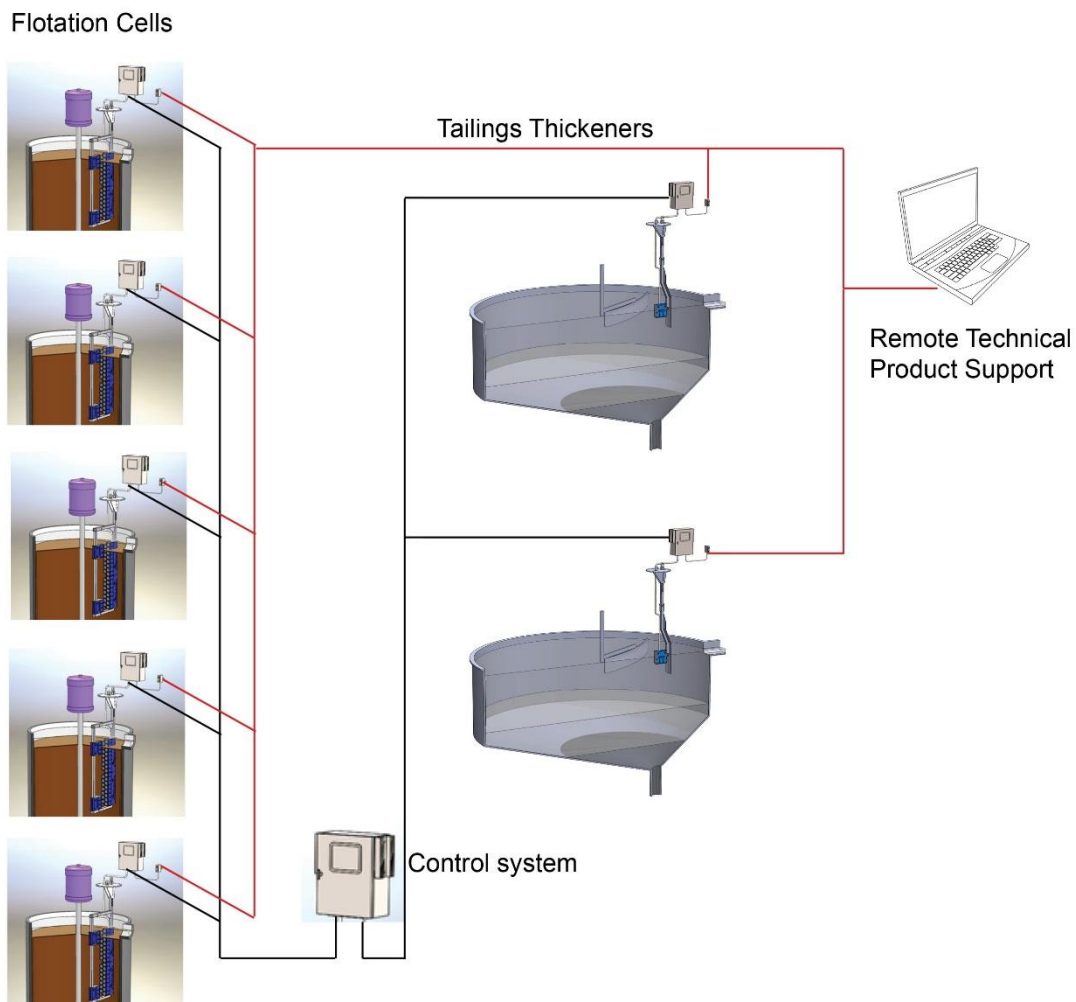


## FLT Controller Enclosure





## Remote Diagnostics

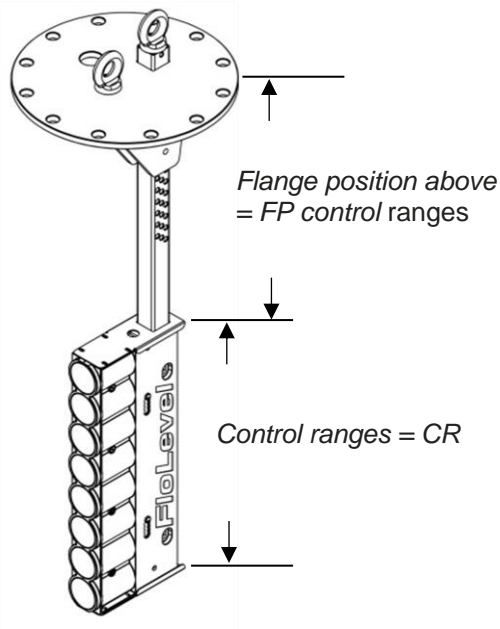


All FloLevel acoustic systems come with a remote diagnostics support module, which provide remote technical support anywhere in the world from factory trained specialists.

Applications that include flotation cells, reagent dosing tanks, mining thickeners that operate 24/7 can be supported remotely through all time zones

## Part Numbers Flotation Level Transmitter (FLT)

A	Control Range = CR	Flange Position Dist = FP	Resolution	Array Transducer Housing Material	Power Supply	Outputs	Cable Length	Flange Type for Mounting Bracket
Product		Above high point control range					Interface Array to Controller	
FLT	0-640mm = 1	1000mm = 1	25mm = 1	ABS = 1	90-265Vac 50/60Hz @10A	3x4-20Ma = 1	5m = 1	12" ANSI = 1
	0-1280mm = 2	1500mm = 2	15mm = 2	Polypropylene = 2		ModBus = 2	15m = 2	Special = 7
	0-1920mm = 3	2000mm = 3		Rubber = 3		ProfiBus = 3	30m = 3	
	0-2560mm = 4	2500mm = 4				Ethernet = 4	50m = 4	
	0-3200mm = 5	3000mm = 5				FF = 5 Foundation Fieldbus	Special = 7	
	0-3840mm = 6	4000mm = 6				Special = 7		
	0-4480mm = 7	Special = 7						
	0-5120mm = 8							
	0-5760mm = 9							
	0-6400mm = 10							
	Inches	Inches	Inches				Feet	
	25" = 1	40" = 1	1.00" = 1				16ft = 1	
	50" = 2	60" = 2	0.6" = 2				50ft = 2	
	75" = 3	80" = 3					100ft = 3	
	100" = 4	100" = 4					165ft = 4	
	125" = 5	120" = 5					Special = 7	
	150" = 6	160" = 6						
	175" = 7	Special = 7						
	200" = 8							
	225" = 9							
	250" = 10							



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