

# RemainingInvalidator

## RemainingInvalidatorLib

The library provides a mechanism to invalidate order based on the remaining amount of the order.

*The remaining amount is used as a nonce to invalidate the order. When order is created, the remaining invalidator is 0. When order is filled, the remaining invalidator is the inverse of the remaining amount.*

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## Functions

### isNewOrder

```
function isNewOrder(RemainingInvalidator invalidator) internal pure returns (bool)
```

Checks if an order is new based on the invalidator value.

### Parameters

Name	Type	Description
invalidator	RemainingInvalidator	The remaining invalidator of the order.

### Return Values

Name	Type	Description
[0]	bool	result Whether the order is new or not.

# remaining

```
function remaining(RemainingInvalidator invalidator) internal pure returns (uint256)
```

Retrieves the remaining amount for an order.

*If the order is unknown, a RemainingInvalidatedOrder error is thrown.*

## Parameters

Name	Type	Description
invalidator	RemainingInvalidator	The remaining invalidator for the order.

## Return Values

Name	Type	Description
[0]	uint256	result The remaining amount for the order.

# remaining

```
function remaining(RemainingInvalidator invalidator, uint256 orderMakerAmount) internal pure returns (uint256)
```

Calculates the remaining amount for an order.

*If the order is unknown, the order maker amount is returned.*

## Parameters

Name	Type	Description
invalidator	RemainingInvalidator	The remaining invalidator for the order.
orderMakerAmount	uint256	The amount to return if the order is new.

## Return Values

Name	Type	Description
[0]	uint256	result The remaining amount for the order.

# remains

```
function remains(uint256 remainingMakingAmount, uint256 makingAmount) internal pure returns (RemainingInvalidator)
```

dator)

Calculates the remaining invalidator of the order.

## Parameters

Name	Type	Description
remainingMakingAmount	uint256	The remaining making amount of the order.
makingAmount	uint256	The making amount of the order.

## Return Values

Name	Type	Description
[0]	RemainingInvalidator	result The remaining invalidator for the order.

## fullyFilled

```
function fullyFilled() internal pure returns (RemainingInvalidator)
```

Provides the remaining invalidator for a fully filled order.

## Return Values

Name	Type	Description
[0]	RemainingInvalidator	result The remaining invalidator for a fully filled order.

## Errors

### RemainingInvalidatedOrder

```
error RemainingInvalidatedOrder()
```

*The error is thrown when an attempt is made to invalidate an already invalidated entity.*

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